

*Toshiba*

H-47

# ELECTRON TUBES

for radio and television broadcast

| Filament<br>or Heater<br>Volts. | Use           | Rectifiers                                                     |                                                       | Detectors       |               | Voltage Amplifiers                                       |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            |                                                                                                                                              |
|---------------------------------|---------------|----------------------------------------------------------------|-------------------------------------------------------|-----------------|---------------|----------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |               | Half Wave                                                      | Full Wave                                             | Single<br>Diode | Twin<br>Diode | Triode                                                   | Diode<br>Triode                      | Twin Triode                                                                                                                 | Dual<br>Triode        | Triode<br>Pentode                                                                                                      | Triple<br>Diode<br>Triode | Diode<br>Triode<br>Pentode | Pentode                                                                                                                                      |
| 0.625~<br>1.25V                 | Sub.<br>mT,GT | 5642<br>1B3GT,1G3GT<br>1V2, 1X2B                               |                                                       |                 |               | 5676<br>573AX                                            |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            | 1AD4<br>5678,                                                                                                                                |
| 1.4V                            | MT            | 1S2A                                                           |                                                       | 1A3             |               |                                                          |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            | 1L4<br>1U4                                                                                                                                   |
| 2.5~2.8V                        | mT,ST         |                                                                |                                                       |                 |               | 2AF4A<br>56                                              |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            | 57                                                                                                                                           |
| 3~5V                            | MT            | 5M-K9                                                          | 5R-K16                                                |                 | 3AL5          |                                                          | 3AV6                                 | 3D-HH12,3D-HH13,<br>4BC8, 4BQ7A,<br>4R-HH2,5J6,5M-HH3                                                                       |                       | 5AN8<br>5U8<br>5EA8                                                                                                    |                           |                            | 3AU6,3BC5<br>3CB6,3DT6<br>3DK6,4EW6<br>4AU6,4CB6                                                                                             |
|                                 | GT/G          | 3A3<br>3B2                                                     | 5R4GT,<br>5U4G<br>5G-K22,<br>5U4GB,<br>5V4G<br>5Y3GT, |                 |               |                                                          |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            |                                                                                                                                              |
| 6.3~10V                         | ST            | 12F<br>80H                                                     | 5Z3<br>80                                             |                 |               |                                                          |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            |                                                                                                                                              |
|                                 | Sub.          | 6X2                                                            |                                                       |                 |               | *5718                                                    |                                      | 6D-HH12,6D-HH13<br>6021, 6032                                                                                               |                       |                                                                                                                        |                           |                            | *5702WA<br>*5899                                                                                                                             |
|                                 | MT            | 6R-K9                                                          | 6CA4<br>6X4<br>6X4W<br>*5993                          |                 | 6AL5<br>*5726 | 6AF4-A<br>6AM4<br>6C4,<br>6FY5<br>6M-64<br>5842<br>*6100 | 6AT6<br>6AV6<br>6BN8<br>6CN7<br>6DC8 | 6AT7, 6AQ8, 6BC8<br>6BQ7A, 6CG7, 6CS7<br>6DT8, 6HK8, 6J6<br>6M-HH3, 7AN7, 7AU7<br>7DJ8, 8CG7, *5670<br>*6101,               | 6CS7<br>10DE7<br>7247 | 6AB8, 6AN8,<br>6AN8A, 6AZ<br>8, 6BA8,<br>6BL8, 6BM8,<br>6EA8, 6EU8,<br>6R-HV1, 6U8,<br>6U8A, 6X8,<br>8B8, 9A8,<br>9U8A | 6T8<br>6T8A               | 6R-<br>DHV1                | 6AH6, 6AK5,<br>6EW6, 6AS6,<br>6AU6, 6AU6<br>A, 6BC5, 6BH<br>6, 6BX6, 6CB6,<br>6CB6A, 6DK6,<br>6DT6, 6R-R8,<br>*5654, *5725, *6<br>136, *6186 |
|                                 | GT/G          | 6AU4GTA<br>6AX4GT<br>6G-K17                                    | 6X5GT                                                 |                 | 6H6GT         | 6BK4<br>6GH4<br>6J5-GT                                   | 6SR7GT<br>6SQ7GT                     | 6SL7GT<br>6SN7GT<br>6SN7GTB                                                                                                 |                       |                                                                                                                        |                           |                            | 6AC7GT<br>6SH7GT<br>6SJ7GT                                                                                                                   |
|                                 | ST/G          |                                                                |                                                       |                 |               | 76                                                       | 6Z-DH3A                              |                                                                                                                             |                       |                                                                                                                        |                           |                            | 6C6                                                                                                                                          |
|                                 | MT            | 12R-K19, 17Z3,<br>19A, 25M-K15,<br>36AM3, 35W4<br>50DC4, 117Z3 |                                                       |                 | 12AL5         | 12B4A                                                    | 12AT6<br>12AV6<br>18FY6<br>26C6      | 12AT7, 12AU7,<br>12AX7, 12AU7-A<br>12AX7A, 12BH7A<br>12AZ7, 12DT8, 17EW8<br>5687, *5751, *5814, 6201<br>6211, *5814A, *6189 |                       | 15DQ8<br>16A8<br>32A8                                                                                                  | 19T8                      | 20R-<br>DHV1               | 12AU6<br>12BY7A                                                                                                                              |
| 12.6~117V                       | GT            | 12AX4GTA<br>12G-K17<br>17AX4GTB<br>23AXGT<br>35Z5GT            |                                                       |                 | 12H6GT        |                                                          | 12SQ7GT<br>12SR7GT<br>12SW7GT        | 12SN7GT<br>12SX7GT                                                                                                          |                       |                                                                                                                        |                           |                            | 12SJ7GT                                                                                                                                      |
|                                 | ST            |                                                                |                                                       |                 |               |                                                          |                                      |                                                                                                                             |                       |                                                                                                                        |                           |                            |                                                                                                                                              |

\* Reliable tubes

▲ Tetrods

## STANDARD SYMBOLS FOR ELECTRONIC TERMS

E<sub>t</sub>a Target Voltage  
 E<sub>f</sub> Filament or Heater Voltage  
 E<sub>c1</sub> Grid-No. 1 Voltage  
 E<sub>c2</sub> Grid-No. 2 Voltage  
 E<sub>c2,4</sub> Grid-No. 2, 4 Voltage  
 E<sub>c3</sub> Grid-No. 3 Voltage  
 E<sub>c4</sub> Grid-No. 4 Voltage  
 e<sub>g3</sub> Peak Grid-No. 3 Voltage  
 E<sub>h</sub>k Heater-Cathode Voltage

E<sub>h</sub>T Heater Tap Voltage  
 E<sub>b</sub> Plate Voltage  
 E<sub>p</sub>p AC Plate Supply Voltage  
 E<sub>p</sub>x Peak Plate Inverse Voltage  
 E<sub>p</sub>y Peak Plate Forward Voltage  
 f Supply Frequency  
 G<sub>c</sub> Conversion Transconductance  
 g<sub>m</sub> Transconductance  
 I<sub>c</sub>r Crater Current

I<sub>f</sub> Filament or Heater Current  
 I<sub>c1</sub> Grid-No. 1 Current  
 I<sub>c2</sub> Grid-No. 2 Current  
 I<sub>c2,4</sub> Grid-No. 2, 4 Current  
 I<sub>c4</sub> Grid-No. 4 Current  
 I<sub>o</sub> Output Current  
 I<sub>b</sub> Plate Current  
 I<sub>peak</sub> Peak Plate Current  
 u Amplification Factor

PE Shadow angle  
 PO Power Output  
 R<sub>g1</sub> Grid-No. 1 Circuit Resistance  
 R<sub>g2</sub> Grid-No. 2 Circuit Resistance  
 R<sub>g3</sub> Grid-No. 3 Circuit Resistance  
 R<sub>k</sub> Cathode Resistance  
 R<sub>L</sub> Load Resistance  
 r<sub>p</sub> Plate Resistance  
 thw Heater Warming Up Time

# CLASSIFICATION CHART

|                 |                                       |                                                |                   | Power Amplifiers |                  |                                                                                                                                                   |                                                                           | Conver-                      | Elect-           | Gated         | Penta-                 | Use                             |           |
|-----------------|---------------------------------------|------------------------------------------------|-------------------|------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------|------------------|---------------|------------------------|---------------------------------|-----------|
| Twin<br>Pentode | Remote-<br>Cutoff                     | Diode<br>Pentode                               | Triode<br>Heptode | Triode           | Twin<br>Triode   | Beam                                                                                                                                              | Pentode                                                                   | ters and<br>Mixers           | ron-Ray<br>Tubes | Beam<br>Tubes | grid<br>Ampli-<br>fier | Filament<br>or Heater<br>Volts. |           |
|                 |                                       |                                                |                   |                  |                  |                                                                                                                                                   | *5672                                                                     | 2G21                         |                  |               |                        | Sub.                            | 0.625~    |
|                 |                                       |                                                |                   |                  |                  |                                                                                                                                                   |                                                                           |                              |                  |               |                        | mT, ST                          | 1.25 V    |
|                 | 1AM4/<br>1T4-SF<br>1T4                | 1AR5/<br>1S5-SF<br>1AS5/<br>1U5-SF<br>1S5, 1U5 |                   |                  | 3A5              |                                                                                                                                                   | 1S4<br>3A4, 3Q4<br>3S4, 3V4<br>3W4/<br>3S4-SF                             | 1AQ5/<br>1R5-SF<br>1R5       |                  |               |                        | MT                              | 1.4V      |
|                 | 58                                    |                                                |                   | 2A3              |                  | 3B4                                                                                                                                               | 2A5<br>3Y-P1<br>3Y4                                                       |                              |                  |               |                        | mT, ST                          | 2.5~2.8V  |
| 3BU8<br>4BU8    | 4GM6<br>3BZ6<br>4BZ6                  |                                                |                   |                  |                  | 5A6<br>5AQ5                                                                                                                                       | 4M-P12                                                                    | 3BE6                         |                  | 3BN6          |                        | MT                              |           |
|                 |                                       |                                                |                   |                  |                  |                                                                                                                                                   |                                                                           |                              |                  |               |                        | GT/G                            | 3~5V      |
|                 |                                       |                                                |                   | 12A              |                  |                                                                                                                                                   |                                                                           |                              |                  |               |                        | ST                              |           |
|                 |                                       |                                                |                   |                  |                  |                                                                                                                                                   |                                                                           |                              |                  |               |                        | Sub.                            |           |
| 6BU8            | 6BA6<br>6BD6<br>6BZ6<br>6GM6<br>*5749 |                                                | 6AJ8              | 6R-A3            | ▲6939            | 6AQ5, 6AQ5A,<br>6BK5, 6BQ5, 6CZ5<br>6R-B11, 6R-P15<br>5763, *6005                                                                                 | 6AR5, 6AS5<br>6CL5, 6DK6<br>6GK6, 6R-P<br>10, 7M-P18,<br>8B8, 8M-P1<br>2, | 6BE6<br>6CG8<br>6X8<br>*5750 | 6M-E5<br>6M-E10  | 6BN6          | 6BY6                   | MT                              | 6.3~10V   |
|                 | 6SD7GT<br>6SG7GT<br>6SK7GT            |                                                |                   | 6G-A4            | 6AS7G,<br>6BX7GT | 6AU5GT, 6BG6, 6BG6GA,<br>6BQ6-GTB/6CU6, 6CB5<br>A, 6D26-A, 6D26-B, 6G-B3<br>A, 6GB7, 6GB8, 6L6-G, 6<br>L6GC, 6L6GT, 6V6-GT,<br>6W6GT, 6Y6G        | 6AG7-GT<br>6F6-GT                                                         | 6SA7GT                       |                  |               |                        | GT/G                            |           |
|                 | 6D6                                   | 6B7                                            |                   |                  |                  |                                                                                                                                                   | 6Z-P1<br>42                                                               | 6A7<br>Ut-6L7G<br>6W-C5      | 6E5<br>6Z-E1     |               |                        | ST/G                            |           |
|                 | 12BA6<br>12BD6<br>18FW6<br>26A6       |                                                | 12AJ7             |                  |                  | 12AQ5, 15CW5,<br>25C5, 30A5, 35C5,<br>50C5                                                                                                        | 19MR10<br>25EH5<br>32A8<br>32ET5<br>50EH5                                 | 12BE6<br>18FX6<br>26D6       |                  |               |                        | MT                              |           |
|                 | 12SK7<br>GT<br>12SG7<br>GT            |                                                |                   |                  |                  | 12BQ6-GTB/12CU6, 12D<br>Q6, 12DQ6A, 12DQ6B, 12<br>G-B3, 12G-B7, 12W6GT,<br>17DQ6B, 25BQ6-GTB/25<br>CU6, 25E5, 25L6GT, 26A7<br>GT, 35L6-GT, 50L6GT |                                                                           | 12SA7GT<br>12SY7GT           |                  |               |                        | GT                              | 12.6~117V |
|                 |                                       |                                                |                   |                  |                  |                                                                                                                                                   |                                                                           |                              |                  |               |                        | ST                              |           |

## LEGEND FOR BASE AND ENVELOPE CONNECTION

### BOTTOM VIEWS

|                |                            |                 |                           |     |                                     |                |                       |
|----------------|----------------------------|-----------------|---------------------------|-----|-------------------------------------|----------------|-----------------------|
| BS             | Base Shell                 | G <sub>2</sub>  | Grid-No. 2                | HCT | Heater Center-Tap                   | P              | Plate                 |
| F              | Filament                   | G <sub>3</sub>  | Grid-No. 3                | HLT | Heater Tap for Panel Lamp           | P <sub>D</sub> | Plate (Diode Unit)    |
| F-             | Filament Negative Terminal | G <sub>4</sub>  | Grid-No. 4                | IC  | Internal Connection<br>(Do not use) | P <sub>T</sub> | Plate (Triode Unit)   |
| F+             | Filament Positive Terminal | G <sub>5</sub>  | Grid-No. 5                | IS  | Internal Shield                     | RC             | Ray Control Electrode |
| FCT            | Filament Center-Tap        | G <sub>1p</sub> | Grid-No. 1 (Pentode Unit) | K   | Cathode                             | SD             | Shield                |
| FE             | Focus Electrode            | G <sub>T</sub>  | Grid (Triode Unit)        | NC  | No Connection                       | TA             | Target                |
| G <sub>1</sub> | Grid-No. 1                 | H               | Heater                    |     |                                     |                |                       |

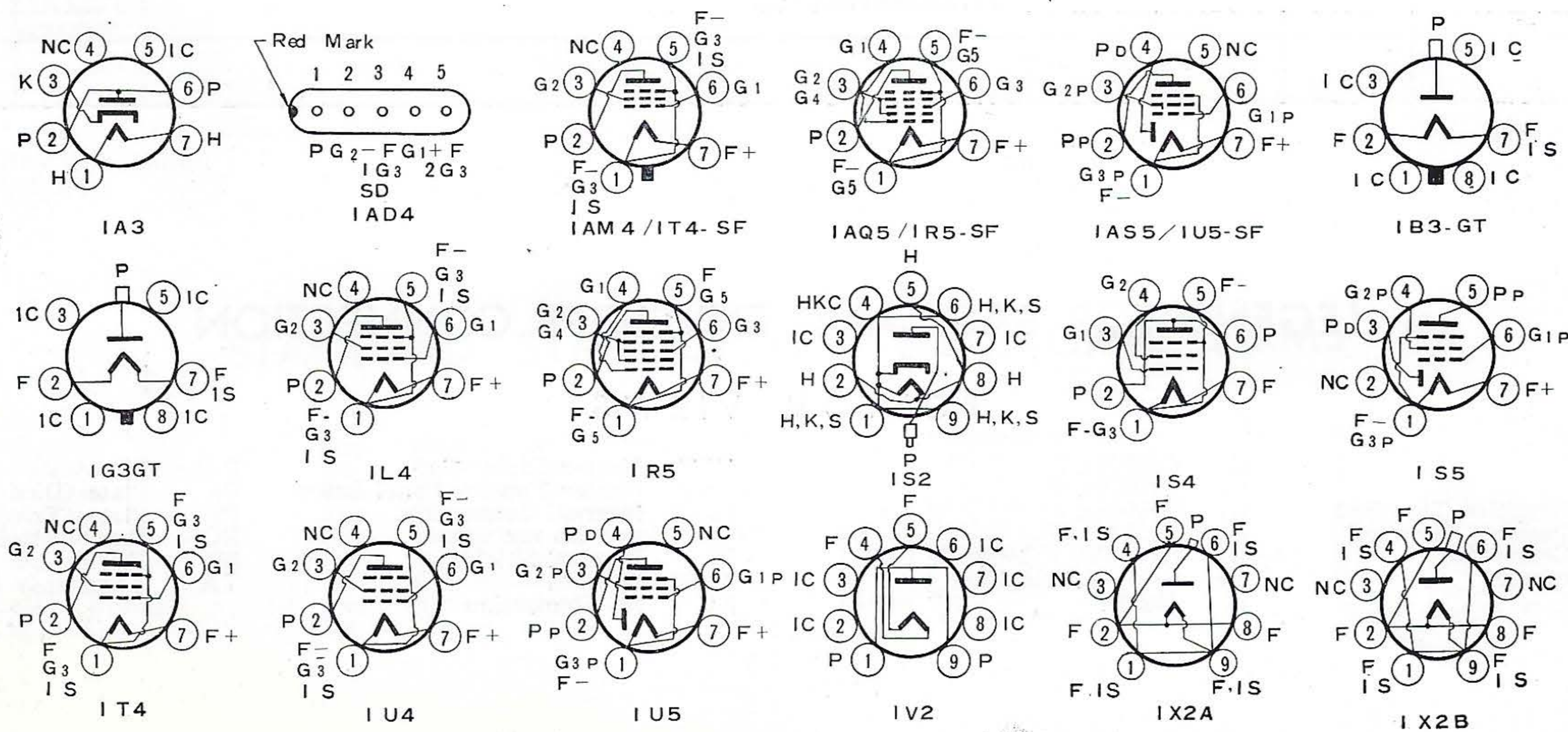
## TOSHIBA ELECTRON TUBES CHARACTERISTICS CHART

Miniature, ST, GT, and Other Types

In this chart, characteristics of Toshiba receiving tube  
are listed in numerical-alphabetical sequence of type designations

1A3 to 1X2B

| Type            | Name                       | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                                    | Ec1<br>(V)   | Ec2<br>(V)     | Ib<br>(mA)         | Ic2<br>(mA)   | rp<br>(KΩ)       | gm or Gc<br>(μS) | μ                                | RL<br>(Ω)      | PO<br>(W)    | Remarks | Type            |                 |
|-----------------|----------------------------|---------------------|-----------|--------------------|-------------|-------------|------------------------------------------------------------------------------|--------------|----------------|--------------------|---------------|------------------|------------------|----------------------------------|----------------|--------------|---------|-----------------|-----------------|
|                 |                            |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                              |              |                |                    |               |                  |                  |                                  |                |              |         |                 |                 |
| 1A3             | HF Diode                   | mT                  | 18-2      | DC H               | 1.4         | 0.15        | Epx. (V) max. 330                                                            |              |                | I peak (mA) max. 5 |               | Io (mA) max. 0.5 |                  | Ehk (V) max. 140                 |                |              |         | 1A3             |                 |
| 1AD4            | RF Amplifier Pentode       | Sub                 | 7-1       | DC F               | 1.25        | 0.1         | 45                                                                           | 0            | 45             | 3.0                | 0.8           | 500              | 2 000            | —                                | —              | —            |         | 1AD4            |                 |
| 1AM4/<br>1T4-SF | Remote Cutoff Pentode      | mT                  | 18-2      | DC F               | 1.4         | 0.025       | 90                                                                           | 0            | 67.5           | 2.4                | 0.9           | 500              | 850              | —                                | —              | —            |         | 1AM4/<br>1T4-SF |                 |
| 1AQ5/<br>1R5-SF | Pentagrid Converter        | mT                  | 18-2      | DC F               | 1.4         | 0.025       | 90                                                                           | Rg1<br>100KΩ | Ec2, 4<br>45   | 0.64               | 1.68          | —                | 250              | Ecs=0, Ic1=1.5mA<br>(Separate)   |                |              |         | 1AQ5/<br>1R5-SF |                 |
| 1AS5/<br>1U5-SF | Diode Sharp-Cutoff Pentode | mT                  | 18-2      | DC F               | 1.4         | 0.025       | 67.5                                                                         | 0            | 67.5           | 0.9                | 0.25          | 800              | 500              | Diode unit Io=0.25mA             |                |              |         | 1AS5/<br>1U5-SF |                 |
| 1B3-GT          | HV Half-Wave Rectifier     | GT                  | 29-16     | F                  | 1.25        | 0.2         | Epx. (V) max. 30 000, I peak (mA) max. 17, Io (mA) max. 2, f (KC) max. 300   |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1B3-GT          |
| 1G3GT/<br>1B3GT | HV Half-Wave Rectifier     | GT                  | 29-03     | F                  | 1.25        | 0.2         | Epx. (V) max. 30 000, I peak (mA) max. 17, Io (mA) max. 2, f(KC) max. 300    |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1G3GT/<br>1B3GT |
| 1L4             | RF Amplifier Pentode       | mT                  | 18-2      | DC F               | 1.4         | 0.05        | 90                                                                           | 0            | 90             | 4.5                | 2             | 350              | 1 025            | —                                | —              | —            |         | 1L4             |                 |
| 1R5             | Pentagrid Converter        | mT                  | 18-2      | DC F               | 1.4         | 0.05        | 90                                                                           | Rg1<br>100KΩ | Ec2, 4<br>67.5 | 1.6                | Ic2, 4<br>3.2 | 600              | 300              | Ecs=0, Ic1=0.25 mA<br>(Separate) |                |              |         | 1R5             |                 |
| 1S2A            | Half-Wave HV Rectifier     | mT                  | 21-07     | H                  | 1.4         | 0.55        | Epx. (V) max. 22 000, I peak (mA) max. 40, Io (mA) max. 0.8                  |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1S2             |
| 1S4             | Power Amplifier Pentode    | mT                  | 18-2      | F                  | 1.4         | 0.1         | 90<br>67.5                                                                   | -7.0<br>-7.0 | 67.5<br>67.5   | 7.4<br>7.2         | 1.4<br>1.5    | 100<br>100       | 1 575<br>1 550   | —<br>—                           | 8 000<br>5 000 | 0.27<br>0.18 |         | 1S4             |                 |
| 1S5             | Diode-Pentode              | mT                  | 18-2      | DC F               | 1.4         | 0.05        | For other characteristics, refer to Type 1U5                                 |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1S5             |
| 1T4             | Remote Cutoff Pentode      | mT                  | 18-2      | DC F               | 1.4         | 0.05        | 90                                                                           | 0            | 67.5           | 3.5                | 1.4           | 500              | 900              | —                                | —              | —            |         | 1T4             |                 |
| 1U4             | Sharp-Cutoff Pentode       | mT                  | 18-2      | DC F               | 1.4         | 0.05        | 90                                                                           | 0            | 90             | 1.6                | 0.5           | 1 000            | 900              | —                                | —              | —            |         | 1U4             |                 |
| 1U5             | Diode-Pentode              | mT                  | 18-2      | DC F               | 1.4         | 0.05        | 67.5                                                                         | 0            | 67.5           | 1.6                | 0.4           | 600              | 625              | Diode unit Io=0.25 mA            |                |              |         | 1U5             |                 |
| 1V2             | Half-Wave HV Rectifier     | mT                  | 21-2      | F                  | 0.625       | 0.3         | Epx. (V) max. 6 600, I peak (mA) max. 10, Io (mA) max. 0.5                   |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1V2             |
| 1X2A            | Half-Wave Rectifier        | mT                  | 21-7      | F                  | 1.25        | 0.2         | Epx. (V) max. 18 000, I peak (mA) 10, Io (mA) max. 1, f (KC) max. 300        |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1X2A            |
| 1X2B            | Half-Wave Rectifier        | mT                  | 21-7      | F                  | 1.25        | 0.2         | Epx. (V) max. 22 000, I peak (mA) max. 45, Io (mA) max. 0.5, f (KC) max. 300 |              |                |                    |               |                  |                  |                                  |                |              |         |                 | 1X2B            |

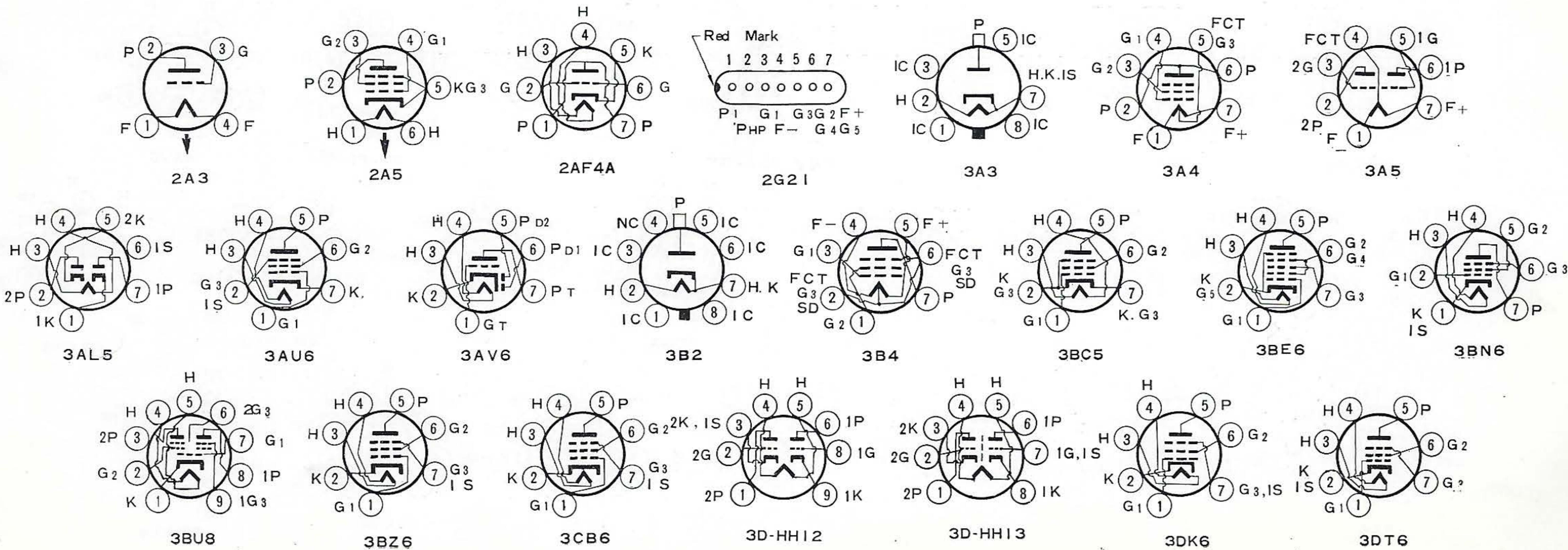


TOSHIBA ELECTRON TUBES CHARACTERISTICS CHART

Miniature, ST, GT, and Other Types

2A3 to 3DT6

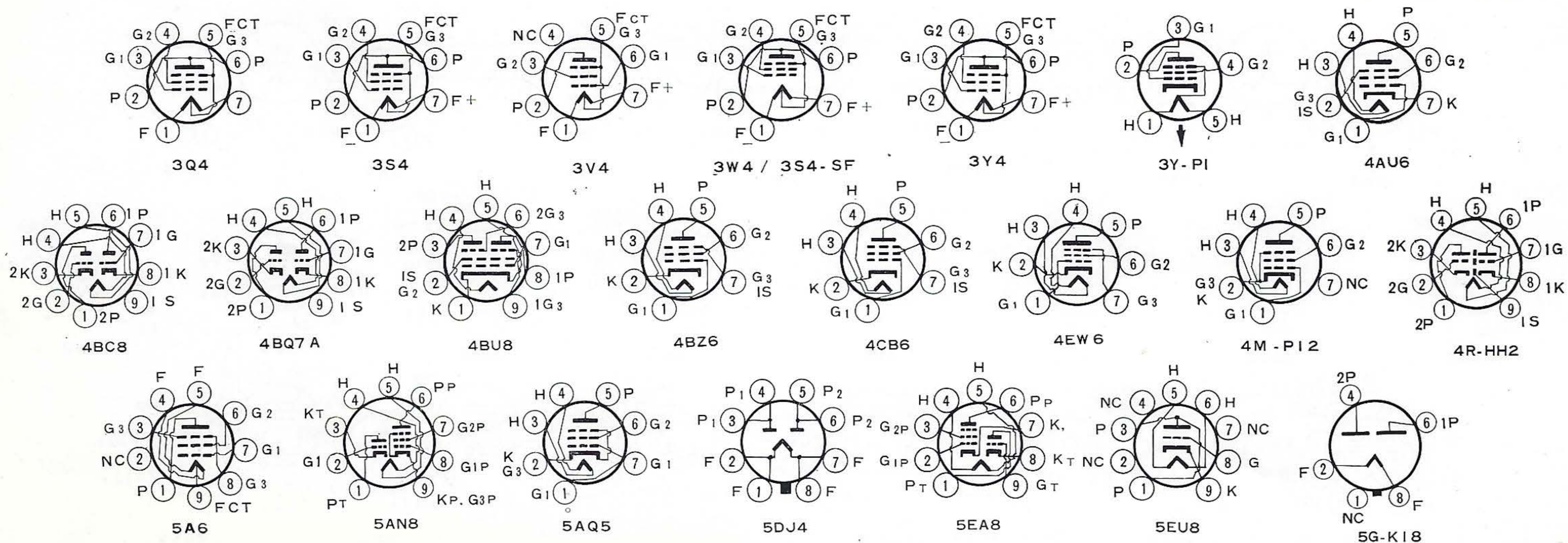
| Type    | Name                      | Bulb Size or Styles | Dimension | Cathode            |             |               | Eb<br>(V)                                                   | Ec1<br>(V) | Ec2<br>(V) | Ib<br>(mA) | Ic2<br>(mA) | rp<br>(KΩ) | gm or Gc<br>(μS) | μ   | RL<br>(Ω) | PO<br>(W) | Remarks       | Type        |         |
|---------|---------------------------|---------------------|-----------|--------------------|-------------|---------------|-------------------------------------------------------------|------------|------------|------------|-------------|------------|------------------|-----|-----------|-----------|---------------|-------------|---------|
|         |                           |                     |           | Heater or Filament | Voltage (V) | Current (A)   |                                                             |            |            |            |             |            |                  |     |           |           |               |             |         |
| 2A3     | Power Amplifier Triode    | ST                  | 50-1      | F                  | 2.5         | 2.5           | 250                                                         | −45        | —          | 60.0       | —           | 0.8        | 5 250            | 4.2 | 2 500     | 3.5       |               | 2A3         |         |
| 2A5     | Power Amplifier Pentode   | ST                  | 45-1      | H                  | 2.5         | 1.75          | For other characteristics, refer to Type 6F6-GT             |            |            |            |             |            |                  |     |           |           |               |             | 2A5     |
| 2AF4A   | UHF Triod OSC             | mT                  | 18-1      | H                  | 2.35        | 0.6           | " 6AF4A                                                     |            |            |            |             |            |                  |     |           |           |               |             | 2AF4A   |
| 2G21    | Triode-Heptode Converter  | Sub                 | 7-1       | DC F               | 1.25        | 0.05          | 22.5                                                        | 0          | 22.5       | 0.2        | 0.3         | 500        | 70               | —   | —         | —         |               | 2G21        |         |
| 3A3     | HV Half-Wave Rectifier    | G                   | 29-12A    | H                  | 3.15        | 0.22          | Epx. (V) max. 30 000, I peak (mA) max. 80, Io (mA) max. 1.5 |            |            |            |             |            |                  |     |           |           |               |             | 3A3     |
| 3A4     | Power Amplifier Pentode   | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.1<br>0.2    | 150                                                         | −8.4       | 90         | 13.3       | 2.2         | 100        | 1 900            | —   | 8 000     | 0.7       |               | 3A4         |         |
| 3A5     | HF Twin-Triode Amplifier  | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.11<br>0.22  | 90                                                          | −2.5       | —          | 3.7        | —           | 8.3        | 1 800            | 15  | —         | —         | (Each Unit)   | 3A5         |         |
| 3AL5    | Twin Diode                | mT                  | 18-1      | H                  | 3.15        | 0.6           | For other characteristics, refer to Type 6AL5               |            |            |            |             |            |                  |     |           |           |               | thw=11 sec. | 3AL5    |
| 3AU6    | Sharp-Cutoff Pentode      | mT                  | 18-2      | H                  | 3.15        | 0.6           | " 6AU6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3AU6    |
| 3AV6    | Twin-Diode High-Mu Triode | mT                  | 18-2      | H                  | 3.15        | 0.6           | " 6AV6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3AV6    |
| 3B2     | Half-Wave Rectifier       | G                   | 38-30A    | H                  | 3.15        | 0.22          | Epx. (V) max. 35 000, I peak (mA) max. 80, Io (mA) max. 1.1 |            |            |            |             |            |                  |     |           |           |               |             | 3B2     |
| 3B4     | HF Beam Pentode           | mT                  | 18-2      | DC F               | 2.5<br>1.25 | 0.165<br>0.33 | 150                                                         | −75        | 135        | 25         | —           | —          | —                | —   | —         | 1.25      | (Max. Rating) | 3B4         |         |
| 3BC5    | Sharp Cutoff Pentode      | mT                  | 18-2      | H                  | 3.15        | 0.6           | For other characteristics, refer to Type 6BC5               |            |            |            |             |            |                  |     |           |           |               | thw=11 sec. | 3BC5    |
| 3BE6    | Pentagrid Converter       | mT                  | 18-2      | H                  | 3.15        | 0.6           | " 6BE6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3BE6    |
| 3BN6    | Gated Beam Discriminator  | mT                  | 18-3      | H                  | 3.15        | 0.6           | " 6BN6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3BN6    |
| 3BU8    | Sharp-Cutoff Twin Pentode | mT                  | 21-3      | H                  | 3.15        | 0.6           | " 6BU8                                                      |            |            |            |             |            |                  |     |           |           |               |             | 3BU8    |
| 3BZ6    | Semiremote-Cutoff Pentode | mT                  | 18-2      | H                  | 3.15        | 0.6           | 200                                                         | Rk=180Ω    | 150        | 11         | 2.6         | 600        | 6 100            | —   | —         | —         | thw=11 sec.   | 3BZ6        |         |
| 3CB6    | Sharp-Cutoff Pentode      | mT                  | 18-2      | H                  | 3.15        | 0.6           | For other characteristics, refer to Type 6CB6               |            |            |            |             |            |                  |     |           |           |               | "           | 3CB6    |
| 3D-HH12 | Twin Triode               | smT                 | 9-04      | H                  | 3.5         | 0.6           | " 3DHH10                                                    |            |            |            |             |            |                  |     |           |           |               | With Shield | 3D-HH12 |
| 3D-HH13 | Twin Triode               | smT                 | 9-04      | H                  | 3.5         | 0.6           | " 3DHH11                                                    |            |            |            |             |            |                  |     |           |           |               | "           | 3D-HH13 |
| 3DK6    | Sharp-Cutoff Pentode      | mT                  | 18-2      | H                  | 3.15        | 0.6           | " 6DK6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3DK6    |
| 3DT6    | Sharp-Cutoff Pentode      | mT                  | 18-2      | H                  | 3.15        | 0.6           | " 6DT6                                                      |            |            |            |             |            |                  |     |           |           |               | "           | 3DT6    |



3Q4 to 5G-K18

Miniature, ST, GT, and

| Type       | Name                                   | Bulb Size or Styles | Dimension | Cathode            |             |               | Eb<br>(V)                                                                                                 | Ec1<br>(V)                   | Ec2<br>(V)       | Ib<br>(mA)          | Ic2<br>(mA)     | rp<br>(KΩ)        | gm or Gc<br>(μS)        | μ            | RL<br>(Ω)             | PO<br>(W)   | Remarks                                                                               | Type       |
|------------|----------------------------------------|---------------------|-----------|--------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------------|------------------------------|------------------|---------------------|-----------------|-------------------|-------------------------|--------------|-----------------------|-------------|---------------------------------------------------------------------------------------|------------|
|            |                                        |                     |           | Heater or Filament | Voltage (V) | Current (A)   |                                                                                                           |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       |            |
| 3Q4        | Power Amplifier Pentode                | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.05<br>0.1   | 90                                                                                                        | -4.5                         | 90               | 9.5                 | 2.1             | 100               | 2 150                   | —            | 10 000                | 0.27        |                                                                                       | 3Q4        |
| 3S4        | Power Amplifier Pentode                | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.05<br>0.1   | 90                                                                                                        | -7                           | 67.5             | 7.4                 | 1.4             | 100               | 1 575                   | —            | 8 000                 | 0.27        |                                                                                       | 3S4        |
| 3V4        | Power Pentode                          | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.05<br>0.1   | For other characteristics, refer to Type 3Q4                                                              |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 3V4        |
| 3W4/3S4-SF | Power Amplifier Pentode                | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.025<br>0.05 | 85                                                                                                        | -5.2                         | 85               | 6.8                 | 1.4             | 150               | 17 000                  | —            | 11 000                | 0.25        |                                                                                       | 3W4/3S4-SF |
| 3Y4        | Power Pentode                          | mT                  | 18-2      | DC F               | 2.8<br>1.4  | 0.025<br>0.05 | 62.5                                                                                                      | -5.4                         | 62.5             | 5                   | 0.95            | 100               | 1 250                   | —            | 9 500                 | —           |                                                                                       | 3Y4        |
| 3Y-P1      | Power Amplifier Pentode                | ST                  | 38-3      | H                  | 2.5         | 0.9           | 180                                                                                                       | -10                          | 180              | 15.0                | 2.5             | 130               | 1 750                   | —            | 12 000                | 1.0         |                                                                                       | 3Y-P1      |
| 4AU6       | Sharp-Cutoff Pentode                   | mT                  | 18-2      | H                  | 4.2         | 0.45          | 250<br>100<br>250                                                                                         | Rk=68Ω<br>Rk=150Ω<br>Rk=330Ω | -150<br>100<br>— | 10.6<br>5.0<br>12.2 | 4.3<br>2.1<br>— | 1 000<br>500<br>— | 5 200<br>3 900<br>4 800 | —<br>—<br>36 | —<br>—<br>—           | —<br>—<br>— | Pentode connection<br>Triode connection (G <sub>2</sub> , G <sub>3</sub> and P trid.) | 4AU6       |
| 4BC8       | Medium-Mu Twin Triode                  | mT                  | 21-2      | H                  | 4.2         | 0.6           | 150                                                                                                       | Rk=220Ω                      | —                | 10                  | —               | 5.65              | 6 200                   | 35           | (Each Triode)         | thw=11 sec. |                                                                                       | 4BC8       |
| 4BQ7A      | Medium-Mu Twin Triode                  | mT                  | 21-2      | H                  | 4.2         | 0.6           | For other characteristics, refer to Type 6BQ7-A                                                           |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 4BQ7A      |
| 4BU8       | Twin Pentode                           | mT                  | 21-3      | H                  | 4.2         | 0.45          | 100<br>100                                                                                                | Ic1=0.1mA<br>0               | 67.5<br>67.5     | 2.2<br>—            | 5.0<br>—        | —<br>—            | —<br>1 500              | —<br>—       | Ec3=0V<br>Ec3=0V      | —<br>—      |                                                                                       | 4BU8       |
| 4BZ6       | Semiremote Cutoff Pentode              | mT                  | 18-2      | H                  | 4.2         | 0.45          | 125<br>125                                                                                                | Rk=56Ω<br>-4.5               | 125<br>125       | 14.0<br>—           | 3.6<br>—        | 260<br>—          | 8 000<br>700            | —<br>—       | —<br>—                | —<br>—      |                                                                                       | 4BZ6       |
| 4CB6       | Sharp-Cutoff Pentode                   | mT                  | 18-2      | H                  | 4.2         | 0.45          | 125<br>125                                                                                                | Rk=56Ω<br>-3.0               | 125<br>125       | 13.0<br>2.8         | 3.7<br>—        | 280<br>—          | 8 000<br>—              | —<br>—       | —<br>—                | —<br>—      |                                                                                       | 4CB6       |
| 4EW6       | Sharp-Cutoff RF Pentode                | mT                  | 18-2      | H                  | 4.2         | 0.6           | 125                                                                                                       | Rk=56Ω                       | 125              | 3.2                 | 200             | 14 000            | —                       |              |                       |             |                                                                                       | 4EW6       |
| 4M-P12     | Power Amplifier Pentode                | mT                  | 18-3      | H                  | 4.2         | 0.6           | For other characteristics, refer to Type 8M-P12                                                           |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 4M-P12     |
| 4R-HH2     | Medium-Mu Twin Triode                  | mT                  | 21-2      | H                  | 4.2         | 0.6           | 90                                                                                                        | -1.0                         | —                | 8.5                 | —               | 4.5               | 8 000                   | 36           | Cutoff volts -5.5     |             |                                                                                       | 4R-HH2     |
| 5A6        | HF Beam Pentode                        | mT                  | 21-3      | F                  | 5.0<br>2.5  | 0.23<br>0.46  | 150                                                                                                       | -24                          | 150              | 40                  | 11.0            | —                 | —                       | —            | —                     | 3.1         | Class C<br>f=70Mc                                                                     | 5A6        |
| 5AN8       | Medium-Mu Triode, Sharp Cutoff Pentode | mT                  | 21-3      | H                  | 4.7         | 0.6           | 200<br>200                                                                                                | Rk=180Ω<br>-6                | 150<br>—         | 9.5<br>1.3          | 2.8<br>—        | 300<br>5.75       | 6 200<br>3 300          | 19           | (Pentode)<br>(Triode) |             |                                                                                       | 5AN8       |
| 5AQ5       | Beam Power Amplifier                   | mT                  | 18-3      | H                  | 4.7         | 0.6           | For other characteristics, refer to Type 6AQ5                                                             |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 5AQ5       |
| 5DJ4       | Full-Wave Rectifier                    | GT                  | 38-14     | F                  | 5.0         | 3.0           | Peak Inverse Voltage max. 1 550 V, Output Current max. 275 mA, max. Peak plate Current (each plate) 1.0 A |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 5DJ4       |
| 5EA8       | Medium-Mu Triode Sharp Cutoff Pentode  | mT                  | 21-2      | H                  | 4.7         | 0.6           | For other characteristics, refer to Type 6EA8                                                             |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 5EA8       |
| 5EU8       | Triode-Pentode                         | mT                  | 21-2      | H                  | 4.7         | 0.6           | 6EU8                                                                                                      |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 5EU8       |
| * 5G-K18   | Full-Wave Rectifier                    | G                   | 38-05     | F                  | 5.0         | 3.0           | Epx. (V) max. 1 550, 1 peak (A) max. 1 (each plate), Io(mA) max. 300, Epp (V) max. 550                    |                              |                  |                     |                 |                   |                         |              |                       |             |                                                                                       | 5G-K18     |

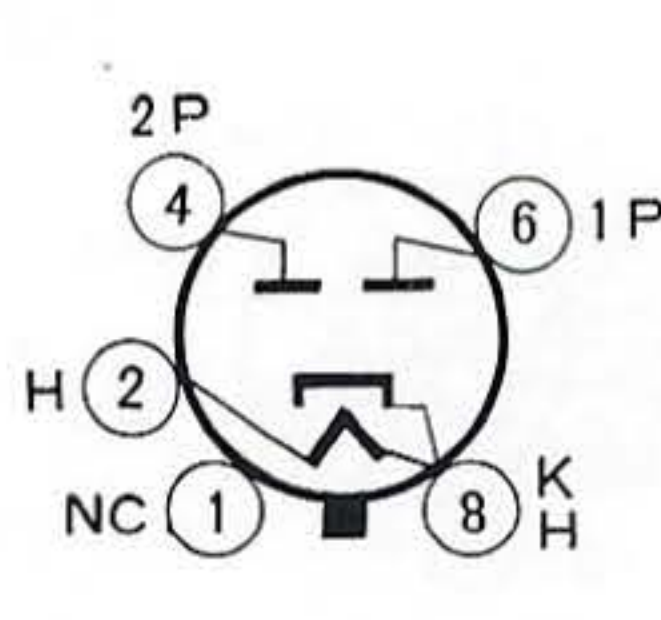


## CHARACTERISTICS CHART

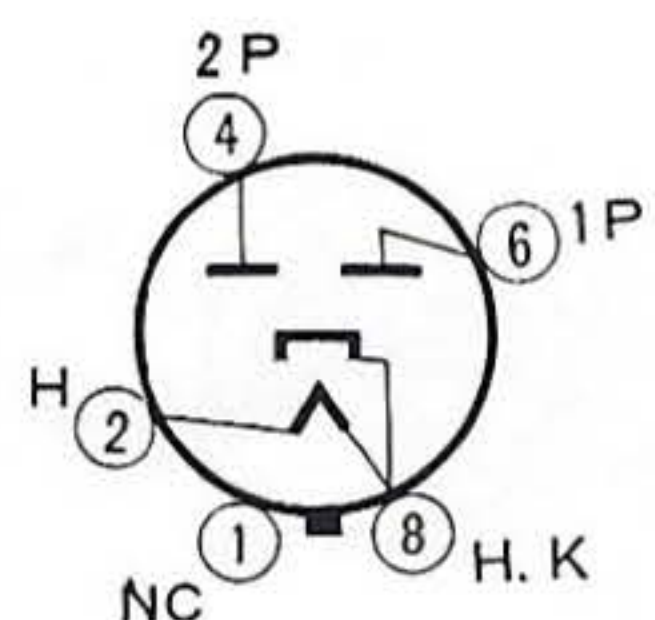
other Types

5G-K22 to 6AL3

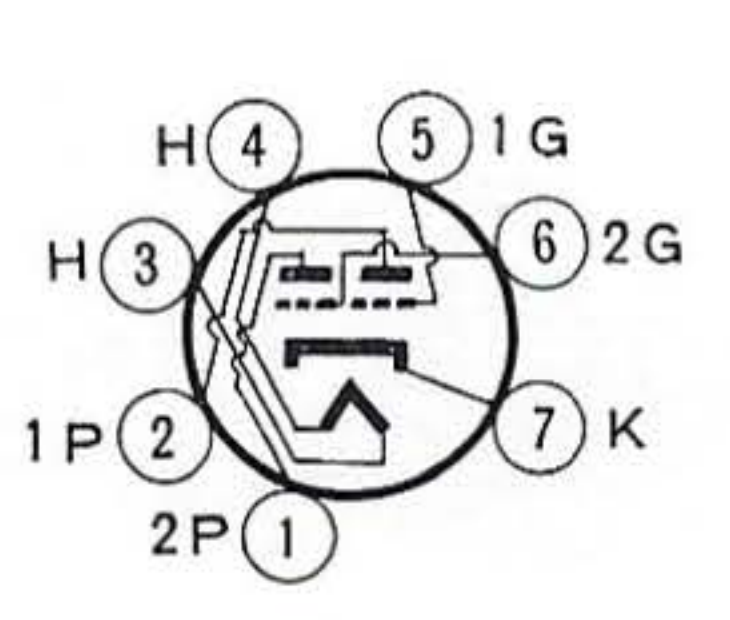
| Type     | Name                       | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                                                                                                                                          | Ec <sub>1</sub><br>(V) | Ec <sub>2</sub><br>(V)                 | I <sub>b</sub><br>(mA) | Ic <sub>2</sub><br>(mA) | r <sub>p</sub><br>(KΩ) | g <sub>m</sub> or G <sub>c</sub><br>(μS) | μ                                                                                                                         | RL<br>(Ω)             | PO<br>(W) | Remarks | Type        |         |
|----------|----------------------------|---------------------|-----------|--------------------|-------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------|------------------------|-------------------------|------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------|---------|-------------|---------|
|          |                            |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                                                                                                                                    |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             |         |
| 5G-K22   | Full-Wave Rectifier        | G                   | 35-1      | H                  | 5.0         | 3.0         | For other characteristics, refer to Type 5G-K18                                                                                                                                    |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5G-K22  |
| * 5G-K24 | Full-Wave Rectifier        | GT                  | 29-2C     | H                  | 5.0         | 1.9         | Epx. (V) max. 1500, I peak (mA) max. 750, I <sub>o</sub> (mA) max. 250                                                                                                             |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5G-K24* |
| 5J6      | Medium-Mu Twin Triode      | mT                  | 18-2      | H                  | 4.7         | 0.6         | For other characteristics, refer to Type 6J6                                                                                                                                       |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         | thw=11 sec. | 5J6     |
| 5M-HH3   | Medium-Mu Twin Trinde      | mT                  | 18-2      | H                  | 4.7         | 0.6         | 100                                                                                                                                                                                | —1                     | —                                      | 11.0                   | —                       | —                      | 7 500                                    | 38                                                                                                                        | —                     | —         |         |             | 5M-HH3  |
| 5M-K9    | Half-Wave Rectifier        | mT                  | 18-3      | H                  | 5.0         | 0.6         | Epx. (V) max. 1000 I peak (mA) max. 360, Epp (V) max. 350 I <sub>o</sub> (mA) max. 60                                                                                              |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5M-K9   |
| 5R4GY    | Full-Wave Rectifier        | G                   | 50-2      | F                  | 5.0         | 2.0         | Epx.=2 800 max. I peak=650 mA (each plate). I <sub>o</sub> =150 mA max.                                                                                                            |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5R4GY   |
| 5R-K16   | Full-Wave Rectifier        | mT                  | 21-4      | H                  | 5.0         | 1.2         | Epx. (V) max. 1 100, I peak (mA) max. 450, Eac (V) max. 350, (each plate) I <sub>o</sub> (mA) max. 150                                                                             |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5R-K16  |
| 5U4G     | Full-Wave Rectifier        | G                   | 50-2      | F                  | 5.0         | 3.0         | Epx. (V) max. 1 550, I peak (mA) max. 675, Epp (V) max. $\frac{450}{550}$ , I <sub>o</sub> (mA) max. $\frac{225}{225}$ $\left(\begin{smallmatrix} C \\ L \end{smallmatrix}\right)$ |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5U4G    |
| 5U4GB    | Full-Wave Rectifier        | G                   | 38-01     | F                  | 5.0         | 3.0         | Epx. (V) max. 1 550, I peak (A) max. 1 (each plate), I <sub>o</sub> (mA) max. 300, Epp (V) max. 550                                                                                |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5U4GB   |
| 5U8      | RF Triode Pentode          | mT                  | 21-2      | H                  | 4.7         | 0.6         | For other characteristics, refer to Type 6U8                                                                                                                                       |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         | thw=11 sec. | 5U8     |
| 5V4G     | Full-Wave Rectifier        | G                   | 45-2      | H                  | 5.0         | 2.0         | Epx. (V) max. 1 400, I peak (mA) max. 525, Epp (V) max. $\frac{375}{500}$ , I <sub>o</sub> (mA) max. $\frac{175}{175}$ $\left(\begin{smallmatrix} C \\ L \end{smallmatrix}\right)$ |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             |         |
| 5Y3GT    | Full-Wave Rectifier        | GT                  | 29-3A     | F                  | 5.0         | 2.0         | Epx. (V) max. 1 400, I peak (mA) max. 400, Epp (V) max. $\frac{350}{500}$ , I <sub>o</sub> (mA) max. $\frac{125}{125}$ $\left(\begin{smallmatrix} C \\ L \end{smallmatrix}\right)$ |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5Y3GT   |
| 5Z3      | Full-Wave Rectifier        | ST                  | 50-1      | F                  | 5.0         | 3.0         | For other characteristics, refer to Type 5U4-G                                                                                                                                     |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 5Z3     |
| 6A7      | Pentagrid Converter        | ST                  | 38-1      | H                  | 6.3         | 0.3         | 250                                                                                                                                                                                | Ec <sub>4</sub> =—3    | Ec <sub>3, 5</sub> = $\frac{100}{100}$ | 4.5                    | Ic <sub>3, 5</sub> =4   | 400                    | 700                                      | Ec <sub>2</sub> =250V, Rg <sub>2</sub> =20KΩ, Rg <sub>1</sub> =50 KΩ, Ec <sub>1</sub> =10V(r.m.s), Ic <sub>2</sub> =4.2mA |                       |           |         |             | 6A7     |
| 6AB8     | Triode-Pentode             | mT                  | 21-3      | H                  | 6.3         | 0.3         | $\frac{200}{100}$                                                                                                                                                                  | $\frac{-8}{0}$         | $\frac{200}{—}$                        | $\frac{17.5}{8.0}$     | $\frac{3.3}{—}$         | 150                    | $\frac{3\ 300}{1\ 900}$                  | 20                                                                                                                        |                       |           |         | 6AB8        |         |
| 6AC7GT   | Sharp-Cutoff Pentode       | GT                  | 29-2B     | H                  | 6.3         | 0.45        | 300                                                                                                                                                                                | Rk=160Ω                | 150                                    | 10                     | 2.5                     | 1 000                  | 9 000                                    | —                                                                                                                         | —                     | —         |         | 6AC7GT      |         |
| 6AF4A    | Medium-Mu Triode           | mT                  | 18-1      | H                  | 6.3         | 0.225       | 100                                                                                                                                                                                | Rg=10KΩ                | —                                      | 17                     | —                       | 2.1                    | 6 500                                    | 13.5                                                                                                                      | 220                   | —         |         | 6AF4A       |         |
| 6AG7GT   | Power Amplifier Pentode    | GT                  | 29-4B     | H                  | 6.3         | 0.65        | 300                                                                                                                                                                                | —3                     | 150                                    | 30                     | 7                       | 130                    | 11 000                                   | —                                                                                                                         | 10 000                | 3.0       |         | 6AG7GT      |         |
| 6AH6     | Sharp-Cutoff Pentode       | mT                  | 18-2      | H                  | 6.3         | 0.45        | 300                                                                                                                                                                                | Rk=160Ω                | 150                                    | 10                     | 2.5                     | 500                    | 9 000                                    | —                                                                                                                         | —                     | —         |         | 6AH6        |         |
| 6AJ8     | Triode-Heptode             | mT                  | 21-3      | H                  | 6.3         | 0.3         | $\frac{100}{250}$                                                                                                                                                                  | $\frac{-3.3}{-2}$      | $\frac{—}{100}$                        | $\frac{4.5}{3.3}$      | $\frac{—}{6.7}$         | —                      | $\frac{1\ 700}{2\ 400}$                  | $\frac{14.5}{—}$                                                                                                          | (Triode)<br>(Heptode) |           |         | 6AJ8        |         |
| 6AK5     | Sharp-Cutoff Pentode       | mT                  | 18-1      | H                  | 6.3         | 0.175       | 180                                                                                                                                                                                | Rk=180Ω                | 120                                    | 7.7                    | 2.4                     | 500                    | 5 100                                    | —                                                                                                                         | —                     | —         |         | 6AK5        |         |
| * 6AL3   | Half-Wave Vacuum Rectifier | mT                  | 21-08     | H                  | 0.3         | 1.55        | Epx. (V) max. 7 500, I peak (mA) max. 505, I <sub>o</sub> (mA) max. 220, Pp (W) max. 5                                                                                             |                        |                                        |                        |                         |                        |                                          |                                                                                                                           |                       |           |         |             | 6AL3*   |



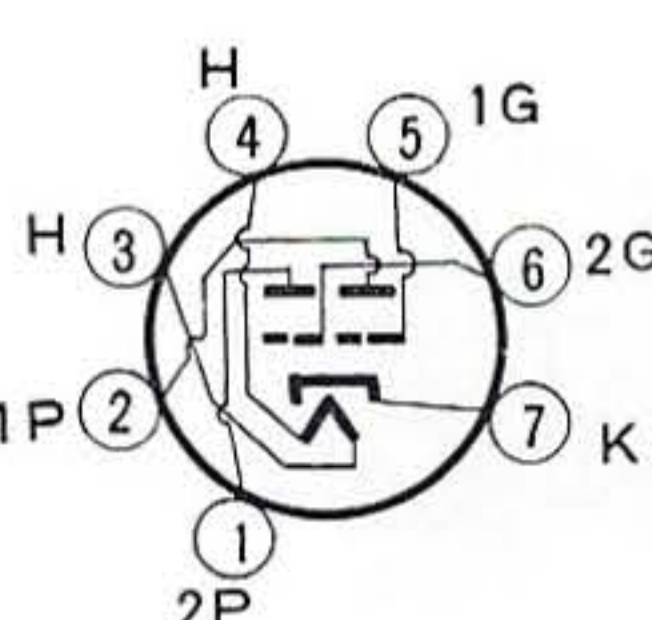
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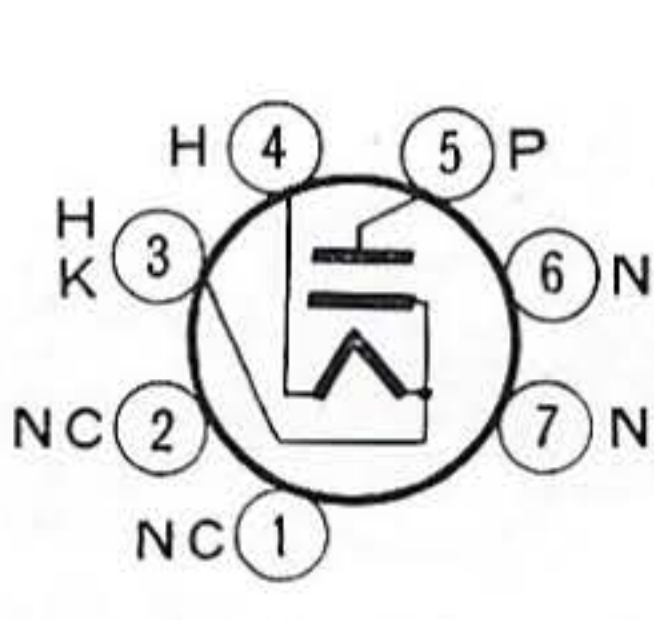
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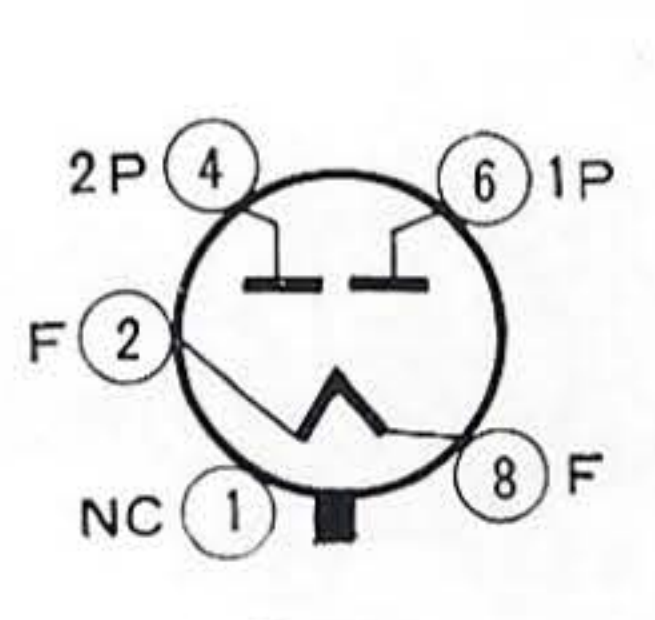
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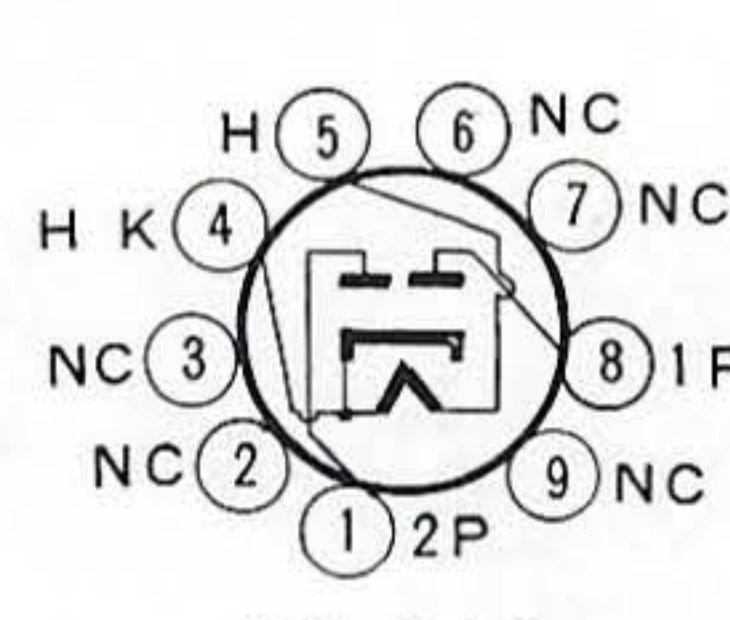
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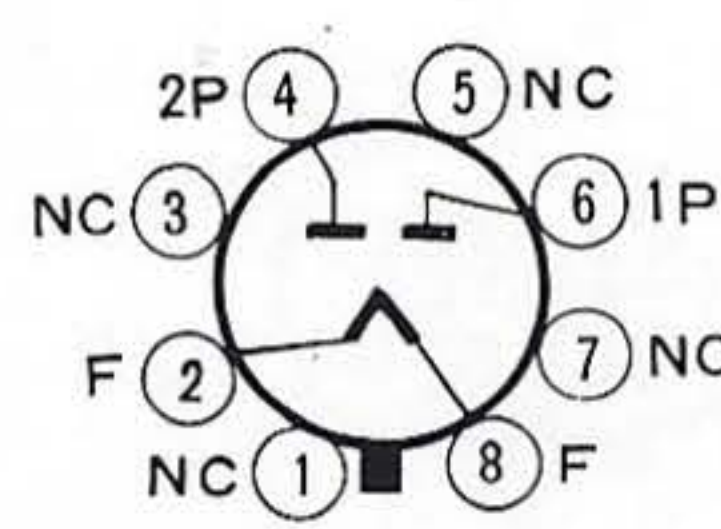
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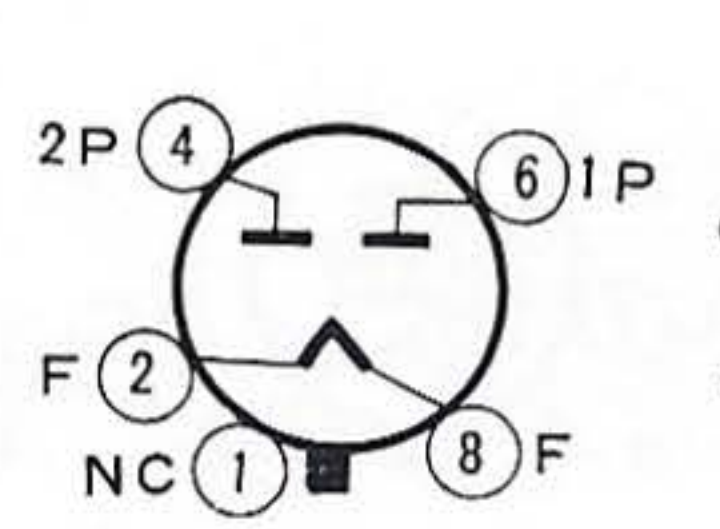
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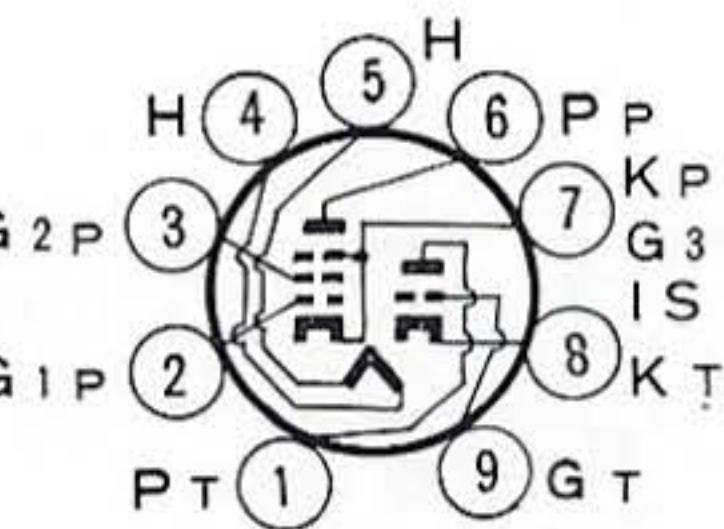
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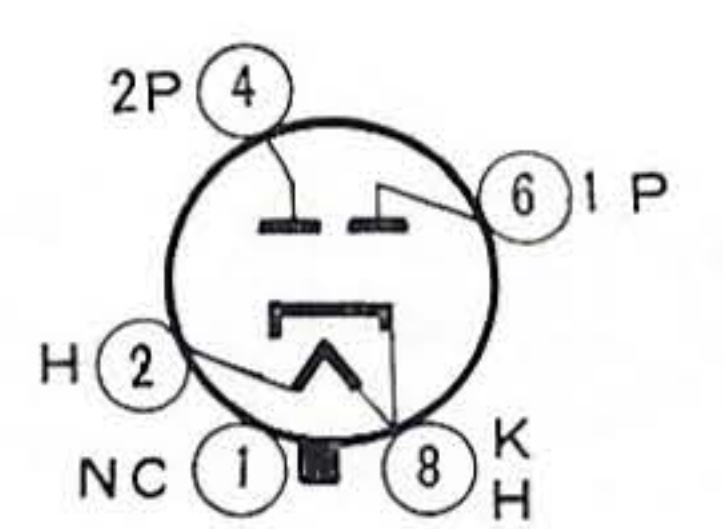
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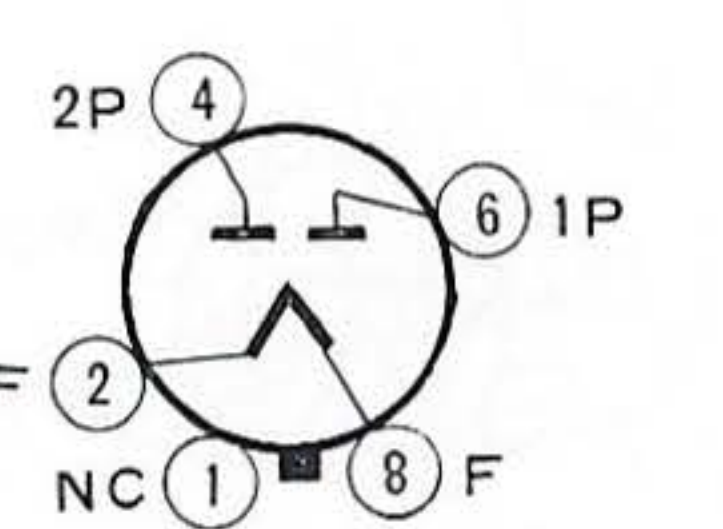
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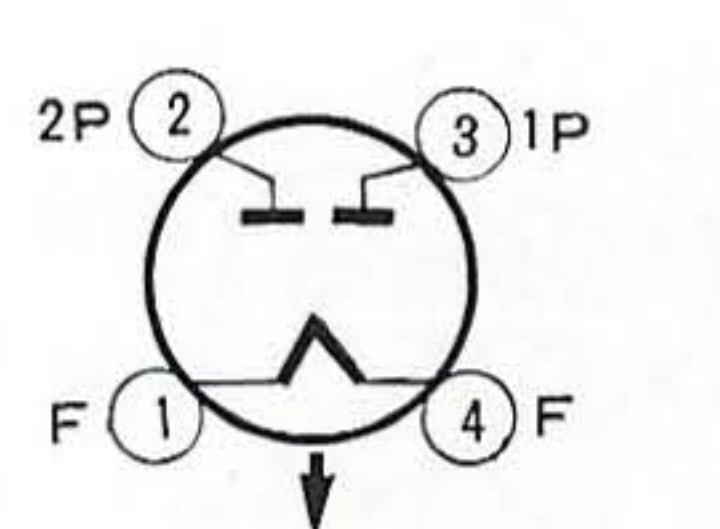
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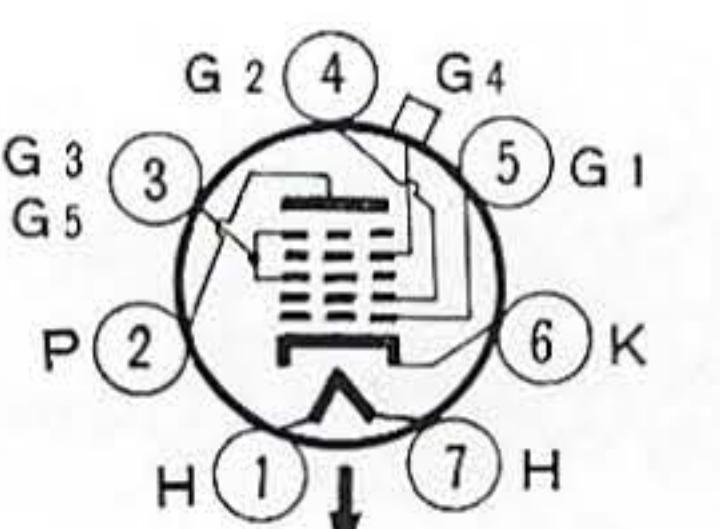
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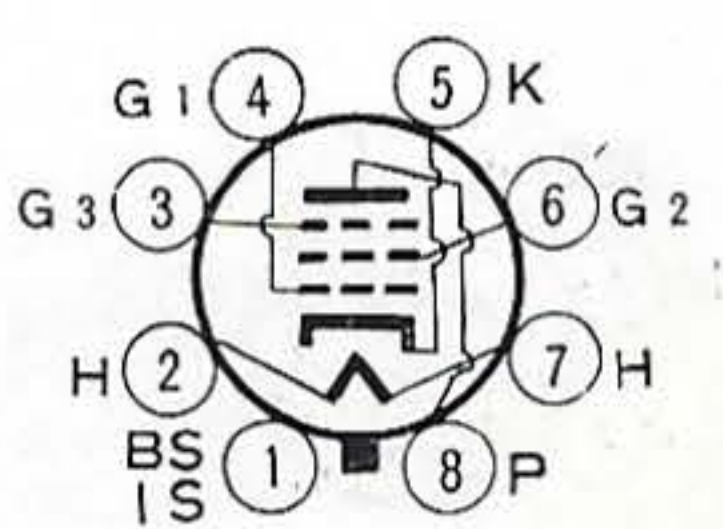
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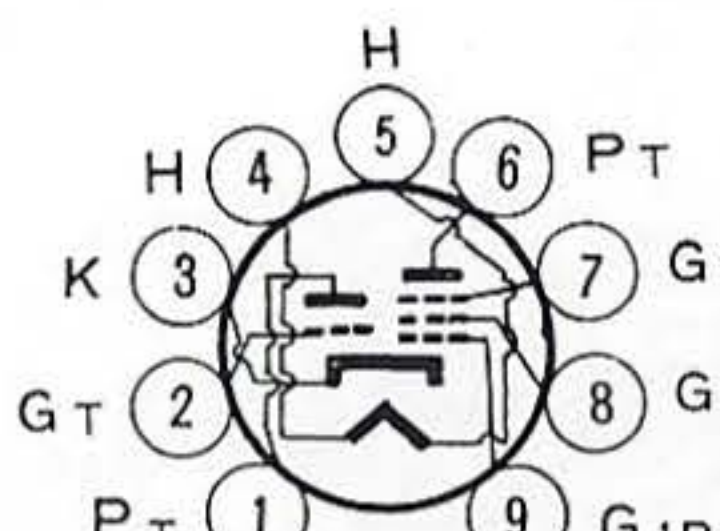
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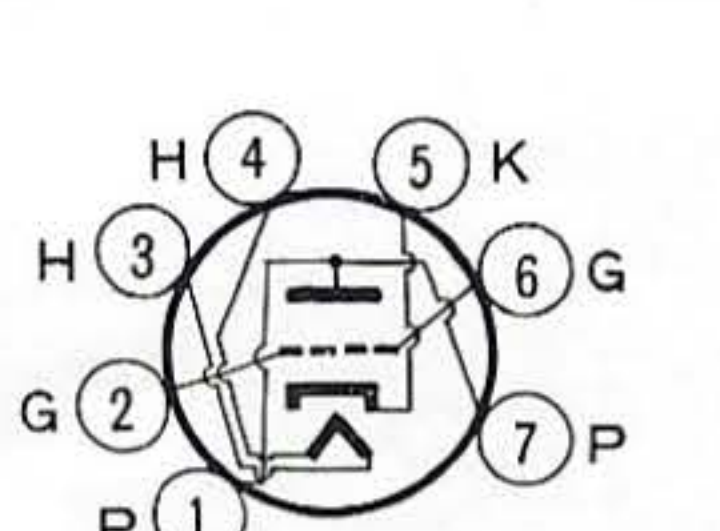
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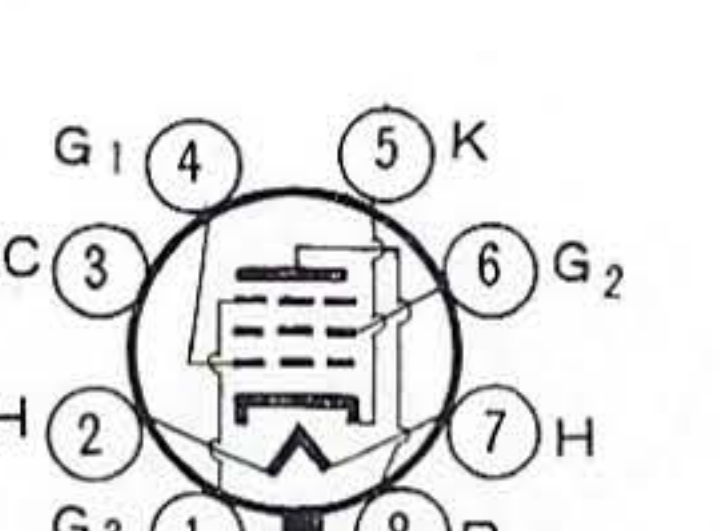
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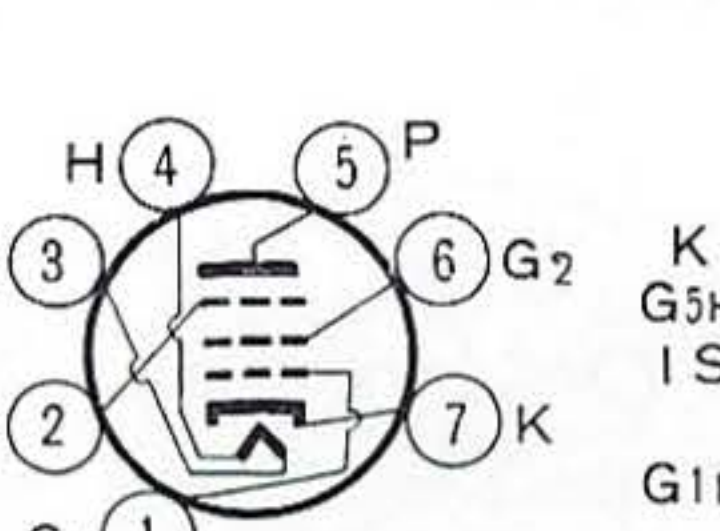
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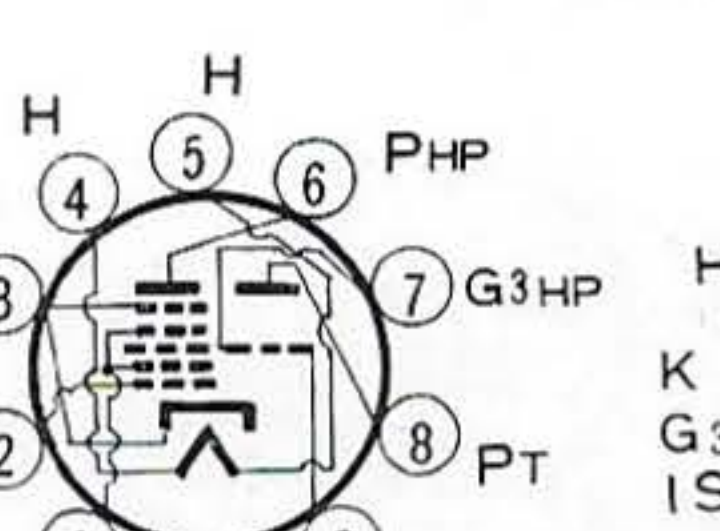
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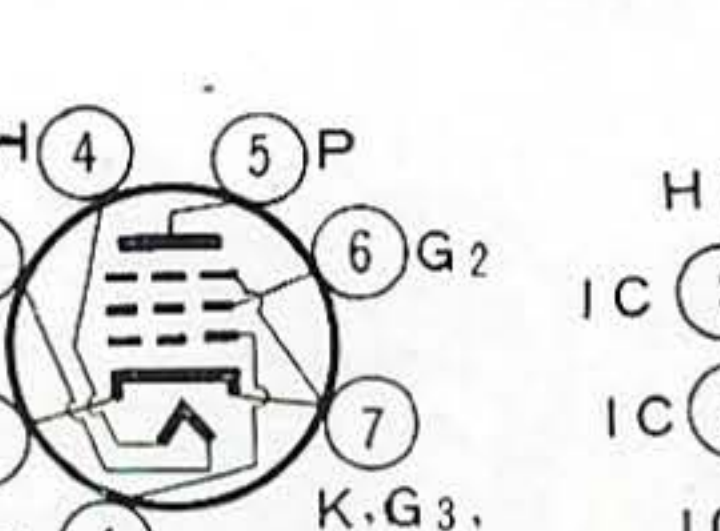
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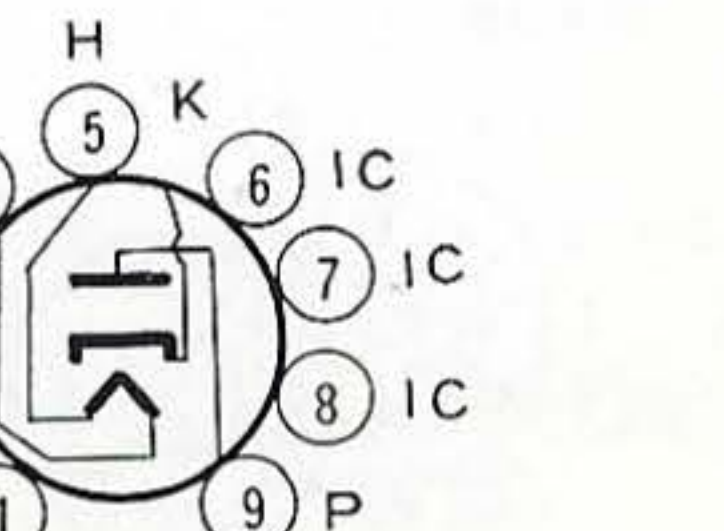
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6AJ8



6AK5



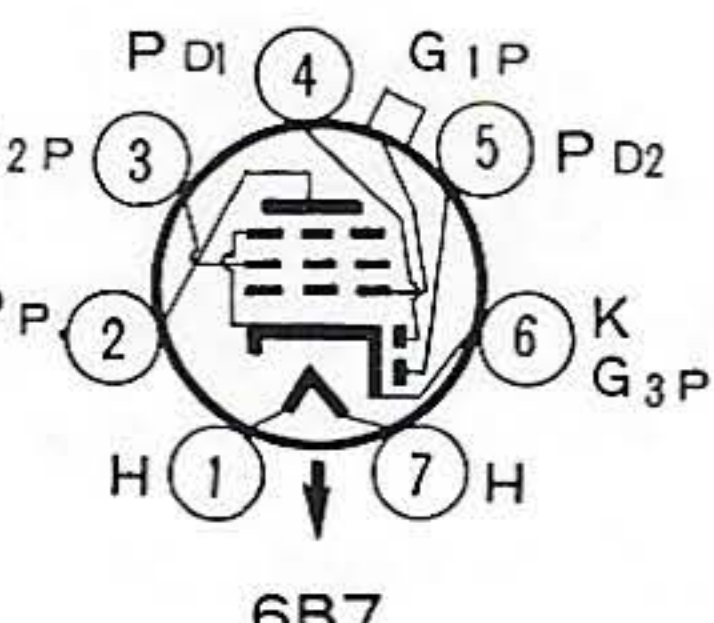
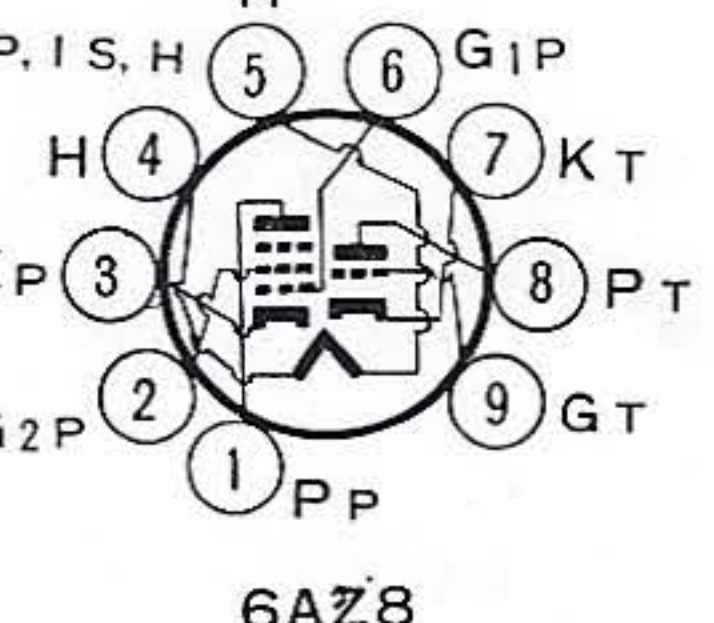
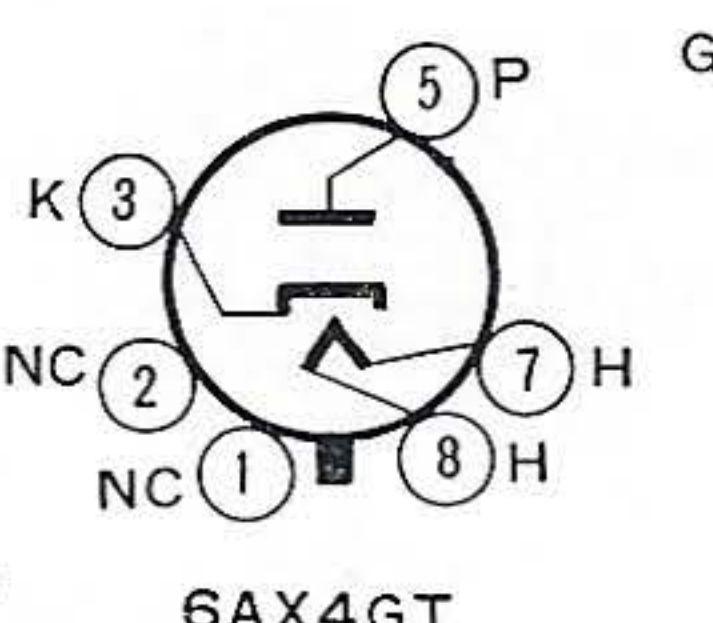
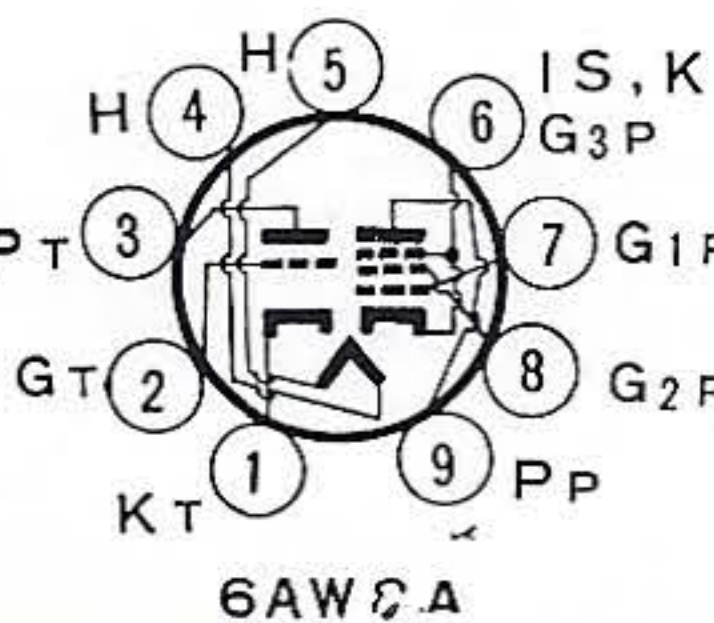
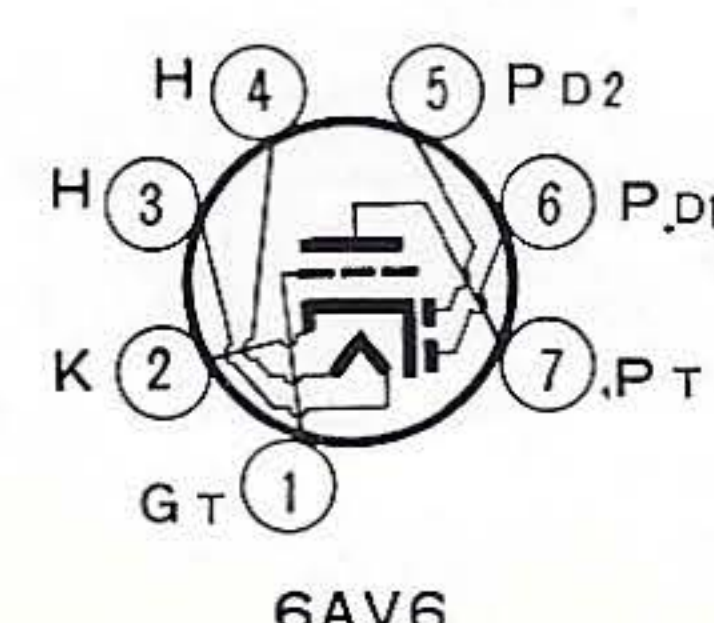
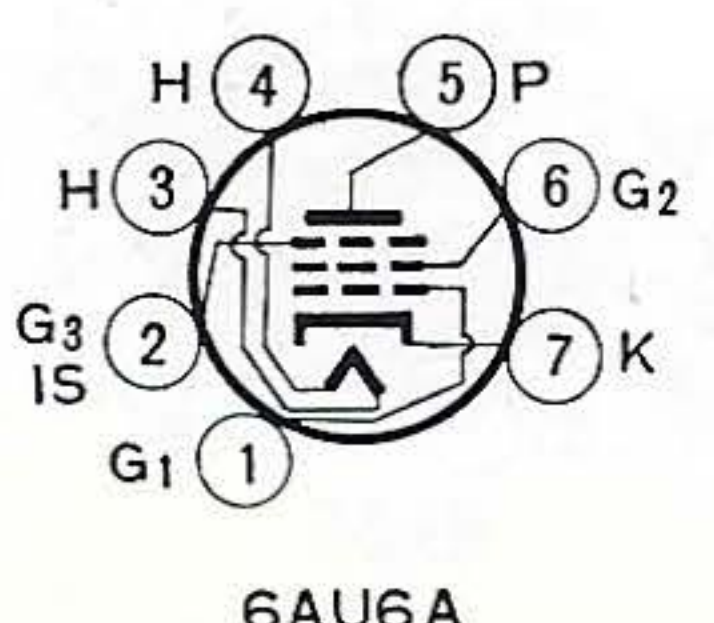
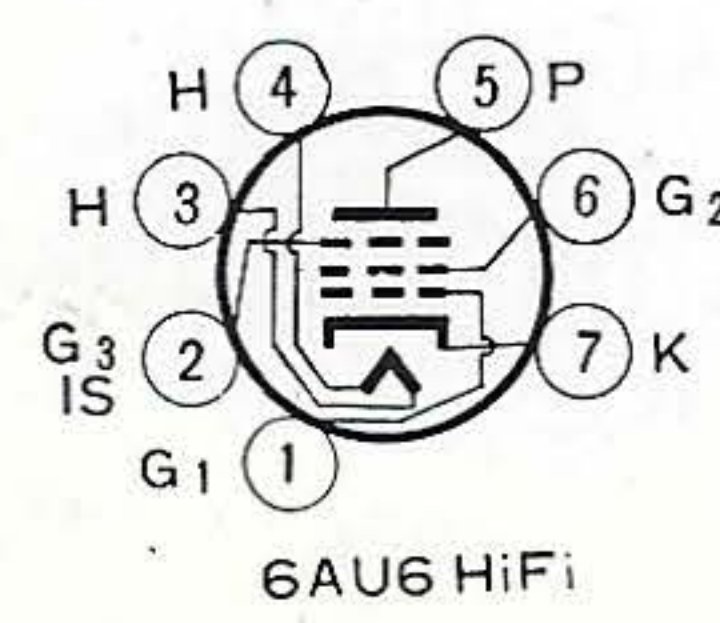
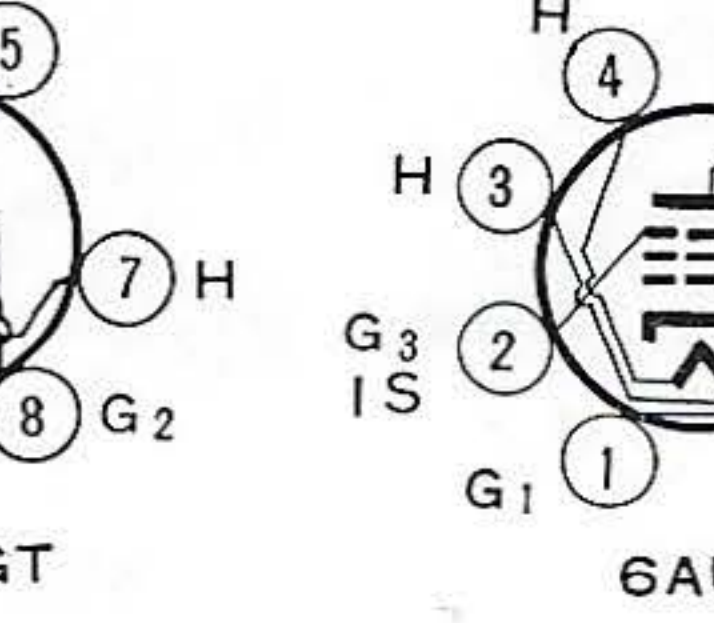
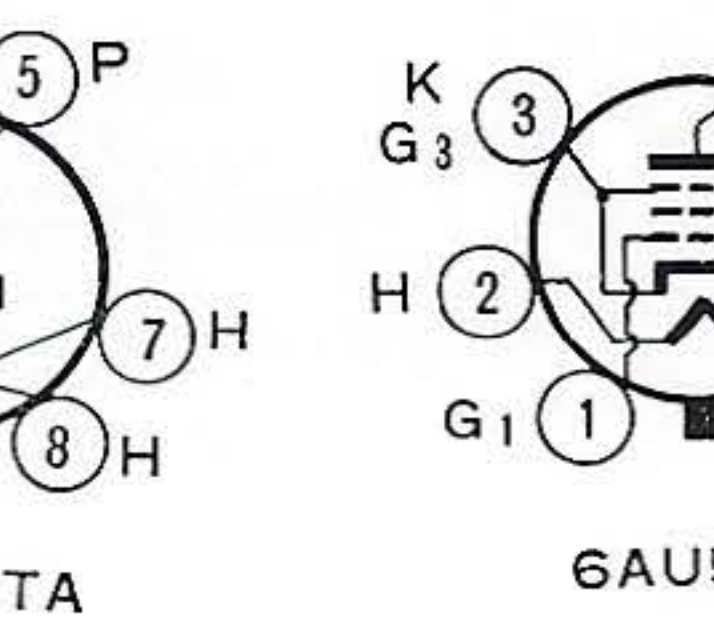
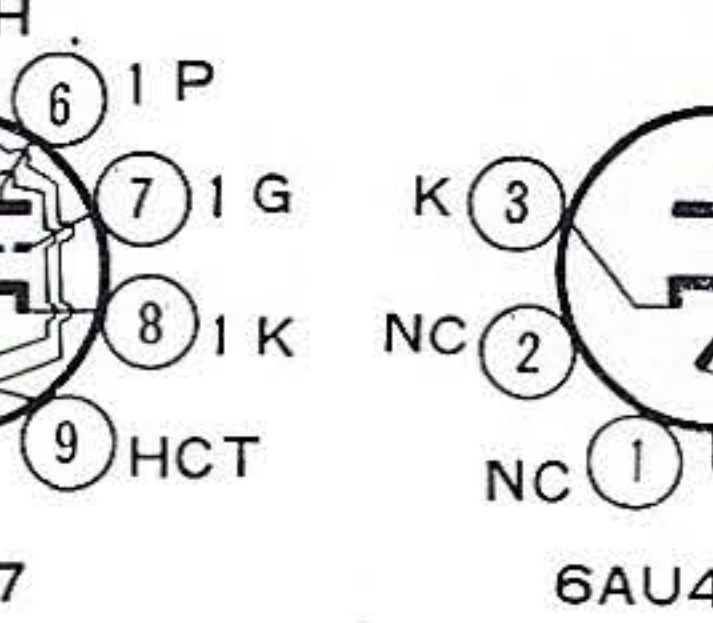
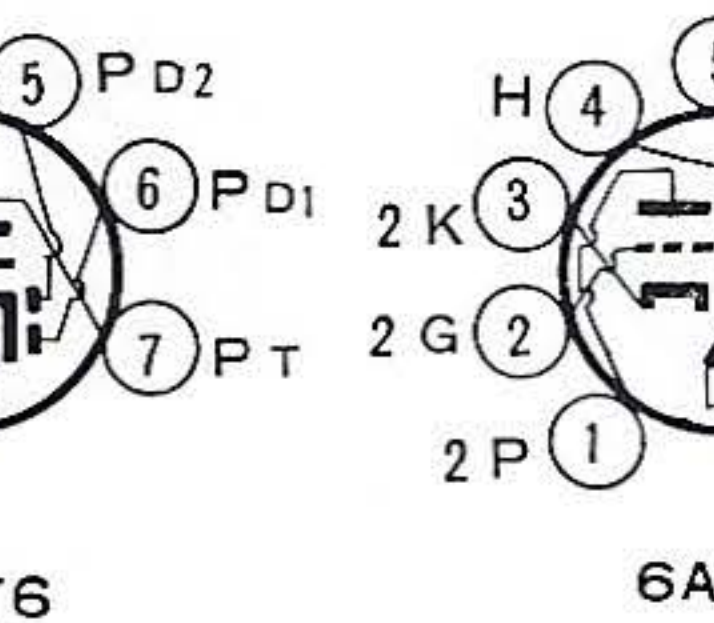
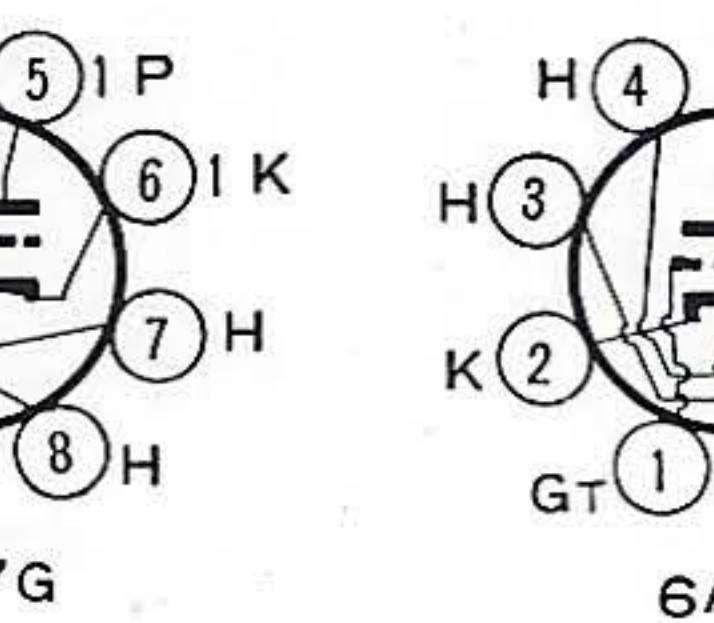
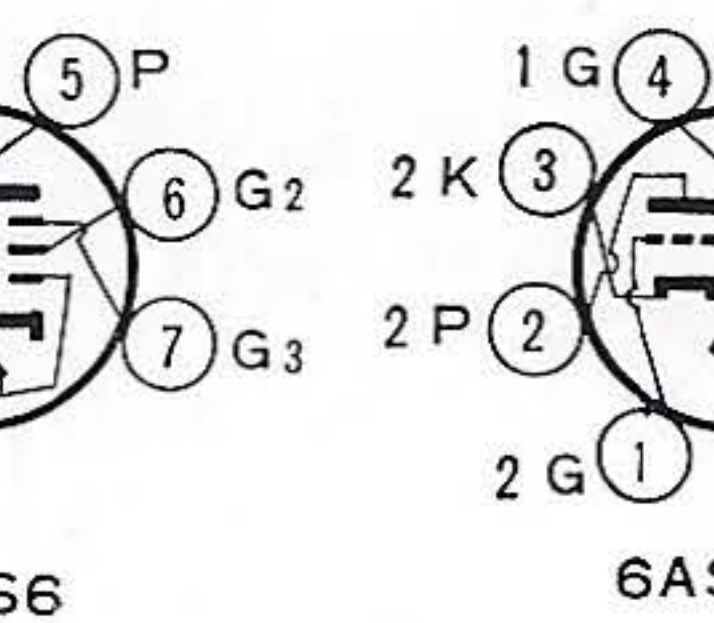
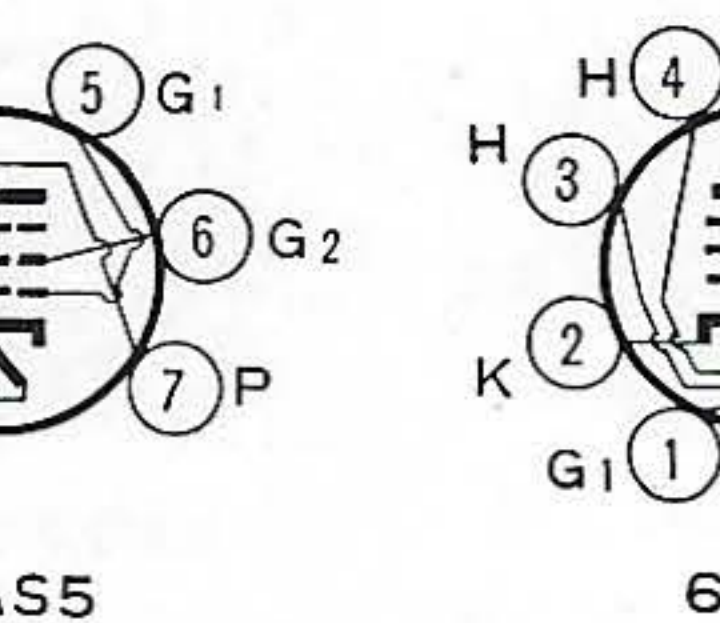
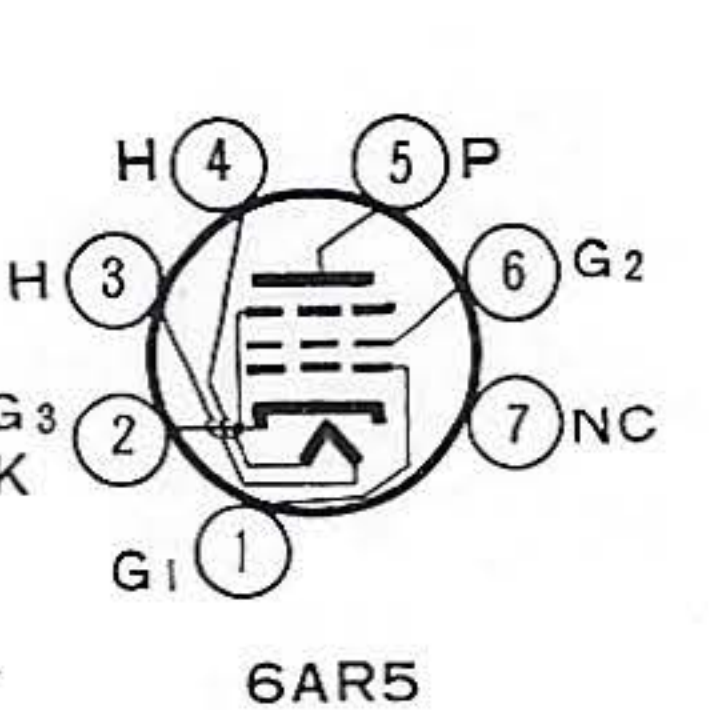
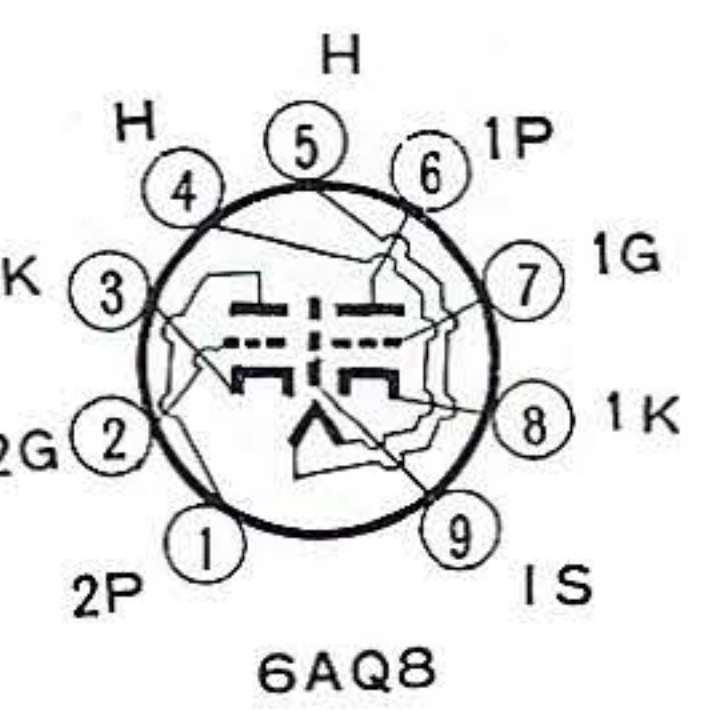
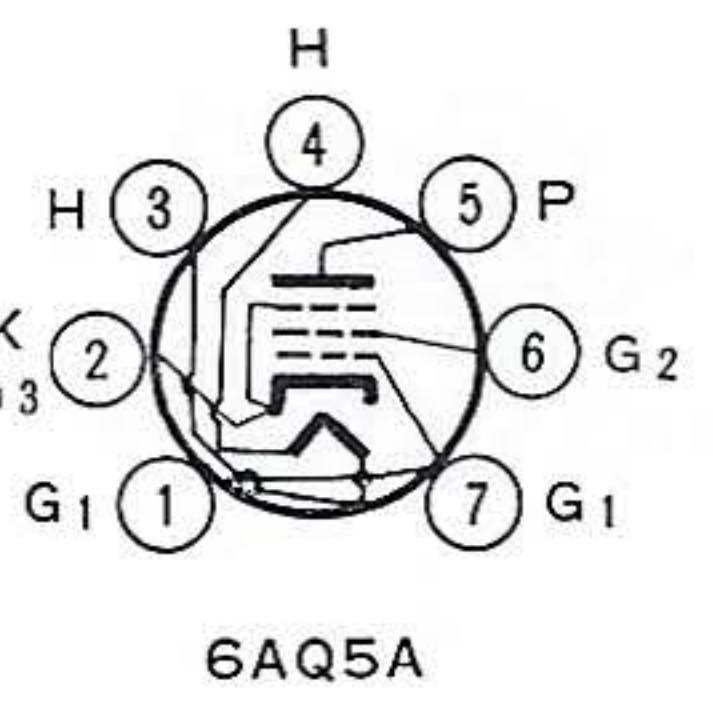
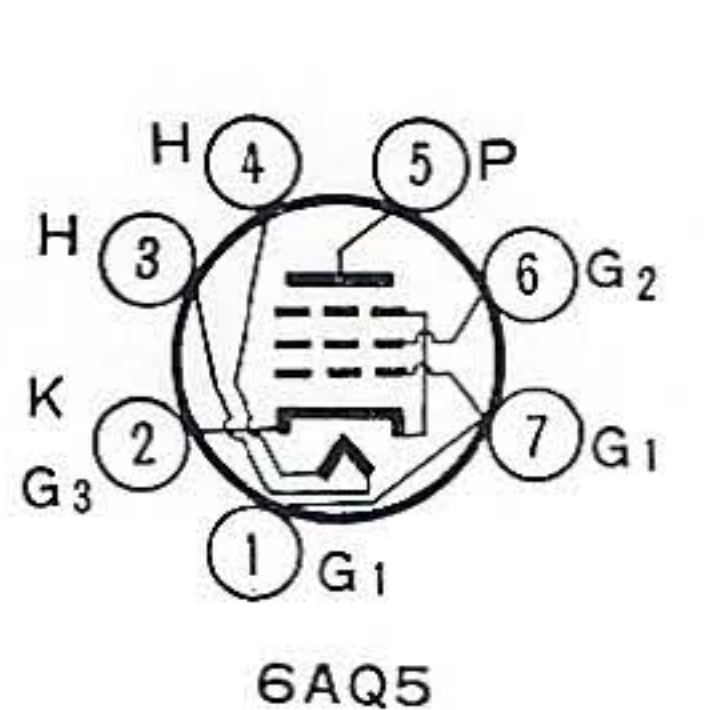
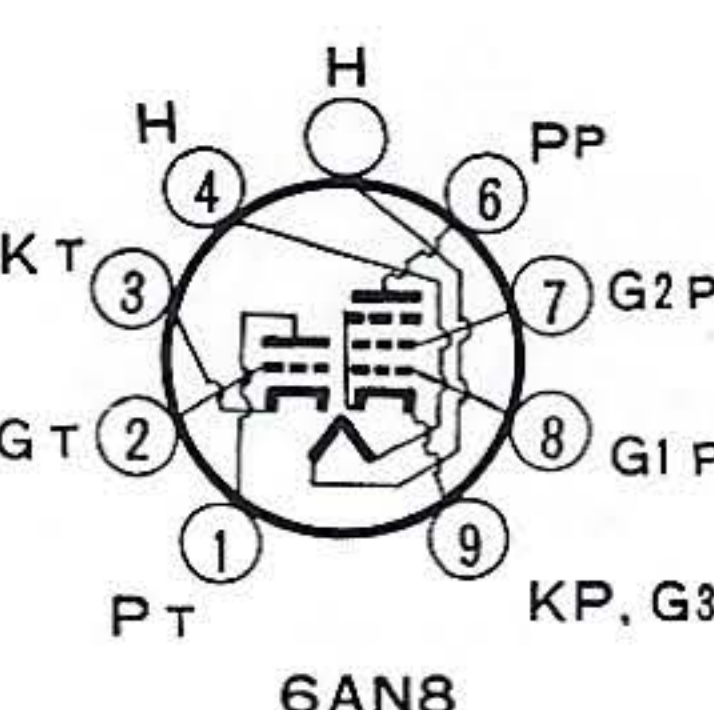
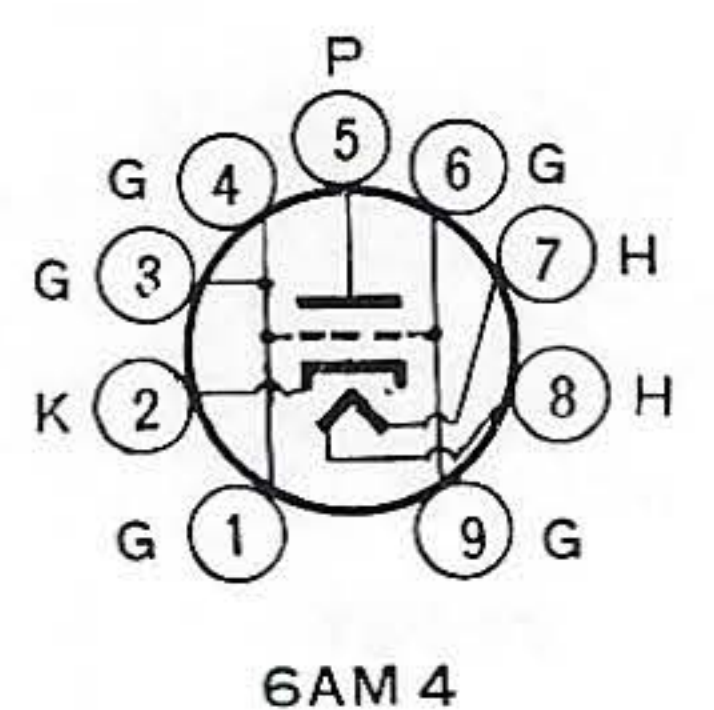
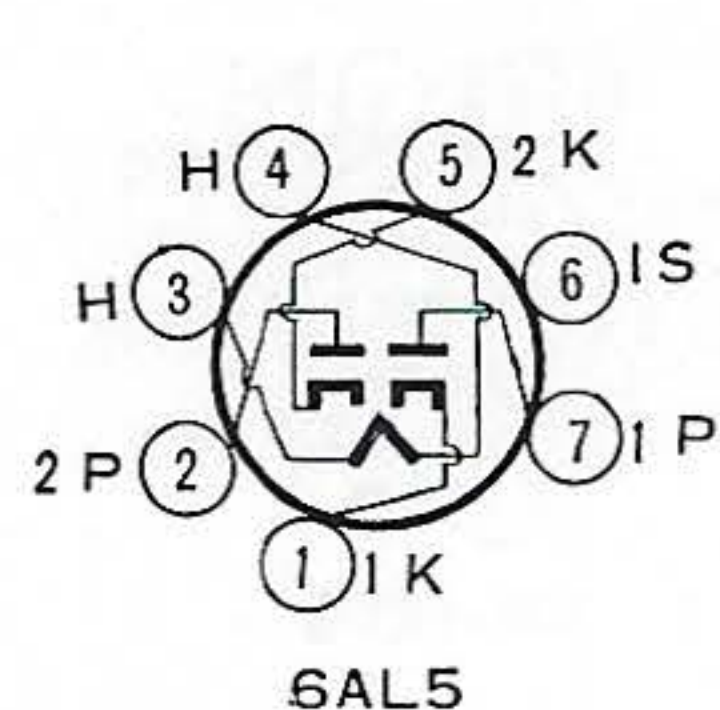
6AL3

## TOSHIBA ELECTRON TUBES

Miniature, ST, GT, and

6AL5 to 6B7

| Type      | Name                                    | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                                                   | Ec1<br>(V)    | Ec2<br>(V) | Ib<br>(mA) | Ic2<br>(mA) | rp<br>(KΩ)  | gm or Gc<br>(μS) | μ                                | RL<br>(Ω)                       | PO<br>(W) | Remarks    | Type      |
|-----------|-----------------------------------------|---------------------|-----------|--------------------|-------------|-------------|---------------------------------------------------------------------------------------------|---------------|------------|------------|-------------|-------------|------------------|----------------------------------|---------------------------------|-----------|------------|-----------|
|           |                                         |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                                             |               |            |            |             |             |                  |                                  |                                 |           |            |           |
| 6AL5      | Twin Diode                              | mT                  | 18-1      | H                  | 6.3         | 0.3         | Epx. (V) max. 330, I peak (mA) max. 54 (each plate), Io (mA) max. 9 (each plate)            |               |            |            |             |             |                  |                                  |                                 |           |            | 6AL5      |
| 6AM4      | High Mu Triode                          | mT                  | 21-1      | H                  | 6.3         | 0.225       | 200                                                                                         | Rk=100Ω       | —          | 10         | —           | 8.7         | 9 800            | 85                               |                                 |           | UHF        | 6AM4      |
| 6AN8      | Medium-Mu Triode Sharp-Cutoff Pentode   | mT                  | 18-2      | H                  | 6.3         | 0.45        | For other characteristics, refer to Type 5AN8                                               |               |            |            |             |             |                  |                                  |                                 |           |            | 6AN8      |
| 6AQ5      | Beam Power Amplifier                    | mT                  | 18-3      | H                  | 6.3         | 0.45        | 250                                                                                         | −12.5         | 250        | 45.0       | 4.5         | 52          | 4 100            | —                                | 5 000                           | 4.5       |            | 6AQ5      |
| 6AQ5A     | Beam Power Amplifier                    | mT                  | 18-3      | H                  | 6.3         | 0.45        | For other characteristics, refer to Type 6AQ5                                               |               |            |            |             |             |                  |                                  |                                 |           | thw=11 sec | 6AQ5A     |
| 6AQ8      | High-Mu Twin Triode                     | mT                  | 21-2      | H                  | 6.3         | 0.435       | 250                                                                                         | − 2.3         | —          | 10         | —           | —           | 5 900            | 57                               | —                               | —         |            | 6AQ8      |
| 6AR5      | Power Amplifier Pentode                 | mT                  | 18-3      | H                  | 6.3         | 0.4         | 250                                                                                         | −18           | 250        | 32.0       | 5.5         | 68          | 2 300            | —                                | 7 600                           | 3.4       |            | 6AR5      |
| 6AS5      | Power Pentode                           | mT                  | 18-3      | H                  | 6.3         | 0.8         | 150                                                                                         | − 8.5         | 110        | 35.0       | 2.0         | —           | 5 600            | —                                | 4 500                           | 2.2       |            | 6AS5      |
| 6AS6      | Sharp-Cutoff Pentode                    | mT                  | 18-1      | H                  | 6.3         | 0.3         | 120                                                                                         | − 2           | 120        | 5.2        | 3.5         | 110         | 3 200            | gm (gs-p) =470μS                 |                                 |           |            | 6AS6      |
| 6AS7G     | Low-Mu Twin Power-Triode                | G                   | 50-2      | H                  | 6.3         | 2.5         | 135                                                                                         | Rk=250Ω       | —          | 125        | —           | 0.28        | 7 000            | 2.0                              | —                               | —         |            | 6AS7G     |
| 6AT6      | Twin-Diode High-Mu Triode               | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                         | − 3           | —          | 1.0        | —           | 58          | 1 200            | 70                               | Diode unit Io 1.0mA             |           |            | 6AT6      |
| 6AT7      | High-Mu Twin Triode                     | mT                  | 21-2      | H                  | 6.3<br>3.15 | 0.3<br>0.6  | For other characteristics, refer to Type 12AT7                                              |               |            |            |             |             |                  |                                  |                                 |           |            | 6AT7      |
| 6AU4 GTA  | Half-Wave Rectifier                     | GT                  | 29-5C     | H                  | 6.3         | 1.8         | Epx. (V) max. 4 500, I peak (mA) max. 1 050, Io (mA) max. 190, Plate Dissipation (W) max. 6 |               |            |            |             |             |                  |                                  |                                 |           |            | 6AU4 GTA  |
| 6AU5GT    | Beam Power Amplifier                    | GT                  | 29-2C     | H                  | 6.3         | 1.25        | 115<br>60                                                                                   | −20<br>0      | 175<br>175 | 60<br>210  | 6.8<br>2.5  | 6           | 5 600            | Epy=5500V, Pp=10W, Ib max.=110mA |                                 |           |            | 6AU5GT    |
| 6AU6      | Sharp-Cutoff Pentode                    | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                         | Rk=68Ω        | 150        | 10.6       | 4.3         | 1 000       | 5 200            | —                                | —                               | —         |            | 6AU6      |
| 6AU6 HiFi | Sharp-Cutoff Pentode                    | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                         | Rk=68Ω        | 150        | 10.6       | 4.3         | 1 000       | 5 200            | —                                | —                               | —         |            | 6AU6 HiFi |
| 6AU6A     | Sharp-Cutoff Pentode                    | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                         | Rk=68Ω        | 150        | 10.6       | 4.3         | 1 000       | 5 200            | —                                | —                               | —         |            | 6AU6A     |
| 6AV6      | Twin-Diode High-Mu Triode               | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                         | −2            | —          | 1.2        | —           | 62.5        | 1 600            | 100                              | Diode unit Io 1.0mA             |           |            | 6AV6      |
| 6AW8A     | High-Mu Triode, Sharp Cutoff Pentode    | mT                  | 21-3      | H                  | 6.3         | 0.6         | 200<br>200                                                                                  | Rk=180Ω<br>−2 | 150<br>—   | 13<br>4    | 3.5<br>—    | 400<br>17.5 | 9 000<br>4 000   | —<br>70                          | (Pentode unit)<br>(Triode unit) |           |            | 6AW8A     |
| 6AX4 GT   | Half-Wave Rectifier                     | GT                  | 29-2C     | H                  | 6.3         | 1.2         | Epx. (V) max. 4 400, I peak (mA) max. 750, Io (mA) max. 125, Plate Dissipation (W) 4.8      |               |            |            |             |             |                  |                                  |                                 |           | Damper     | 6AX4 GT   |
| 6AZ8      | Medium-Mu Triode, Remote Cutoff Pentode | mT                  | 21-2      | H                  | 6.3         | 0.45        | 200<br>200                                                                                  | Rk=180Ω<br>−6 | 150<br>—   | 9.5<br>13  | 3<br>—      | 300<br>5.75 | 6 000<br>3 300   | —<br>19                          | (Pentode unit)<br>(Triode unit) |           |            | 6AZ8      |
| 6B7       | Twin-Diode Pentode                      | ST                  | 38-1      | H                  | 6.3         | 0.3         | 250                                                                                         | −3            | 100        | 6.0        | 1.5         | 800         | 1 000            | —                                | Diode unit Io 1.0mA             |           |            | 6B7       |

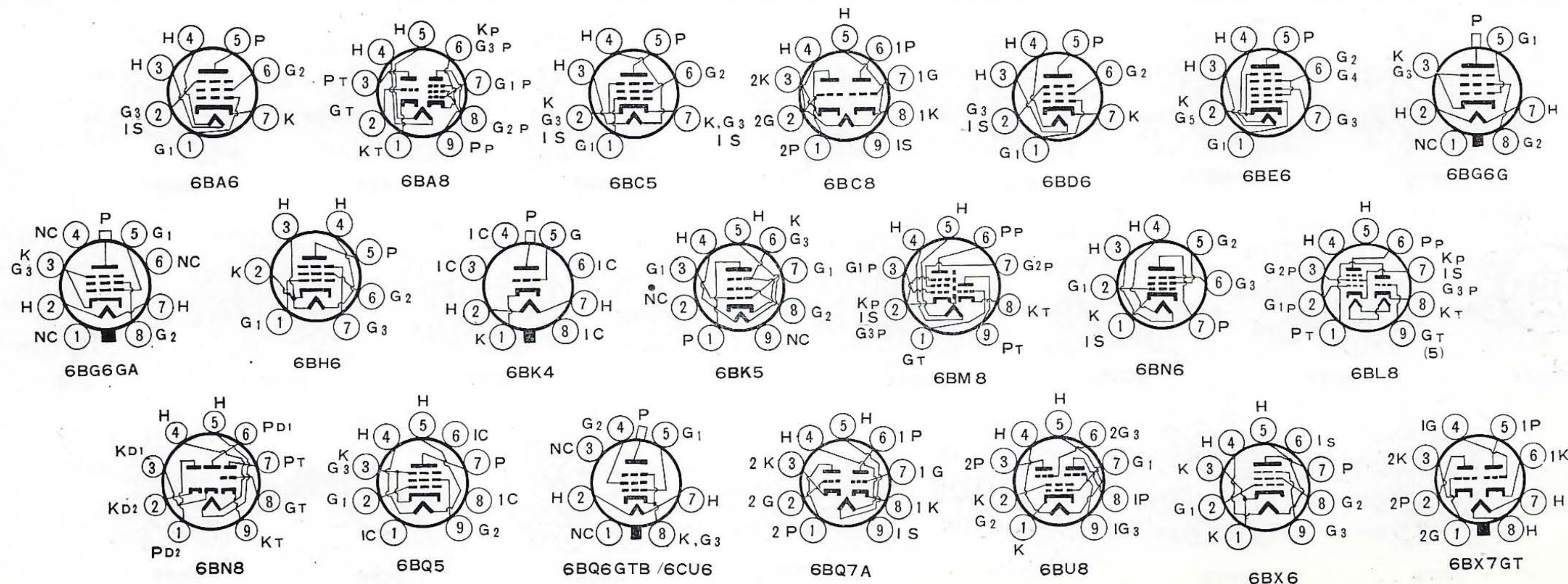


## CHARACTERISTICS CHART

other types

6BA6 to 6BX7GT

| Type                 | Name                               | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)        | Ec <sub>1</sub><br>(V)                         | Ec <sub>2</sub><br>(V)          | I <sub>b</sub><br>(mA) | Ic <sub>2</sub><br>(mA) | r <sub>p</sub><br>(KΩ)                                                           | g <sub>m</sub> or G <sub>c</sub><br>(μ <sub>S</sub> ) | μ                                                                                       | RL<br>(Ω)                                         | PO<br>(W) | Remarks                         | Type       |                      |
|----------------------|------------------------------------|---------------------|-----------|--------------------|-------------|-------------|------------------|------------------------------------------------|---------------------------------|------------------------|-------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------|-----------|---------------------------------|------------|----------------------|
|                      |                                    |                     |           | Heater or Filament | Voltage (V) | Current (A) |                  |                                                |                                 |                        |                         |                                                                                  |                                                       |                                                                                         |                                                   |           |                                 |            |                      |
| 6BA6                 | Remote-Cutoff Pentode              | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250              | R <sub>k</sub> = 68Ω                           | 100                             | 11.0                   | 4.2                     | 1 000                                                                            | 4 400                                                 | —                                                                                       | —                                                 | —         |                                 | 6BA6       |                      |
| 6BA8                 | Low-Mu Triode,Sharp Cutoff Pentode | mT                  | 21-3      | H                  | 6.3         | 0.6         | 200<br>200       | R <sub>k</sub> = 180Ω<br>—8                    | 150<br>—                        | 13<br>8                | 3.5<br>—                | 400<br>6.7                                                                       | 9 000<br>2 700                                        | —<br>18                                                                                 | (Pentode unit)<br>(Triode unit)                   |           |                                 | 6BA8       |                      |
| 6BC5                 | Sharp-Cutoff Pentode               | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250              | R <sub>k</sub> =180Ω                           | 150                             | 7.5                    | 2.1                     | 800                                                                              | 5 700                                                 | —                                                                                       | —                                                 | —         |                                 | 6BC5       |                      |
| 6BC8                 | Medium-Mu Twin Triode              | mT                  | 21-2      | H                  | 6.3         | 0.4         | 150              | R <sub>k</sub> =220Ω                           | —                               | 10                     | —                       | —                                                                                | 6 200                                                 | 35                                                                                      | E <sub>c0</sub> =-13V for<br>g <sub>m</sub> =50μV |           | Each Triode                     | 6BC8       |                      |
| 6BD6                 | Remote-Cutoff Pentode              | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250              | —3                                             | 100                             | 9.0                    | 3.0                     | 800                                                                              | 2 000                                                 | —                                                                                       | —                                                 | —         |                                 | 6BD6       |                      |
| 6BE6                 | Pentagrid Converter                | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250              | R <sub>g1</sub> =<br>20KΩ                      | E <sub>c2,4</sub> =<br>100      | 2.9                    | I <sub>c2,4</sub> =6.8  | 1 000                                                                            | 475                                                   | E <sub>c3</sub> -1.5V,I <sub>c1</sub> =0.5mA(self)                                      |                                                   |           |                                 | 6BE6       |                      |
| 6BG6G                | Beam Power Amplifier               | G                   | 50-01     | H                  | 6.3         | 0.9         | 700 (max)<br>950 | -50 (max)<br>-15                               | 350 (max)<br>250                | 100 (max)<br>75        | —<br>4                  | —<br>25                                                                          | —<br>6 000                                            | E <sub>py</sub> (V), max. 6 000, Plate Dissipation (max.) 20 W                          |                                                   |           |                                 | 6BG6G      |                      |
| 6BG6<br>GA           | Beam Power Tube                    | G                   | 50-01     | H                  | 6.3         | 0.9         | 250              | -15.0                                          | 250                             | 75.0                   | 4.0                     | 25                                                                               | 6 000                                                 | —                                                                                       | —                                                 | —         | Horizontal Deflection Amplifier | 6BG6<br>GA |                      |
| 6BH6                 | Sharp-Cutoff RF Pentode            | mT                  | 18-2      | H                  | 6.3         | 0.15        | 100<br>250       | — 1.0<br>— 1.0                                 | 100<br>150                      | 3.6<br>7.4             | 1.4<br>2.9              | 700<br>1 400                                                                     | 3 400<br>4 600                                        | —                                                                                       | —                                                 | —         |                                 | 6BH6       |                      |
| 6BK4                 | Sharp-Cutoff Beam Triode           | G                   | 38-30A    | H                  | 6.3         | 0.2         | 25 000 (max.)    | — 125 (max.)                                   | —                               | 1.5                    | —                       | 6                                                                                | —                                                     | 2 000                                                                                   | —                                                 | —         |                                 | 6BK4       |                      |
| 6BK5                 | Beam Power Amplifier               | mT                  | 21-3      | H                  | 6.3         | 1.2         | 250              | -5                                             | 250                             | 35                     | 3.5                     | 100                                                                              | 8 500                                                 | —                                                                                       | 6 500                                             | 3.5       |                                 | 6BK5       |                      |
| 6BL8                 | Triode Pentode                     | mT                  | 21-2      | H                  | 6.3         | 0.43        | 170<br>100       | -2<br>-2                                       | 170<br>—                        | 10<br>14               | 2.8<br>—                | 400                                                                              | 6 200<br>5 000                                        | 20                                                                                      |                                                   |           |                                 | 6BL8       |                      |
| 6BM8                 | High-Mu Triode Power Pentode       | mT                  | 21-4      | H                  | 6.3         | 0.78        | 100              | — 6                                            | 100                             | 26                     | 5                       | 15                                                                               | 6 800                                                 | —                                                                                       | 3.9                                               | 1.05      | } Pentode unit<br>} Triode unit | 6BM8       |                      |
|                      |                                    |                     |           |                    |             |             | 170              | -11.5                                          | 170                             | 41                     | 8                       | 16                                                                               | 7 500                                                 | —                                                                                       | 3.9                                               | 3.3       |                                 |            |                      |
|                      |                                    |                     |           |                    |             |             | 200              | -16                                            | 200                             | 35                     | 7                       | 20                                                                               | 6 400                                                 | —                                                                                       | 5.6                                               | 3.52      |                                 |            |                      |
|                      |                                    |                     |           |                    |             |             | 100              | — 1                                            | —                               | 1.0                    | —                       | 37                                                                               | 1 900                                                 | 70                                                                                      | —                                                 | —         |                                 |            |                      |
|                      |                                    |                     |           |                    |             |             | 100              | 0                                              | —                               | 3.5                    | —                       | —                                                                                | 2 500                                                 | 70                                                                                      | —                                                 | —         |                                 |            |                      |
| 6BN6                 | Gated Beam Discriminator           | mT                  | 18-3      | H                  | 6.3         | 0.3         | 80               | R <sub>k</sub> =200<br>~400Ω                   | 60                              | 0.23                   | 5.0                     | —                                                                                | —                                                     | —                                                                                       | 68 000                                            | —         |                                 | 6BN6       |                      |
| 6BN8                 | Twin Diode High-Mu Triode          | mT                  | 21-3      | H                  | 6.3         | 0.6         | 250              | — 3<br>I peak (mA) max. 54,                    | —<br>I <sub>o</sub> (mA) max. 9 | 1.6                    | —                       | 28                                                                               | 2 500                                                 | 70                                                                                      | (Triode)<br>(Diode)                               |           |                                 | 6BN8       |                      |
| 6BQ5                 | Beam Power Amplifier               | mT                  | 21-4      | H                  | 6.3         | 0.76        | 250              | R <sub>k</sub> = 135Ω                          | 250                             | 48.0                   | 5.5                     | 38                                                                               | 11 300                                                | —                                                                                       | 4 500                                             | 5.7       |                                 | 6BQ5       |                      |
| 6BQ6<br>GTB/<br>6CU6 | Beam Power Amplifier               | GT                  | 29-11C    | H                  | 6.3         | 1.2         | 250              | -22.5                                          | 150                             | 65                     | 2.1                     | 18                                                                               | 6 000                                                 | Eb max.=600V E <sub>py</sub> =6 000V<br>I <sub>b</sub> max.=112.5mA P <sub>p</sub> =11W |                                                   |           |                                 |            | 6BQ6<br>GTB/<br>6CU6 |
| 6BQ7A                | Medium-Mu Twin Triode              | mT                  | 21-2      | H                  | 6.3         | 0.4         | 150              | R <sub>k</sub> =220Ω                           | —                               | 9                      | —                       | 6.1                                                                              | 6 400                                                 | 39                                                                                      | Cutoff Volts-10                                   |           |                                 | 6BQ7A      |                      |
| 6BU8                 | Sharp-Cutoff Twin Pentode          | mT                  | 21-3      | H                  | 6.3         | 0.3         | 100<br>100       | I <sub>c</sub> =100μA<br>I <sub>c</sub> =100μA | 67.5<br>67.5                    | 2.2<br>2.2             | 3.3<br>—                | I <sub>k</sub> =7.8 Ec <sub>3</sub> =0<br>g <sub>m</sub> (g <sub>3</sub> -p)=180 |                                                       |                                                                                         | (Both unit)<br>(Each unit)                        |           |                                 | 6BU8       |                      |
| 6BX6                 | Sharp-Cutoff RF Pentode            | mT                  | 21-3      | H                  | 6.3         | 0.3         | 250              | — 3.5                                          | 250                             | 10                     | 2.8                     | 650                                                                              | 6 800                                                 |                                                                                         |                                                   |           |                                 | 6BX6       |                      |
| 6BX7GT               | Medium-Mu Twin Triode              | GT                  | 29-2C     | H                  | 6.3         | 1.5         | 250              | R <sub>k</sub> =390Ω                           | —                               | 42                     | —                       | 1.3                                                                              | 7 600                                                 | 10                                                                                      | —                                                 | —         | each unit                       | 6BX7GT     |                      |

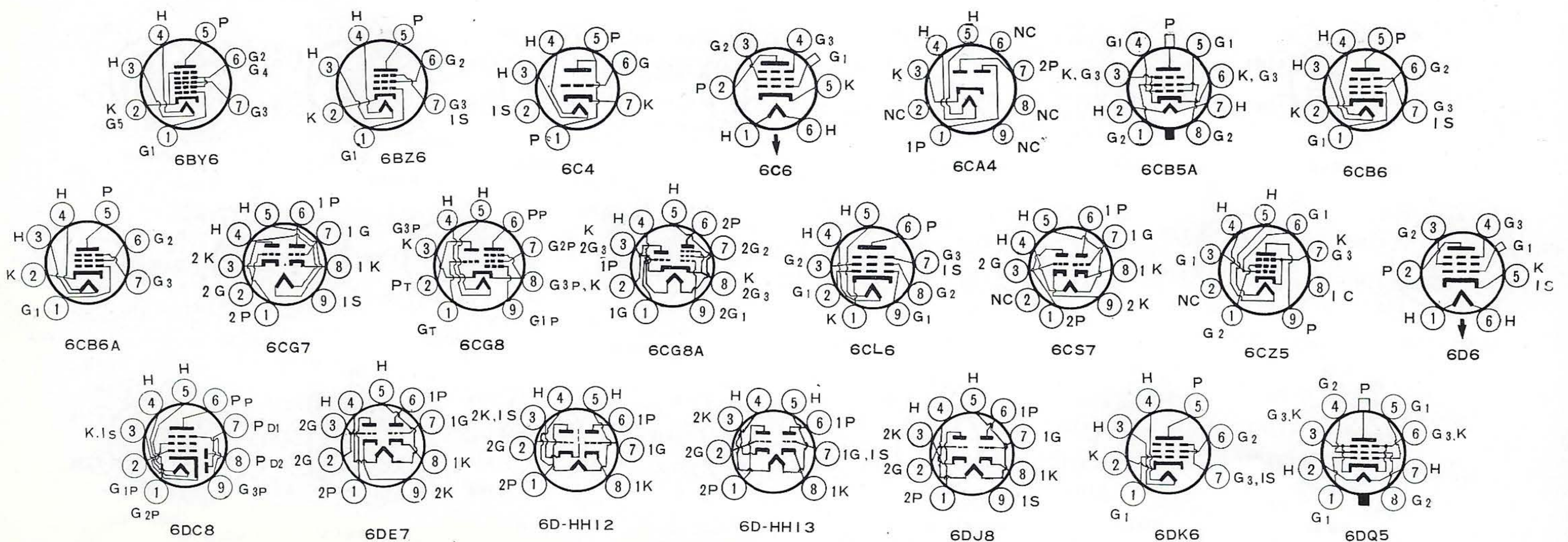


## TOSHIBA ELECTRON TUBES

Miniature, ST, GT, and

6BY6 to 6DQ5

| Type    | Name                                                      | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                                                                                  | Ec1<br>(V)                                   | Ec2<br>(V)                           | Ib<br>(mA)               | Ic2<br>(mA)                          | rp<br>(KΩ)    | gm or Gc<br>(μS)                                            | μ                                             | RL<br>(Ω)                                   | PO<br>(W)                 | Remarks            | Type  |         |
|---------|-----------------------------------------------------------|---------------------|-----------|--------------------|-------------|-------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------|--------------------------|--------------------------------------|---------------|-------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------------|--------------------|-------|---------|
|         |                                                           |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                                                                            |                                              |                                      |                          |                                      |               |                                                             |                                               |                                             |                           |                    |       |         |
| 6BY6    | Heptode                                                   | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                                                                                        | — 2.5                                        | 100                                  | 6.5                      | 9.0                                  | —             | gm(g <sub>1</sub> -P)<br>1900, gm<br>(g <sub>3</sub> -P)500 | —                                             | —                                           | E <sub>c3</sub> =<br>-2.5 |                    | 6BY6  |         |
| 6BZ6    | Semi-Remote Cutoff Pentode                                | mT                  | 18-2      | H                  | 6.3         | 0.3         | 200                                                                                                                        | R <sub>k</sub> =180Ω                         | 150                                  | 11.0                     | 2.6                                  | 0.6           | 6100                                                        | —                                             | —                                           | —                         |                    | 6BZ6  |         |
| 6C4     | Medium-Mu Triode                                          | mT                  | 18-2      | H                  | 6.3         | 0.15        | 250                                                                                                                        | — 8.5                                        | —                                    | 10.5                     | —                                    | 7.7           | 2200                                                        | 17                                            | —                                           | —                         |                    | 6C4   |         |
| 6C6     | Sharp-Cutoff Pentode                                      | ST                  | 38-1      | H                  | 6.3         | 0.3         | 250                                                                                                                        | — 3                                          | 100                                  | 2.1                      | 0.5                                  | 3000          | 1225                                                        | —                                             | —                                           | —                         |                    | 6C6   |         |
| 6CA4    | Full-Wave Rectifier                                       | mT                  | 21-4      | H                  | 6.3         | 1.0         | E <sub>px</sub> (V) max. 1000, I peak(A) max. 0.45(each plate), I <sub>o</sub> (mA) max. 150, E <sub>pp</sub> (V) max. 500 |                                              |                                      |                          |                                      |               |                                                             |                                               |                                             |                           |                    |       | 6CA4    |
| 6CB5A   | Beam Power Amplifier                                      | G                   | 38-30A    | H                  | 6.3         | 2.5         | 175                                                                                                                        | —30                                          | 175                                  | 90                       | 6.0                                  | 5             | 8000                                                        | 800max.                                       | max V<br>E <sub>py</sub> =800               | —                         |                    | 6CB5A |         |
| 6CB6    | Sharp-Cutoff Pentode                                      | mT                  | 18-2      | H                  | 6.3         | 0.3         | 200                                                                                                                        | R <sub>k</sub> =180Ω                         | 150                                  | 9.5                      | 2.8                                  | 600           | 6200                                                        | —                                             | —                                           | —                         |                    | 6CB6  |         |
| 6CB6A   | Sharp-Cutoff Pentode                                      | mT                  | 18-2      | H                  | 6.3         | 0.3         | 125                                                                                                                        | R <sub>k</sub> = 56Ω                         | 125                                  | 13.0                     | 3.7                                  | 280           | 8000                                                        | —                                             | —                                           | —                         |                    | 6CB6A |         |
| 6CG7    | Medium-Mu Twin Triode                                     | mT                  | 21-3      | H                  | 6.3         | 0.6         | 250                                                                                                                        | — 8                                          | —                                    | 9                        | —                                    | 7.7           | 2600                                                        | 20                                            | —                                           | —                         | thw=11<br>sec      | 6CG7  |         |
| 6CG8    | Triode-Penotde Converter                                  | mT                  | 21-2      | H                  | 6.3         | 0.45        | 250<br>100                                                                                                                 | R <sub>k</sub> =200Ω<br>R <sub>k</sub> =100Ω | 150<br>—                             | 7.7<br>8.5               | 1.6<br>—                             | 750<br>6.9    | 4600<br>5800                                                | —<br>40                                       | (Pentode)<br>(Triode)                       |                           |                    | 6CG8  |         |
| 6CG8A   | Triode Pentode Class A Amplifier                          | mT                  | 21-2      | H                  | 6.3         | 0.45        | 100<br>250                                                                                                                 | R <sub>k</sub> =100Ω<br>R <sub>k</sub> =200Ω | —<br>150                             | 8.5<br>7.7               | —<br>1.6                             | 6.9<br>750    | 5800<br>4600                                                | 40<br>—                                       | (Triode)<br>(Pentode)                       |                           |                    | 6CG8A |         |
| 6CL6    | Power Amplifier Pentode                                   | mT                  | 21-3      | H                  | 6.3         | 0.65        | 300                                                                                                                        | — 2                                          | 300                                  | 30                       | 7                                    | —             | —                                                           | —                                             | 3900                                        | —                         |                    | 6CL6  |         |
| 6CS7    | Medium-Mu Double Triode                                   | mT                  | 21-3      | H                  | 6.3         | 0.6         | 250<br>250                                                                                                                 | — 8.5<br>—10.5                               | —<br>—                               | 10.5<br>19.0             | —<br>—                               | 7.7<br>3.45   | 2200<br>4500                                                | 17<br>15.5                                    | (No. 1 Unit)<br>(No. 2 Unit)                |                           | thw=11<br>sec      | 6CS7  |         |
| 6CZ5    | Beam Power Amplifier                                      | mT                  | 21-2      | H                  | 6.3         | 0.45        | 250                                                                                                                        | —14                                          | 250                                  | 46                       | 4.6                                  | 7.3           | 4800                                                        | —                                             | —                                           | —                         |                    | 6CZ5  |         |
| 6D6     | Remote-Cutoff Pentode                                     | ST                  | 38-1      | H                  | 6.3         | 0.3         | 250                                                                                                                        | — 3                                          | 100                                  | 8.2                      | 2.0                                  | 800           | 1600                                                        | —                                             | —                                           | —                         |                    | 6D6   |         |
| 6DC8    | Twin Diode Pentode                                        | mT                  | 21-3      | H                  | 6.3         | 0.3         | 250                                                                                                                        | — 2                                          | E <sub>px</sub> (V) max. 200,<br>100 | I peak (mA) max. 5,<br>9 | I <sub>o</sub> (mA) max. 0.8,<br>2.7 | 1000          | I <sub>o</sub> (mA) max. 0.8,<br>3800                       | 20                                            | —                                           | —                         | Diode Pentode Unit | 6DC8  |         |
| 6DE7    | Double Triode Vertical Deflection Oscillator or Amplifier | mT                  | 21-3      | H                  | 6.3         | 0.9         | 250<br>150                                                                                                                 | — 1.1<br>—17.5                               | —<br>—                               | 5.5<br>35                | —<br>—                               | 8.75<br>0.925 | 2000<br>6500                                                | 17.5<br>6.0                                   | Unit No.1 Oscillator<br>Unit No.2 Amplifier |                           |                    | 6DE7  |         |
| 6D-HH12 | Twin Triode                                               | smT                 | 9-04      | H                  | 6.3         | 0.3         | For other characteristics, refer to Type 3DHH12                                                                            |                                              |                                      |                          |                                      |               |                                                             |                                               |                                             |                           |                    |       | 6D-HH12 |
| 6D-HH13 | Twin Triode                                               | smT                 | 9-04      | H                  | 6.3         | 0.3         | For other characteristics, refer to Type 3DHH13                                                                            |                                              |                                      |                          |                                      |               |                                                             |                                               |                                             |                           |                    |       | 6D-HH13 |
| 6DJ8    | Twin Triode                                               | mT                  | 21-2      | H                  | 6.3         | 0.365       | 90                                                                                                                         | — 1.3                                        | —                                    | 15                       | —                                    | —             | 12500                                                       | 33                                            |                                             |                           |                    | 6DJ8  |         |
| 6DK6    | Sharp-Cutoff Pentode                                      | mT                  | 18-2      | H                  | 6.3         | 0.3         | 125                                                                                                                        | R <sub>k</sub> =56Ω                          | 125                                  | 12                       | 3.8                                  | 350           | 9800                                                        | E <sub>c0</sub> =6.5 for I <sub>b</sub> =20μA |                                             |                           |                    | 6DK6  |         |
| 6DQ5    | Hor. Def. Amp. Beam Power                                 | GT                  | 38-19     | H                  | 6.3         | 2.5         | 175                                                                                                                        | —25                                          | 125                                  | 110                      | 5                                    | 5500          | 10500                                                       | —                                             | —                                           | —                         |                    | 6DQ5  |         |

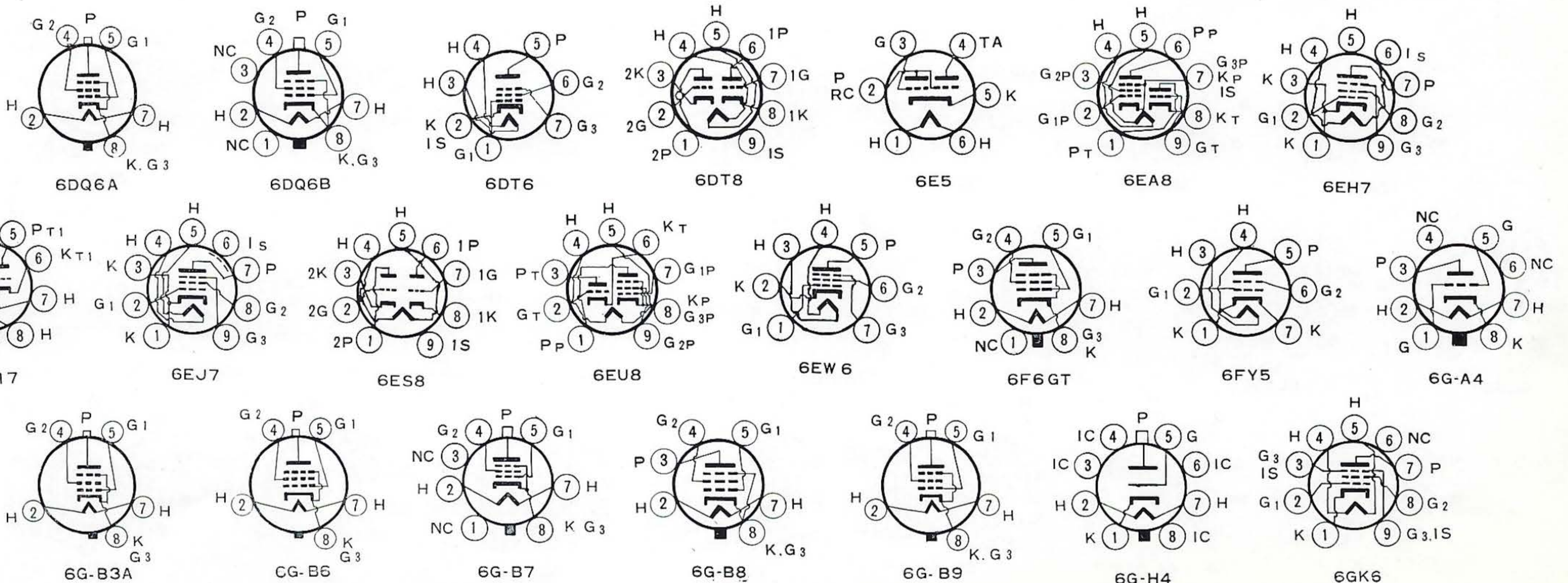


# CHARACTERISTICS CHART

other Types

6DQ6A to 6GK6

| Type    | Name                                  | Bulb Size or styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                      | Ec1<br>(V)         | Ec2<br>(V) | Ib<br>(mA)  | Ic2<br>(mA) | rp<br>(KΩ) | gm or Gc<br>(μS) | μ                                                      | RL<br>(Ω)                                   | PO<br>(W) | Remarks                         | Type   |
|---------|---------------------------------------|---------------------|-----------|--------------------|-------------|-------------|----------------------------------------------------------------|--------------------|------------|-------------|-------------|------------|------------------|--------------------------------------------------------|---------------------------------------------|-----------|---------------------------------|--------|
|         |                                       |                     |           | Heater or Filament | voltage (V) | Current (A) |                                                                |                    |            |             |             |            |                  |                                                        |                                             |           |                                 |        |
| 6DQ6A   | Beam Power Amplifier                  | GT                  | 38-17     | H                  | 6.3         | 1.2         | 250                                                            | -22.5              | 150        | 75          | 2.4         | 20         | 6 600            | Eb(V)max. 700, Epy(V) 7 000<br>Ib(mA)max. 140, Pp(W)15 |                                             |           |                                 | 6DQ6A  |
| 6DQ6B   | Beam Power                            | GT                  | 38-17     | H                  | 6.3         | 1.2         | 250<br>60                                                      | -22.5<br>0         | 150<br>150 | 75<br>300   | 2.4<br>27.0 | 20<br>—    | 6 600<br>—       | —                                                      | —                                           | —         | Horizontal Deflection Amplifier | 6DQ6B  |
| 6DT6A   | Sharp Cutoff Pentode                  | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250                                                            | Rk=560Ω            | 100        | 0.21        | 6.0         | —          | —                | —                                                      | (f=4.5 MC)                                  |           | 6DT6A                           |        |
| 6DT8    | High-Mu Twin Triode                   | mT                  | 21-2      | H                  | 6.3         | 0.3         | 100<br>250                                                     | Rk=270Ω<br>Rk=200Ω | —<br>—     | 2.7<br>10.0 | —<br>—      | 15<br>10.9 | 4 000<br>5 500   | 60<br>60                                               | —<br>—                                      | —<br>—    | —                               | 6DT8   |
| 6E5     | Electron-Ray Tube                     | T                   | 29-21     | H                  | 6.3         | 0.3         | 250                                                            | 0<br>— 7           | R=1MΩ      | 5           | Icr=2<br>—  | PE=90<br>0 | —                | —                                                      | —                                           | —         | 6E5                             |        |
| 6EA8    | Medium-Mu Triode Sharp-Cutoff Pentode | mT                  | 21-2      | H                  | 6.3         | 0.45        | 125<br>150                                                     | — 1<br>Rk= 56Ω     | 125<br>—   | 12<br>18    | 4<br>—      | 80<br>5    | 6 400<br>8 500   | —<br>40                                                | —<br>—                                      | —<br>—    | Pentode unit<br>Triode unit     | 6EA8   |
| 6EH7    | Sharp-Cutoff RF Pentode               | mT                  | 21-02     | H                  | 6.3         | 0.3         | 200                                                            | — 2                | 90         | 12          | 4.2         | 500        | 12 500           |                                                        |                                             |           | Ecs=0                           | 6EH7   |
| 6EM7    | Double Trido                          | GT                  | 29-2C     | H                  | 6.3         | 0.925       | 200                                                            | — 3<br>—20         | —<br>—     | 1.4<br>5.0  | —<br>—      | 40<br>0.75 | 1 600<br>7 200   | 68<br>5.4                                              | Unit No.1 Oscillator<br>Unit No.2 Amplifier |           | 6EM7                            |        |
| 6E J7   | Sharp-Cutoff RF Pentode               | mT                  | 21-02     | H                  | 6.3         | 0.3         | 250<br>150                                                     | — 2.5              | 200        | 10          | 3.8         | 350        | 15 000           |                                                        |                                             |           | 6E J7                           |        |
| 6ES8    | Twin Triode                           | mT                  | 21-2      | H                  | 6.3         | 0.365       | 90                                                             | 1.2                | —          | 15          |             |            | 12 500           |                                                        |                                             |           | 6ES8                            |        |
| 6EU8    | Triode-Pentode                        | mT                  | 21-2      | H                  | 6.3         | 0.45        | 125<br>150                                                     | — 1<br>Rk= 56Ω     | 125<br>—   | 12<br>18    | 4<br>—      | 80<br>5    | 6 400<br>8 500   | —<br>40                                                | —<br>—                                      | —<br>—    | Pentode unit<br>Triode unit     | 6EU8   |
| 6EW6    | Sharp-Cutoff RF Pentode               | mT                  | 18-2      | H                  | 6.3         | 0.4         | For other characteristics, refer to Type 4EW6                  |                    |            |             |             |            |                  |                                                        |                                             |           |                                 | 6EW6   |
| 6F6GT   | Power Amplifier Pentode               | GT                  | 21-3A     | H                  | 6.3         | 0.7         | 250                                                            | —16.5              | 250        | 34.0        | 6.5         | 80         | 2 500            | —                                                      | 7 000                                       | 3.2       | 6F6GT                           |        |
| 6FY5    | Triode                                | mT                  | 18-2      | H                  | 6.3         | 0.2         | 135                                                            | — 1                | —          | 11          | —           | 5.39       | 13 000           | 70                                                     | —                                           | —         | 6FY5                            |        |
| 6G-A4   | Power Amplifier Triode                | GT                  | 29-2C     | H                  | 6.3         | 0.75        | 250                                                            | —18.5              | —          | 50          | —           | 1 400      | 7 000            | 10                                                     | 1 400                                       | 2.2       | 6G-A4                           |        |
| 6G-B3A  | Beam Power Amplifier                  | GT                  | 19-12C    | H                  | 6.3         | 1.2         | Pp (W) max. 13 For other characteristics, refer to Type 12G-B3 |                    |            |             |             |            |                  |                                                        |                                             |           |                                 | 6G-B3A |
| * 6G-B6 | Beam Power Amplifier                  | GT                  | 29-12C    | H                  | 6.3         | 1.2         | 250                                                            | —22.5              | 150        | 6.5         | 2.1         | 18         | 6 000            | Eb(V)max. 600, Epy(V)6000<br>Ib(mA)max. 112.5, Pp(W)11 |                                             |           |                                 | 6G-B6* |
| 6G-B7   | Beam Power Amplifier                  | GT                  | 38-17     | H                  | 6.3         | 1.2         | 100<br>40                                                      | — 7.7<br>—         | 100<br>100 | 100<br>140  | 7<br>1.9    | 5.3        | 14 000           | —                                                      | —                                           | —         | 6GB7                            |        |
| 6G-B8   | Beam Power Amplifier                  | GT                  | 35-2      | H                  | 6.3         | 1.5         | 250                                                            | — 8                | 250        | 151         | 28          | 15         | 20 000           | 15                                                     | 1 600                                       | 15        | 6G-B8                           |        |
| * 6G-B9 | Beam Power Amplifier                  | G                   | 38-29A    | H                  | 6.3         | 1.2         | For other characteristics, refer to Type 6DQ6A                 |                    |            |             |             |            |                  |                                                        |                                             |           |                                 | 6G-B9* |
| 6G-H4   | Sharp-Cutoff Beam Triode              | GT                  | 38-27A    | H                  | 6.3         | 0.2         | 20 000 (max.)                                                  | —125 (max.)        | —          | 1.2         | —           | 6          | —                | 2 000                                                  | —                                           | —         | 6G-H4                           |        |
| 6GK6    | Power Pentode                         | mT                  | 21-4      | H                  | 6.3         | 0.76        | 250                                                            | — 7.5              | 250        | 48          | 5.5         | 38         | 11 300           | —                                                      | —                                           | —         | 6GK6                            |        |

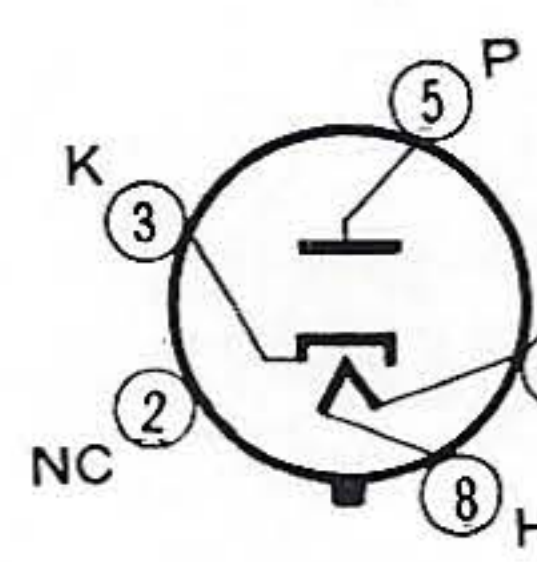


## TOSHIBA ELECTRON TUBES

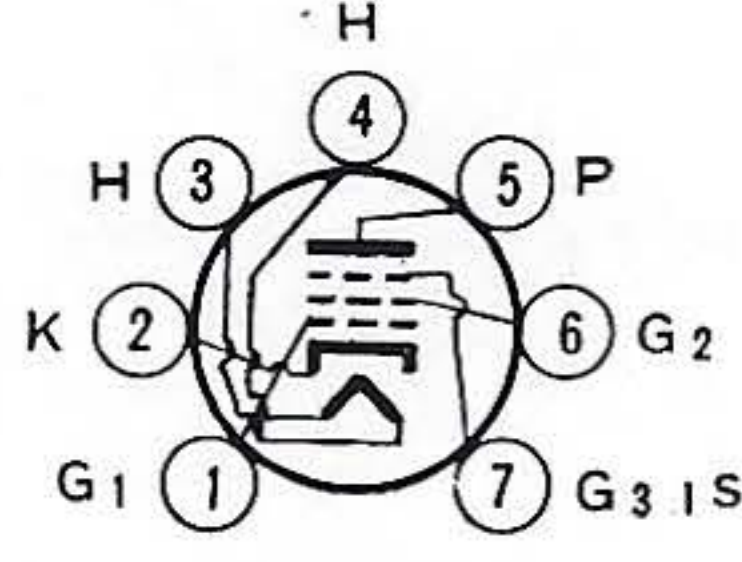
Miniature, ST, GT, and

6GK-17 to 6R-P15

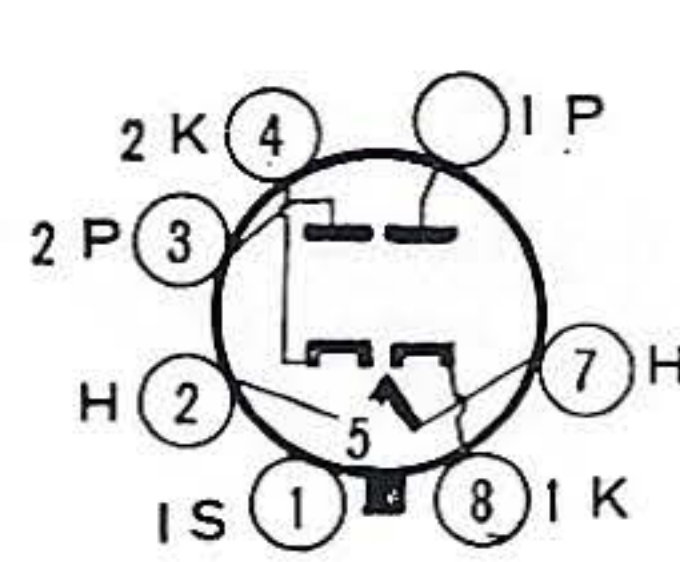
| Type    | Name                                        | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br><br>(V)                                                                                     | Ec <sub>1</sub><br><br>(V)          | Ec <sub>2</sub><br><br>(V) | I <sub>b</sub><br><br>(mA) | Ic <sub>2</sub><br><br>(mA) | r <sub>p</sub><br><br>(KΩ) | g <sub>m</sub> or G <sub>c</sub><br><br>(μS) | μ                                                     | RL<br><br>(Ω)                   | PO<br><br>(W)   | Remarks                                                       | Type    |        |
|---------|---------------------------------------------|---------------------|-----------|--------------------|-------------|-------------|---------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------------------------|-------------------------------------------------------|---------------------------------|-----------------|---------------------------------------------------------------|---------|--------|
|         |                                             |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                                                   |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         |        |
| 6G-K17  | Half-Wave Rectifier                         | GT                  | 29-27C    | H                  | 6.3         | 1.3         | For other characteristics, refer to Type 12G-K17                                                  |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6G-K17 |
| 6GM6    | Semi-Remote Cutoff Pentode                  | mT                  | 18-2      | H                  | 6.3         | 0.4         | 125                                                                                               | R <sub>k</sub> =5.6Ω                | 125                        | 14.0                       | 3.4                         | 200                        | 13 000                                       | —                                                     | —                               | —               |                                                               | 6GM6    |        |
| 6H6-GT  | Twin Diode                                  | GT                  | 29-2A     | H                  | 6.3         | 0.3         | Epx. (V) max. 420, I peak (mA) max. 48 (Each Plate), Eac (V) max. 117, I <sub>o</sub> (mA) max. 8 |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6H6-GT |
| 6HK8    | Medium-Mu Twin Triode                       | mT                  | 21-2      | H                  | 6.3         | 0.4         | 90                                                                                                | — 1.0                               | —                          | 8.5                        | —                           | 0.45                       | 8 000                                        | 36                                                    | —                               | —               |                                                               | 6HK8    |        |
| 6J5GT   | Medium-Mu Triode                            | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                                                                               | — 8                                 | —                          | 9.0                        | —                           | 7.7                        | 2 600                                        | 20                                                    | —                               | —               |                                                               | 6J5GT   |        |
| 6J6     | Medium-Mu Twin Triode                       | mT                  | 18-2      | H                  | 6.3         | 0.45        | 100                                                                                               | R <sub>k</sub> =50Ω<br>(Both Plate) |                            |                            | 8.5                         | —                          | 7.1                                          | 5 300                                                 | 38                              | (each Triode)   |                                                               |         | 6J6    |
| 6L6G    | Beam Power Amplifier                        | G                   | 50-2      | H                  | 6.3         | 0.9         | 250                                                                                               | —14                                 | 250                        | 72                         | 5.0                         | 22.5                       | 6 000                                        | —                                                     | 2 500                           | 6.5             |                                                               | 6L6G    |        |
| 6L6GC   | Beam Power Amplifier                        | GT                  | 38-13     | H                  | 6.3         | 0.9         | For other characteristics, refer to Type 6L6G                                                     |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6L6GC  |
| 6L6GT   | Beam Power Amplifier                        | GT                  | 29-6A     | H                  | 6.3         | 0.9         | 6L6G                                                                                              |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6L6GT  |
| Ut-6L7G | Pentagrid Converter                         | G                   | 38-1      | H                  | 6.3         | 0.3         | 250                                                                                               | — 3                                 | E <sub>c2, 4</sub><br>100  | 3.2                        | I <sub>c2, 4</sub> 6.5      | 1 000                      | 300                                          | E <sub>g3</sub> =10 V (rms)<br>E <sub>g3</sub> =50 KΩ |                                 |                 |                                                               | Ut-6L7G |        |
| 6M-E5   | Electron-Ray Tube                           | mT                  | 18-02     | H                  | 6.3         | 0.15        | 180                                                                                               | — 3.0                               | E <sub>ta</sub> 180        | 3.5                        | E <sub>ta</sub> 3.5         | 1 000                      | —                                            | —                                                     | —                               | —               |                                                               | 6M-E5   |        |
| 6M-E10  | Electron-Ray Tube                           | mT                  | 18-01     | H                  | 6.3         | 0.15        | 110                                                                                               | — 2.0                               | E <sub>ta</sub> 110        | 2.0                        | E <sub>ta</sub> 1.6         | 1 000                      | —                                            | —                                                     | —                               | —               |                                                               | 6M-E10  |        |
| 6M-HH3  | Medium-Mu Twin Triode                       | mT                  | 18-2      | H                  | 6.3         | 0.45        | For other characteristics, refer to Type 5M-HH3                                                   |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6M-HH3 |
| 6M-P17  | Power Pentode                               | mT                  | 18-3      | H                  | 6.3         | 0.5         | 250                                                                                               | — 8.0                               | 250                        | —                          | —                           | 90                         | 5 200                                        | —                                                     | 7 600                           | 3.4             |                                                               | 6M-P17  |        |
| 6M-L4   | Medium-Mu Triode                            | mT                  | 18-1      | H                  | 6.3         | 0.175       | For other characteristics, refer to Type 6AF4A                                                    |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6M-L4  |
| 6R-A3   | Power Amp. or Voltage Reguiater             | mT                  | 21-4      | H                  | 6.3         | 1.0         | 100                                                                                               | —20                                 | —                          | 100                        | —                           | 0.24                       | 12 500                                       | 3                                                     | —                               | —               |                                                               | 6R-A3   |        |
| 6R-B11  | Beam Power                                  | mT                  | 21-4      | H                  | 6.3         | 0.8         | 50<br>200                                                                                         | 0<br>—12.5                          | 200<br>200                 | 160<br>45                  | 22<br>2.5                   | —<br>40                    | —<br>7 500                                   | —                                                     | —<br>4 000                      | —<br>4.5        |                                                               | 6R-B11  |        |
| 6R-DHV1 | Diode-High-Mu Triode, Remote Cutoff Pentode | mT                  | 21-2      | H                  | 6.3         | 0.48        | 250<br>250                                                                                        | —1<br>—2                            | 100<br>—                   | 9.0<br>1.2                 | 3.0<br>—                    | 250<br>62.5                | 3 500<br>1 600                               | —<br>100                                              | (Pentode unit)<br>(Triode unit) |                 |                                                               | 6R-DHV1 |        |
| 6R-HV1  | High-Mu Triode, Remote Cutoff Pentode       | mT                  | 21-2      | H                  | 6.3         | 0.48        | 250<br>250                                                                                        | —1<br>—2                            | 100<br>—                   | 9.0<br>1.2                 | 3.0<br>—                    | 250<br>62.5                | 3 500<br>1 600                               | —<br>100                                              | "                               |                 |                                                               | 6R-HV1  |        |
| 6R-K19  | Half-Wave Vacuum Rectfier                   | mT                  | 21-08     | H                  | 6.3         | 0.15        | Epx (V) max.=5 500, I <sub>b</sub> (mA) max.=220, Peak I <sub>b</sub> (mA.) max.=1 300            |                                     |                            |                            |                             |                            |                                              |                                                       |                                 |                 |                                                               |         | 6R-K19 |
| 6R-P10  | Power Pentode                               | mT                  | 21-3      | H                  | 6.3         | 0.5         | 150                                                                                               | R <sub>k</sub> =60Ω                 | 150                        | 36                         | 8.0                         | 60                         | 13 500                                       | —                                                     | —                               | —               |                                                               | 6R-P10  |        |
| 6R-P15  | Power Pentode                               | mT                  | 21-4      | H                  | 6.3         | 0.75        | 250<br>250<br>300                                                                                 | —8.0<br>—<br>—                      | 250<br>250<br>300          | 59<br>2×36.5<br>2×44.5     | 16<br>2×4.6<br>2×5.5        | 32<br>—<br>—               | 11 000<br>—<br>—                             | 17<br>—<br>—                                          | 4 000<br>6 000<br>6 000         | 6.8<br>12<br>18 | class A <sub>1</sub> Amp.<br>class AB <sub>1</sub> PP<br>Amp. | 6R-P15  |        |



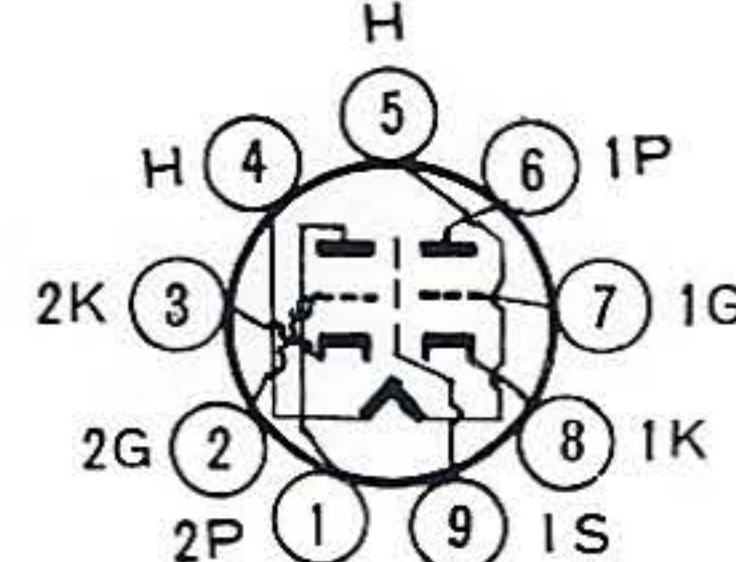
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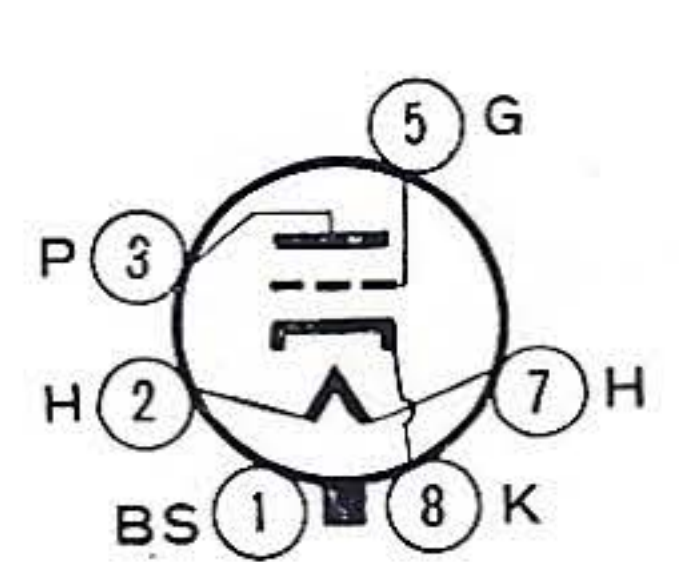
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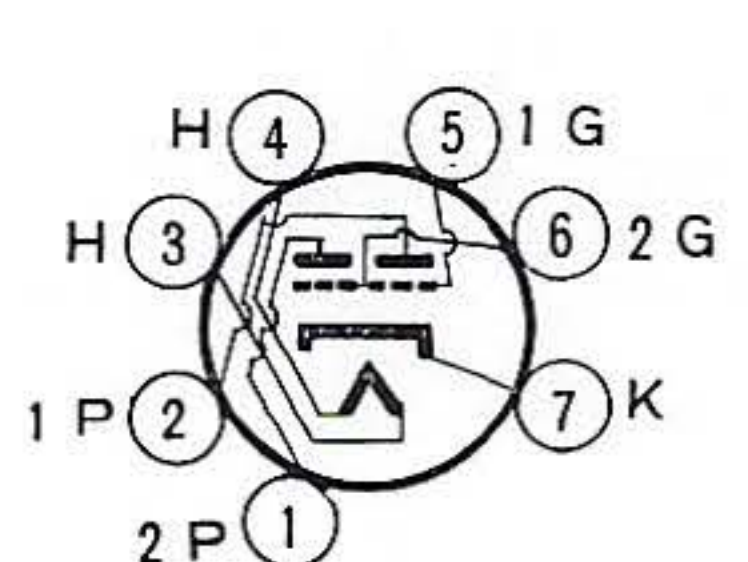
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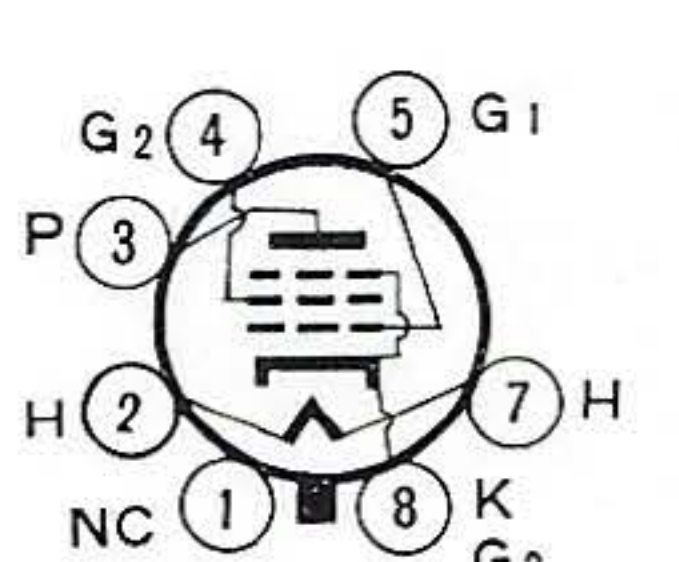
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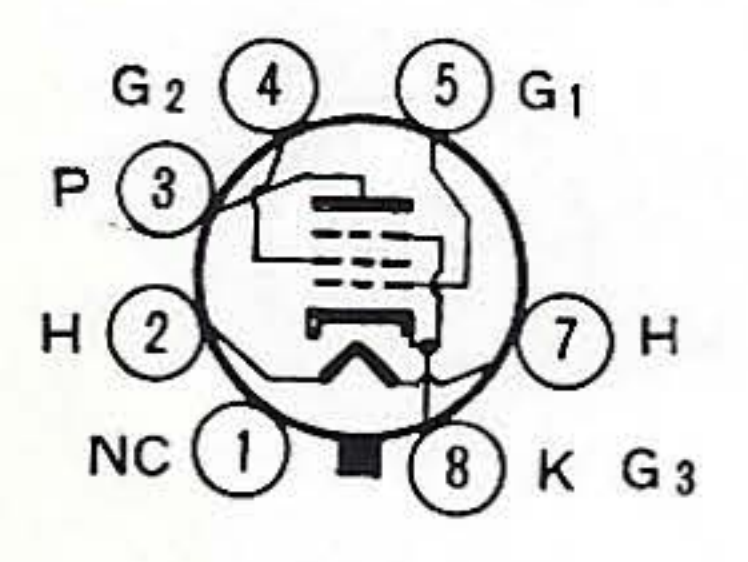
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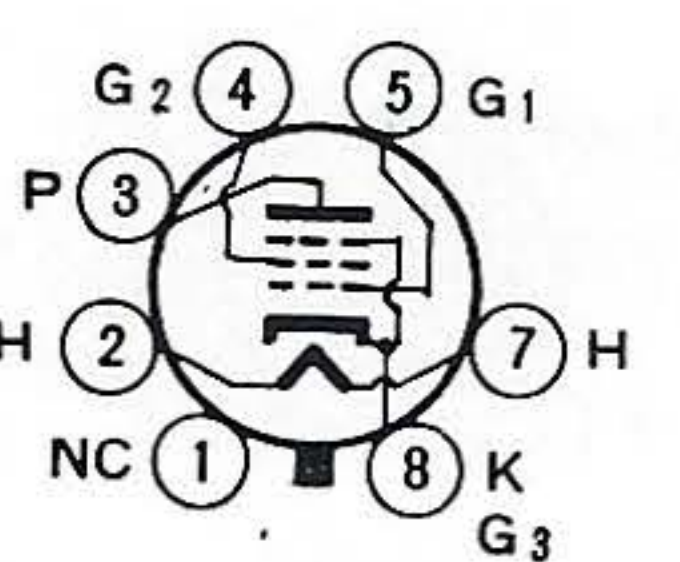
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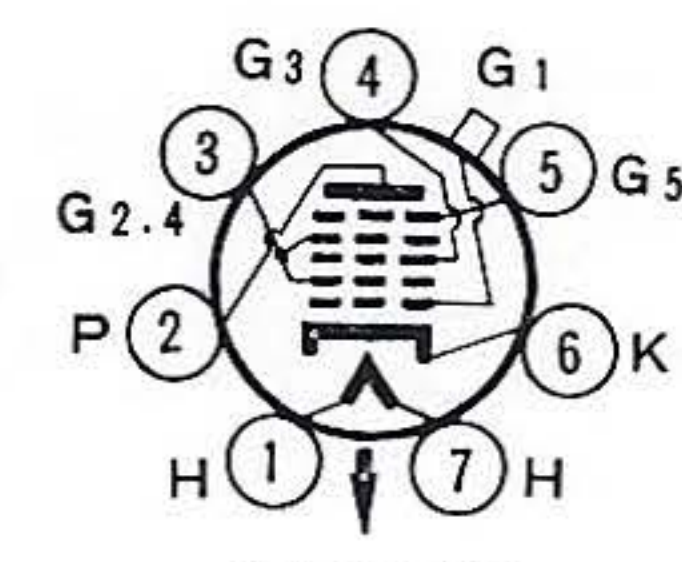
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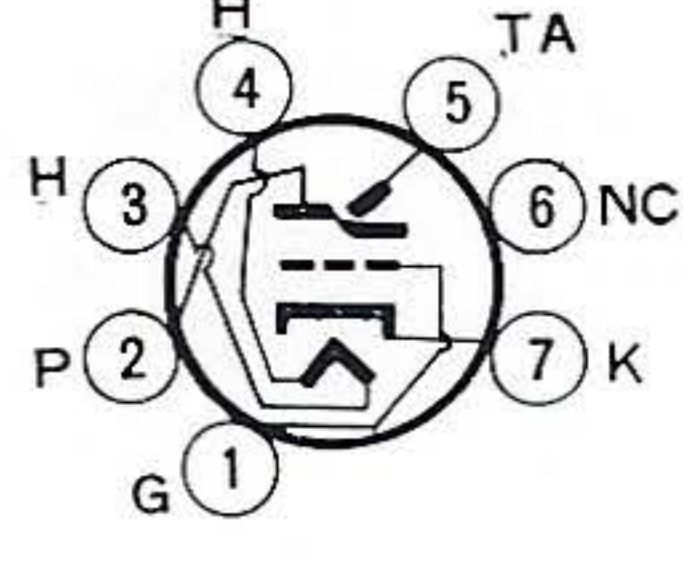
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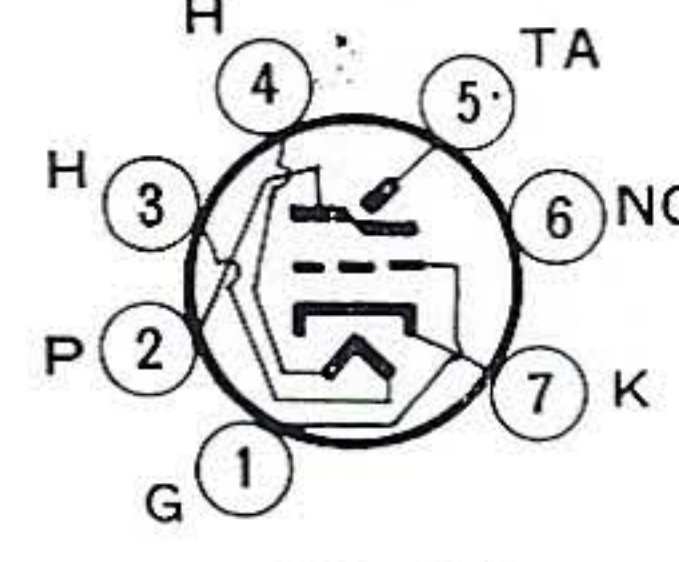
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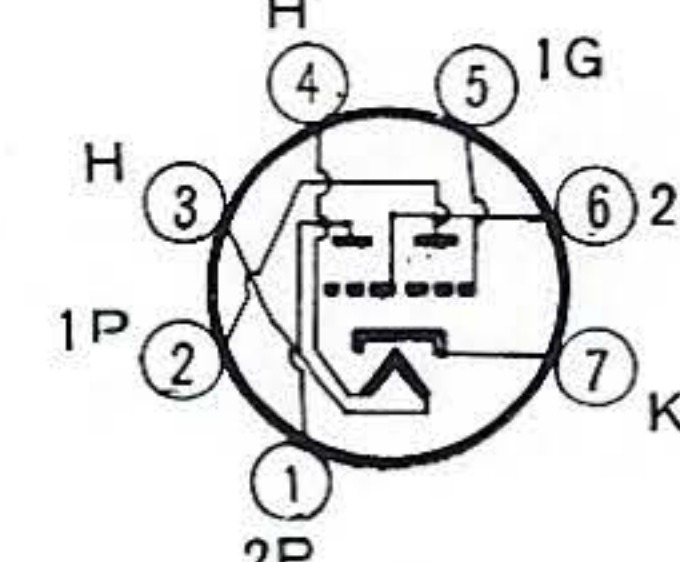
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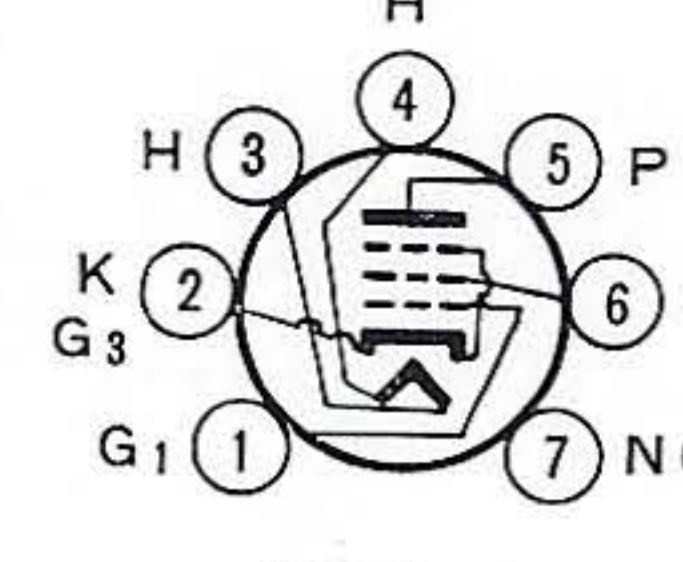
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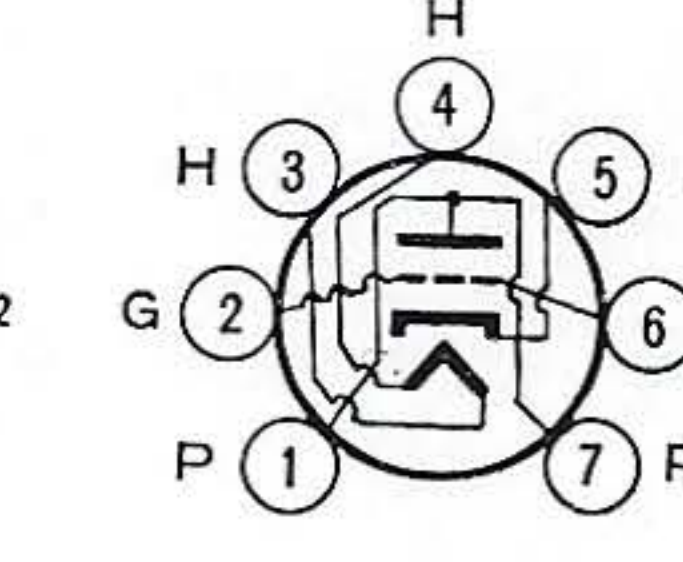
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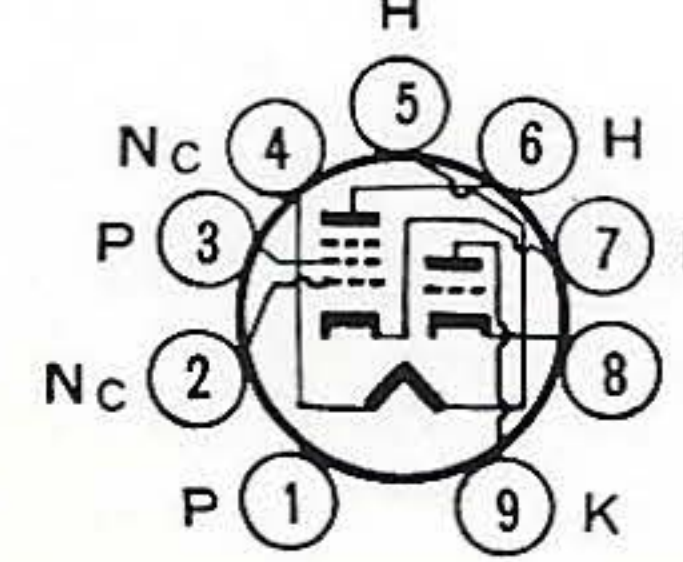
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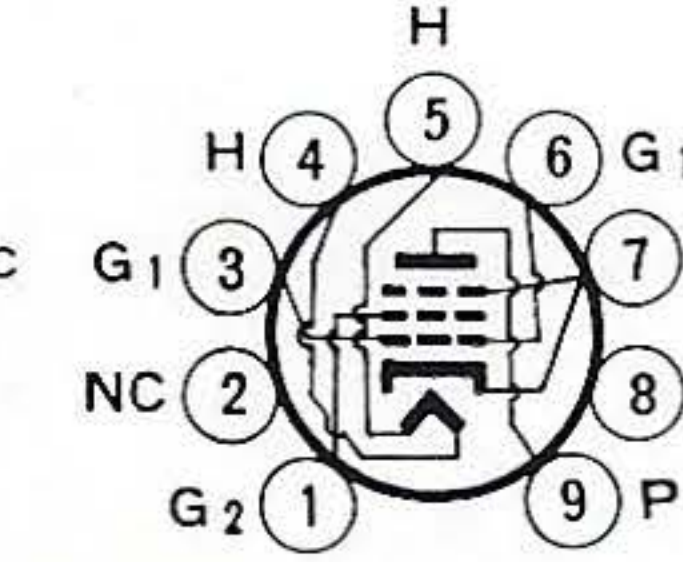
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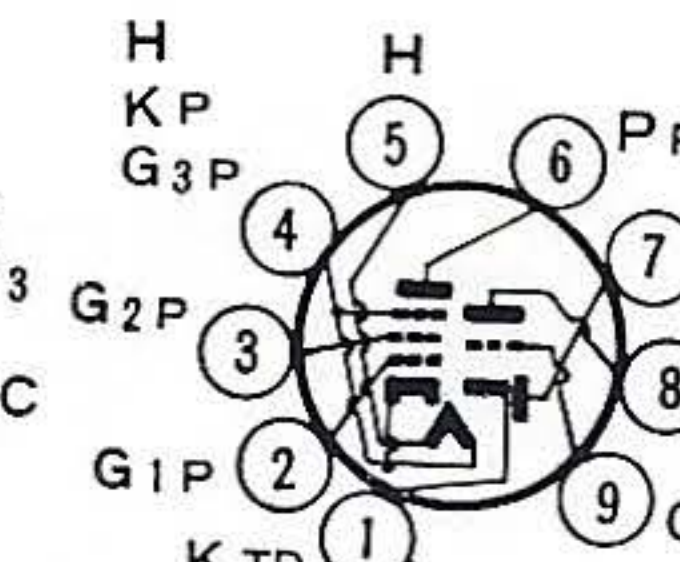
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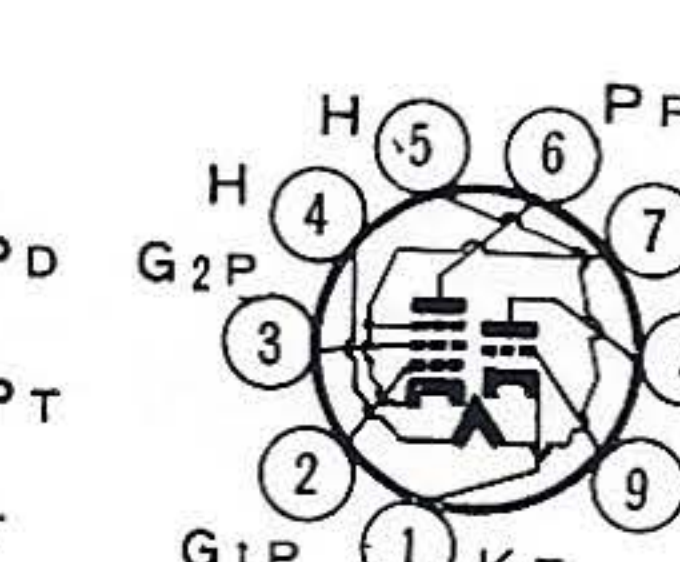
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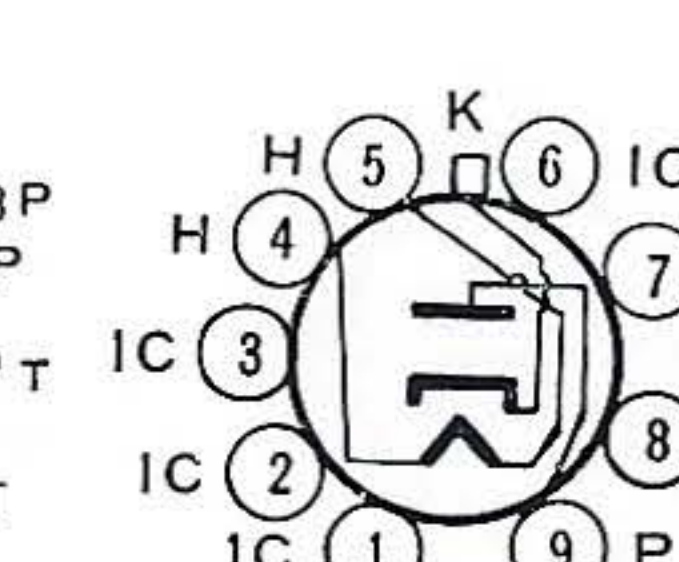
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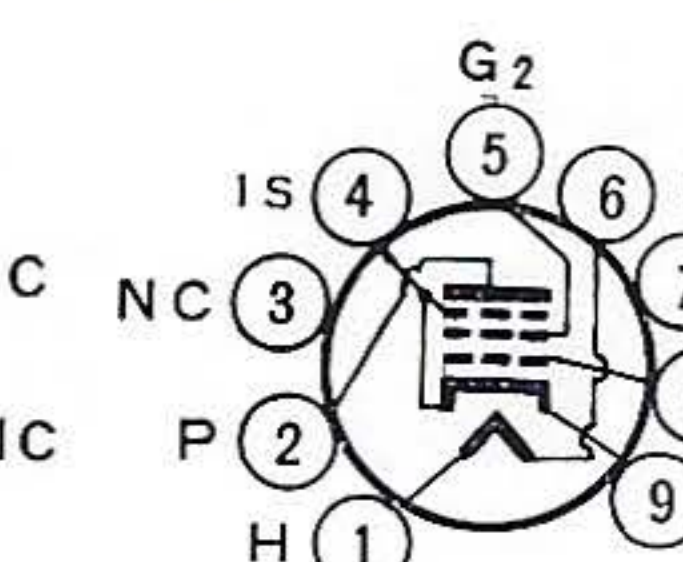
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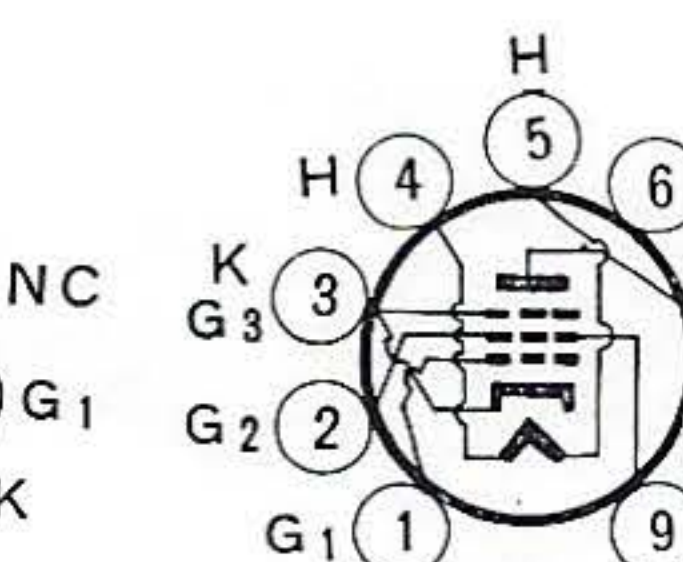
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6R-K19



6R-P10



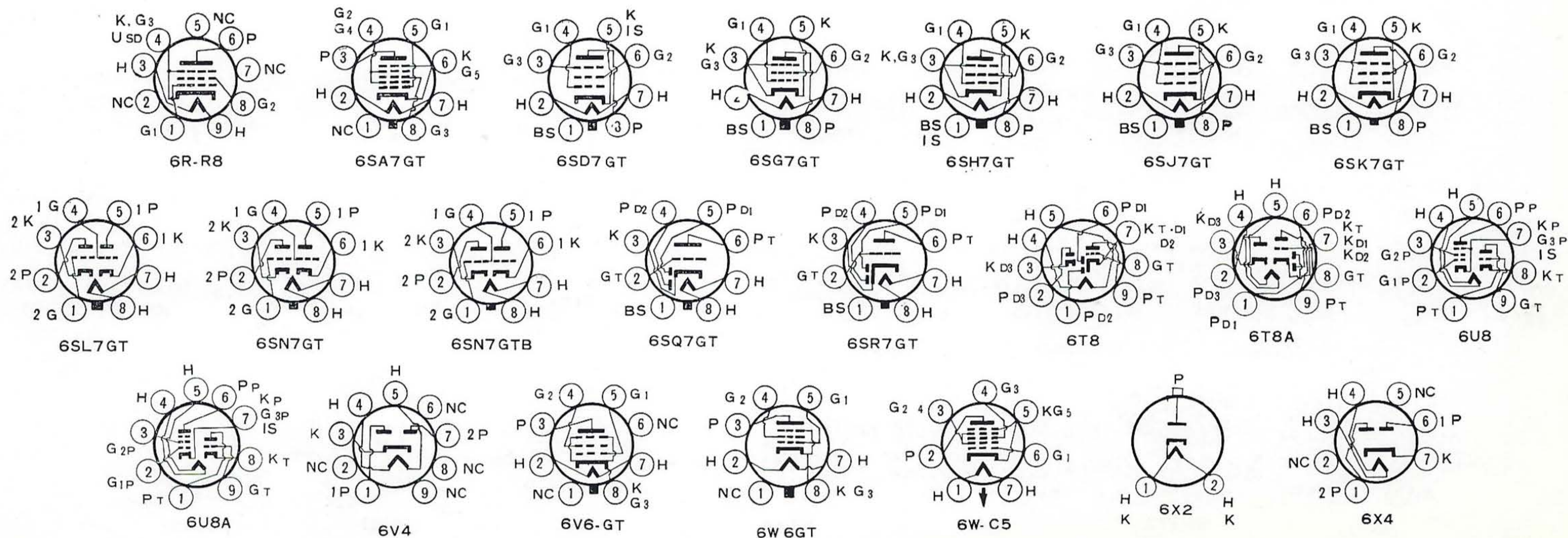
6R-P15

# CHARACTERISTICS CHART

other Types

6R-R8 to 6X4

| Type    | Name                                   | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                       | Ec1<br>(V)       | Ec2<br>(V) | Ib<br>(mA)  | Ic2<br>(mA) | rp<br>(KΩ) | gm or Gc<br>(μS) | μ                      | RL<br>(Ω)                         | PO<br>(W)     | Remarks                     | Type    |
|---------|----------------------------------------|---------------------|-----------|--------------------|-------------|-------------|-------------------------------------------------|------------------|------------|-------------|-------------|------------|------------------|------------------------|-----------------------------------|---------------|-----------------------------|---------|
|         |                                        |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                 |                  |            |             |             |            |                  |                        |                                   |               |                             |         |
| 6R-R8   | RF Amplifier Pentode                   | mT                  | 21-1      | H                  | 6.3         | 0.3         | 150                                             | Rk=110Ω          | 150        | 13          | 4.5         | —          | 12 500           | —                      | —                                 | —             |                             | 6R-R8   |
| 6SA7GT  | Pentagrid Converter                    | GT                  | 29-2A     | H                  | 6.3         | 0.3         | 250                                             | Rg1=20KΩ         | Ec2,4=100  | 3.5         | 8.5         | 1 000      | 450              | Ec3=0, Ic1=0.5mA(Self) |                                   |               |                             | 6SA7GT  |
| 6SD7GT  | Remote-Cutoff Pentode                  | GT                  | 29-3B     | H                  | 6.3         | 0.3         | 250                                             | -2               | 125        | 9.5         | 3.0         | 700        | 4 250            | —                      | —                                 | —             |                             | 6SD7GT  |
| 6SG7GT  | Remote-Cutoff Pentode                  | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                             | -1               | 125        | 11.8        | 4.4         | 900        | 4 700            | —                      | —                                 | —             |                             | 6SG7GT  |
| 6SH7GT  | Sharp-Cutoff Pentode                   | GT                  | 29-3B     | H                  | 6.3         | 0.3         | 250                                             | -1               | 150        | 10.8        | 4.1         | 900        | 4 900            | —                      | —                                 | —             |                             | 6SH7GT  |
| 6SJ7GT  | Sharp-Cutoff Pentode                   | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                             | -3               | 100        | 3.0         | 0.8         | 1 000      | 1 650            | —                      | —                                 | —             |                             | 6SJ7GT  |
| 6SK7GT  | Remote-Cutoff Pentode                  | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                             | -3               | 100        | 9.2         | 2.6         | 800        | 2 000            | —                      | —                                 | —             |                             | 6SK7GT  |
| 6SL7GT  | High-Mu Twin-Triode                    | GT                  | 29-2A     | H                  | 6.3         | 0.3         | 250                                             | -2               | —          | 2.3         | —           | 4.4        | 1 600            | 70                     | —                                 | (each Triode) |                             | 6SL7GT  |
| 6SN7GT  | Twin-Triode Amplifier                  | GT                  | 29-2A     | H                  | 6.3         | 0.6         | 250                                             | -8               | —          | 9.0         | —           | 7.7        | 2 600            | 20                     | —                                 | (each Triode) |                             | 6SN7GT  |
| 6SN7GTB | Medium-Mu Twin Triode                  | GT                  | 29-2A     | H                  | 6.3         | 0.6         | For other characteristics, refer to Type 6SN7GT |                  |            |             |             |            |                  |                        |                                   |               | thw=11 sec                  | 6SN7GTB |
| 6SQ7GT  | Twin-Diode High-Mu Triode              | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                             | -2               | —          | 1.1         | —           | 85         | 1 175            | 100                    | Diode unit Io 1.0 mA (each Diode) |               |                             | 6SQ7GT  |
| 6SR7GT  | Twin-Diode Triode                      | GT                  | 29-2B     | H                  | 6.3         | 0.3         | 250                                             | -9.0             | —          | 9.5         | —           | 8.5        | 1 900            | 16                     | 10 000                            | 0.3           | Diode unit 6507             | 6SR7GT  |
| 6T8     | Triple Diode Triode                    | mT                  | 21-2      | H                  | 6.3         | 0.45        | 250                                             | -3               | —          | 1.0         | —           | 58         | 1 200            | 70                     | (Triode unit)                     |               |                             | 6T8     |
| 6T8A    | Triple Diode High-Mu Triode            | mT                  | 21-2      | H                  | 6.3         | 0.45        | 250                                             | -3.0             | —          | 1.0         | —           | 58         | 1 200            | 70                     | —                                 | —             |                             | 6T8A    |
| 6U8     | Medium-Mu Triode, Sharp Cutoff Pentode | mT                  | 21-2      | H                  | 6.3         | 0.45        | 250<br>150                                      | Rk=68Ω<br>Rk=56Ω | 100<br>—   | 10<br>18    | 3.5<br>—    | 400<br>5   | 5 200<br>8 500   | —<br>40                | (Pentode unit)<br>(Triode unit)   |               |                             | 6U8     |
| 6U8A    | Triode Pentode                         | mT                  | 21-2      | H                  | 6.3         | 0.45        | 125<br>125                                      | -1.0<br>-1.0     | 110<br>—   | 9.5<br>13.5 | 3.5<br>—    | 200<br>—   | 5 000<br>7 500   | —<br>40                | —                                 | —             | Pentode unit<br>Triode unit | 6U8A    |
| 6V4     | Full-Wave Rectifier                    | mT                  |           | H                  | 6.3         | 0.6         | AC Voltage 350 Vac, DC Output current=90 mA dc  |                  |            |             |             |            |                  |                        |                                   |               |                             | 6V4     |
| 6V6GT   | Beam Power Amplifier                   | GT                  | 29-2A     | H                  | 6.3         | 0.45        | 250                                             | -12.5            | 250        | 45          | 4.5         | 50         | 4 100            | —                      | 5 000                             | 4.5           |                             | 6V6GT   |
| 6W6GT   | Beam Power Amplifier                   | GT                  | 29-2A     | H                  | 6.3         | 1.2         | 200                                             | Rk=80Ω           | 125        | 46          | 2.2         | 28         | 8 000            | —                      | 4 000                             | 3.8           |                             | 6W6GT   |
| 6W-C5   | Pentagrid Converter                    | ST                  | 38-3      | H                  | 6.3         | 0.35        | For other characteristics, refer to Type 6SA7GT |                  |            |             |             |            |                  |                        |                                   |               |                             | 6W-C5   |
| 6X2     | Half-Wave Rectifier                    | Sub                 | 9-02      | H                  | 6.3         | 0.09        | Epx. (V) max. 17 000, Io (mA) max. 3.0          |                  |            |             |             |            |                  |                        |                                   |               |                             | 6X2     |
| 6X4     | Full-Wave Rectifier                    | mT                  | 18-3      | H                  | 6.3         | 0.6         | For other characteristics, refer to Type 6X5GT  |                  |            |             |             |            |                  |                        |                                   |               |                             | 6X4     |

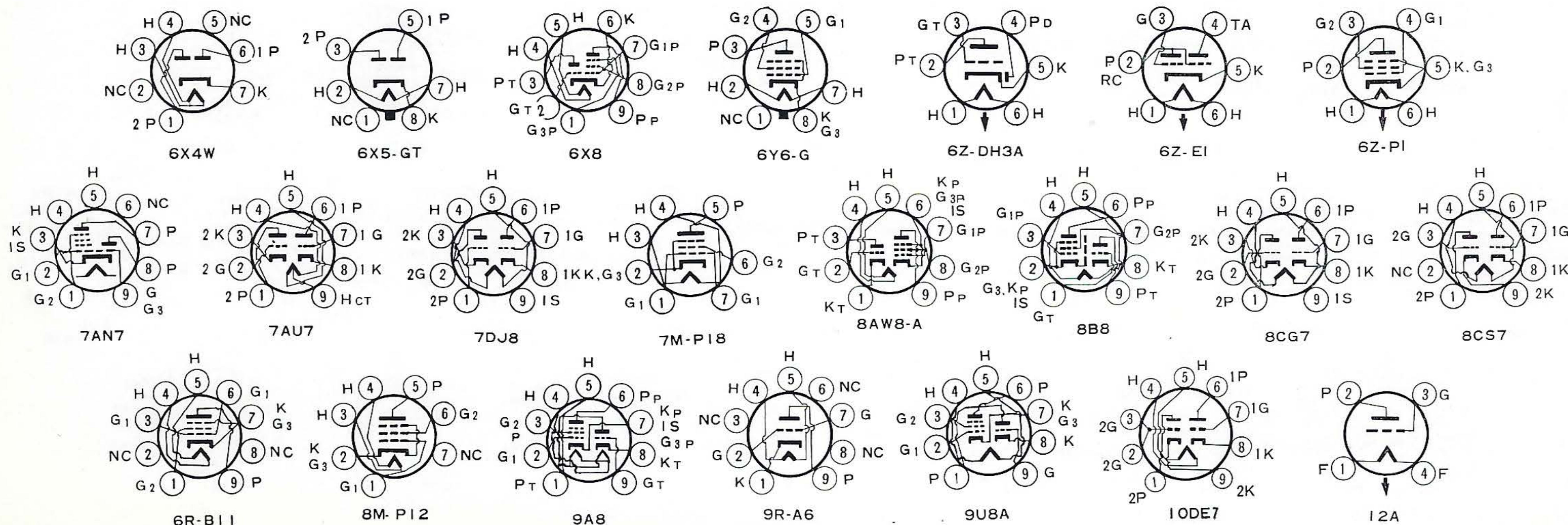


## TOSHIBA ELECTRON TUBES

Miniature, ST, GT, and

6X4W to 12A

| Type    | Name                                          | Bulb Size or Styles | Dimension | Cathode            |                   |                   | Eb<br>(V)                                                                                                                | Ec <sub>1</sub><br>(V) | Ec <sub>2</sub><br>(V) | I <sub>b</sub><br>(mA) | Ic <sub>2</sub><br>(mA)         | r <sub>p</sub><br>(KΩ) | g <sub>m</sub> or G <sub>c</sub><br>(μS) | μ                  | RL<br>(Ω)                                   | PO<br>(W)     | Remarks                     | Type       |       |
|---------|-----------------------------------------------|---------------------|-----------|--------------------|-------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------|------------------------|---------------------------------|------------------------|------------------------------------------|--------------------|---------------------------------------------|---------------|-----------------------------|------------|-------|
|         |                                               |                     |           | Heater or Filament | Voltage (V)       | Current (A)       |                                                                                                                          |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            |       |
| 6X4W    | Full-Wave Rectifier                           | mT                  | 18-3      | H                  | 6.3               | 0.6               | For other characteristics, refer to Type 6X5GT                                                                           |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 6X4W  |
| 6X5GT   | Full-Wave Rectifier                           | GT                  | 29-3A     | H                  | 6.3               | 0.6               | Epx. (V) max. 1250, I peak (mA) max. 210, Epp (V) max. $\frac{325}{450}$ , I <sub>o</sub> (mA) max. 70 $\frac{(C)}{(L)}$ |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 6X5GT |
| 6X8     | Triode Pentode Converter                      | mT                  | 21-2      | H                  | 6.3               | 0.45              | $\frac{125}{125}$                                                                                                        | $\frac{-1}{-1}$        | $\frac{125}{-}$        | $\frac{9.0}{12.0}$     | $\frac{2.2}{-}$                 | $\frac{300}{6}$        | $\frac{5500}{6500}$                      | $\frac{-}{40}$     | $\frac{-}{-}$                               | $\frac{-}{-}$ | Pentode unit<br>Triode unit | 6X8        |       |
| 6Y6G    | Beam Power Amplifier                          | G                   | 45-2      | H                  | 6.3               | 1.25              | 200                                                                                                                      | -14.0                  | 135                    | 61.0                   | 2.2                             | 18.3                   | 7100                                     | -                  | 2600                                        | 6.0           |                             | 6Y6G       |       |
| 6Z-DH3A | Diode High-Mu Triode                          | ST                  | 38-3      | H                  | 6.3               | 0.3               | 250                                                                                                                      | -2                     | -                      | 1.1                    | -                               | 85                     | 1175                                     | 100                | -                                           | -             |                             | 6Z-DH3A    |       |
| 6Z-E1   | Electron-Ray Tube                             | GT                  | 29-21     | H                  | 6.3               | 0.3               | 250                                                                                                                      | $\frac{0}{-7}$         | R=1MΩ                  | 5                      | I <sub>cr</sub> = $\frac{2}{-}$ | PE=90°<br>PE=9°        | -                                        | -                  |                                             |               |                             | 6Z-E1      |       |
| 6Z-P1   | Power Amplifier Pentode                       | ST                  | 38-3      | H                  | 6.3               | 0.35              | 180                                                                                                                      | -10                    | 180                    | 15                     | 2.5                             | 130                    | 1750                                     | -                  | 12000                                       | 1.0           |                             | 6Z-P1      |       |
| 7AN7    | Medium-Mu Twin Triode                         | mT                  | 21-2      | H                  | 7.0               | 0.3               | 90                                                                                                                       | -1.5                   | -                      | 12                     | -                               | -                      | 6000                                     | 24                 | -                                           | -             |                             | 7AN7       |       |
| 7AU7    | Medium-Mu Twin-Triode                         | mT                  | 21-2      | H                  | $\frac{3.5}{7.0}$ | $\frac{0.6}{0.3}$ | For other characteristics, refer to Type 12AU7                                                                           |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             | thw=11 sec | 7AU7  |
| 7DJ8    | Twin Triode                                   | mT                  | 21-2      | H                  | 7.0               | 0.3               | " 6DJ8                                                                                                                   |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 7DJ8  |
| 7M-P18  | Power Pentode                                 | mT                  | 18-3      | H                  | 7.5               | 0.6               | 200                                                                                                                      | -5                     | 180                    | 35                     | 5.5                             | 24                     | 11000                                    | -                  | 5000                                        | 3.2           |                             | 7M-P18     |       |
| 8AW8A   | High-Mu Triode Sharp Cutoff Pentode           | mT                  | 21-3      | H                  | 8.4               | 0.45              | For other characteristics, refer to Type 6AW8A                                                                           |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 8AW8A |
| 8B8     | High-Mu Triode Power Pentode                  | mT                  | 21-4      | H                  | 8.2               | 0.6               | " 6BM8                                                                                                                   |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 8B8   |
| 8CG7    | Medium-Mu Twin Triode                         | mT                  | 21-3      | H                  | 8.4               | 0.45              | " 6CG7                                                                                                                   |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 8CG7  |
| 8CS7    | Double Triode                                 | mT                  | 21-3      | H                  | 8.4               | 0.45              | 250                                                                                                                      | -8.5                   | -                      | 10.5                   | -                               | 7.7                    | 2200                                     | 17                 | -                                           | -             |                             | 8CS7       |       |
| 8R-B11  | Beam Power Tube                               | mT                  | 21-4      | H                  | 8.5               | 0.6               | 200                                                                                                                      | -12.5                  | 200                    | 45                     | 2.5                             | -                      | 7500                                     | -                  | -                                           | -             |                             | 8R-B11     |       |
| 8M-P12  | Power Amplifier Pentode                       | mT                  | 18-3      | H                  | 8.5               | 0.3               | 180                                                                                                                      | -6                     | 180                    | 25                     | 5.0                             | -                      | 5500                                     | -                  | 6000                                        | 2.0           |                             | 8M-P12     |       |
| 9A8     | Triode Pentode                                | mT                  | 21-3      | H                  | 9.0               | 0.3               | For other characteristics, refer to Type 6BL8                                                                            |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 9A8   |
| 9R-A6   | Power Amplifier Pentode                       | mT                  | 21-3      | H                  | 9.5               | 0.6               | 250                                                                                                                      | -12                    | -                      | 26                     | -                               | 1.75                   | 8500                                     | 15                 | -                                           | -             | Vertical Deflection Amp.    | 9R-A6      |       |
| 9U8A    | Triode Pentode                                | mT                  | 21-2      | H                  | 9.45              | 0.3               | For other characteristics, refer to Type 6U8A                                                                            |                        |                        |                        |                                 |                        |                                          |                    |                                             |               |                             |            | 9U8A  |
| 10DE7   | Dual Triode with Medium-Mu unit & Low-Mu unit | mT                  | 21-4      | H                  | 10.0              | 0.6               | $\frac{250}{150}$                                                                                                        | $\frac{-11}{-17.5}$    | $\frac{-}{-}$          | $\frac{5.5}{3.5}$      | $\frac{-}{-}$                   | $\frac{8.75}{0.925}$   | $\frac{2000}{6500}$                      | $\frac{17.5}{6.0}$ | unit No.1 Oscillator<br>unit No.2 Amplifier |               |                             | 10DE7      |       |
| 12A     | Power Amplifier Triode                        | ST                  | 38-3      | F                  | 5.0               | 0.25              | 180                                                                                                                      | -15                    | -                      | 8.5                    | -                               | 4.15                   | 1800                                     | 75                 | 10000                                       | 0.27          |                             | 12A        |       |

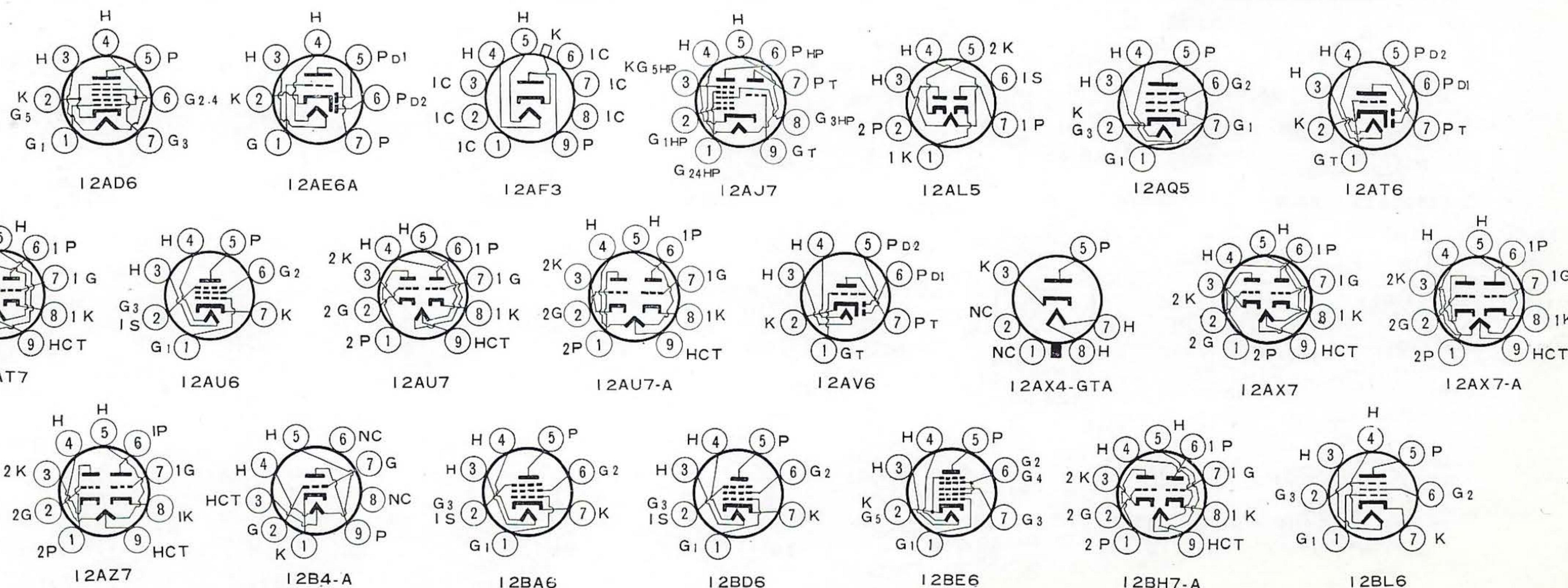


## CHARACTERISTICS CHART

other Types

12AD6 to 12BL6

| Type      | Name                                   | Bulb Size or Styles | Dimension | Cathode            |                    |                    | Eb<br>(V)                                                                          | Ec <sub>1</sub><br>(V)           | Ec <sub>2</sub><br>(V) | I <sub>b</sub><br>(mA) | I <sub>c<sub>2</sub></sub><br>(mA) | r <sub>p</sub><br>KΩ | g <sub>m</sub> or G <sub>c</sub><br>(μS) | μ                              | RL<br>(Ω)     | PO<br>(W) | Remarks        | Type      |
|-----------|----------------------------------------|---------------------|-----------|--------------------|--------------------|--------------------|------------------------------------------------------------------------------------|----------------------------------|------------------------|------------------------|------------------------------------|----------------------|------------------------------------------|--------------------------------|---------------|-----------|----------------|-----------|
|           |                                        |                     |           | Heater or Filament | Voltage (V)        | Current (A)        |                                                                                    |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                |           |
| 12AD6     | Pentagrid Converter                    | mT                  | 18-2      | H                  | 12.6               | 0.15               | 12.6                                                                               | $R_{g1} = \frac{1.6}{33K\Omega}$ | 12.6                   | 0.45                   | 1.5                                | 1 000                | 260                                      | —                              | —             | —         |                | 12AD6     |
| 12AE6A    | Duptex-Diode Triode                    | mT                  | 18-2      | H                  | 12.6               | 0.15               | 12.6                                                                               | 0                                | —                      | 0.75                   | —                                  | 15.0                 | 1 000                                    | 15                             | —             | —         | Triode         | 12AE6A    |
| * 12AF3   | Half-Wave High Vacuum Rectifier        | mT                  | 21-8      | H                  | 12.6               | 0.15               | I <sub>o</sub> (mA) max. 185, E <sub>px</sub> (V) max. 4 500, I peak (mA) max. 750 |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AF3*    |
| 12AJ7     | Triode-Heptode                         | mT                  | 21-3      | H                  | 12.6               | 0.15               | $\frac{200}{100}$                                                                  | $\frac{2.6}{0}$                  | 123                    | $\frac{7.6}{13.5}$     | 4.3                                | 0.6                  | $\frac{2 400}{3 700}$                    | $R_{g2} = 18K\Omega$ , RK=220Ω | 22            |           | Heptode Triode | 12AJ7     |
| 12AL5     | Twin-Diode                             | mT                  | 18-1      | H                  | 12.6               | 0.15               | For other characteristics, refer to Type 6AL5                                      |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AL5     |
| 12AQ5     | Beam Power Amplifier                   | mT                  | 18-3      | H                  | 12.6               | 0.225              | " 6AQ5                                                                             |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AQ5     |
| 12AT6     | Twin-Diode High-Mu Triode              | mT                  | 18-2      | H                  | 12.6               | 0.15               | " 6AT6                                                                             |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AT6     |
| 12AT7     | High-Mu Twin Triode                    | mT                  | 21-2      | H                  | $\frac{6.3}{12.6}$ | $\frac{0.3}{0.15}$ | 250                                                                                | -2.0                             | —                      | 10.0                   | —                                  | 10.9                 | 5 500                                    | 55                             | (each Triode) |           |                | 12AT7     |
| 12AU6     | Sharp-Cutoff Pentode                   | mT                  | 18-2      | H                  | 12.6               | 0.15               | For other Characteristics, refer to Type 6AU6                                      |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AU6     |
| 12AU7     | Medium-Mu Twin-Triode                  | mT                  | 21-2      | H                  | $\frac{6.3}{12.6}$ | $\frac{0.3}{0.15}$ | 250                                                                                | -8.5                             | —                      | 10.5                   | —                                  | 7.7                  | 2 200                                    | 17                             | (each Triode) |           |                | 12AU7     |
| 12AU7A    | Medium-Mu Twin Triode                  | mT                  | 21-2      | H                  | $\frac{12.6}{6.3}$ | $\frac{0.15}{0.3}$ | For other Characteristics, refer to Type 12AU7                                     |                                  |                        |                        |                                    |                      |                                          |                                |               |           | low noise      | 12AU7A    |
| 12AV6     | Twin-Diode High-Mu Triode              | mT                  | 18-2      | H                  | 12.6               | 0.15               | " 6AV6                                                                             |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12AV6     |
| 12AX4 GTA | Half-Wave Rectifier                    | GT                  | 29-2C     | H                  | 12.6               | 0.6                | " 6AX4GT                                                                           |                                  |                        |                        |                                    |                      |                                          |                                |               |           | thw=11 sec     | 12AX4 GTA |
| 12AX7     | High-Mu Twin-Triode                    | mT                  | 21-2      | H                  | $\frac{6.3}{12.6}$ | $\frac{0.3}{0.15}$ | 250                                                                                | -2.0                             | —                      | 1.2                    | —                                  | 62.5                 | 1 600                                    | 100                            | (each Triode) |           |                | 12AX7     |
| 12AX7A    | High-Mu Twin-Triode                    | mT                  | 21-2      | H                  | $\frac{12.6}{6.3}$ | $\frac{0.15}{0.3}$ | For other characteristics, refer to Type 12AX7                                     |                                  |                        |                        |                                    |                      |                                          |                                |               |           | low noise      | 12AX7A    |
| 12AZ7     | Twin-Triode                            | mT                  | 21-2      | H                  | 12.6               | 0.225              | 250                                                                                | R <sub>k</sub> =200Ω             | —                      | 10                     | —                                  | 10.9                 | 5 500                                    | 60                             | —             | —         |                | 12AZ7     |
| 12B4A     | Low-Mu Triode                          | mT                  | 21-3      | H                  | $\frac{6.3}{12.6}$ | $\frac{0.6}{0.3}$  | 150                                                                                | -17.5                            | —                      | 34                     | —                                  | 1.03                 | 6 300                                    | 6.5                            | —             | —         |                | 12B4A     |
| 12BA6     | RF Amplifier Pentode                   | mT                  | 18-2      | H                  | 12.6               | 0.15               | For other characteristics, refer to Type 6BA6                                      |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12BA6     |
| 12BD6     | Remote-Cutoff Pentode                  | mT                  | 18-2      | H                  | 12.6               | 0.15               | " 6BD6                                                                             |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12BD6     |
| 12BE6     | Pentagrid Converter                    | mT                  | 18-2      | H                  | 12.6               | 0.15               | " 6BE6                                                                             |                                  |                        |                        |                                    |                      |                                          |                                |               |           |                | 12BE6     |
| 12BH7A    | Medium-Mu Twin-Triode                  | mT                  | 21-3      | H                  | $\frac{6.3}{12.6}$ | $\frac{0.6}{0.3}$  | 250                                                                                | -10.5                            | —                      | 11.5                   | —                                  | 5 500                | 3 100                                    | 17                             | —             | —         | thw=11 sec     | 12BH7A    |
| 12BL6     | Sharp-Cutoff Pentode Class A Amplifier | mT                  | 18-2      | H                  | 12.6               | 0.15               | 12.6                                                                               | 1.35                             | 0.5                    | 500                    | 1 350                              | —                    | —                                        | —                              | —             | —         |                | 12BL6     |

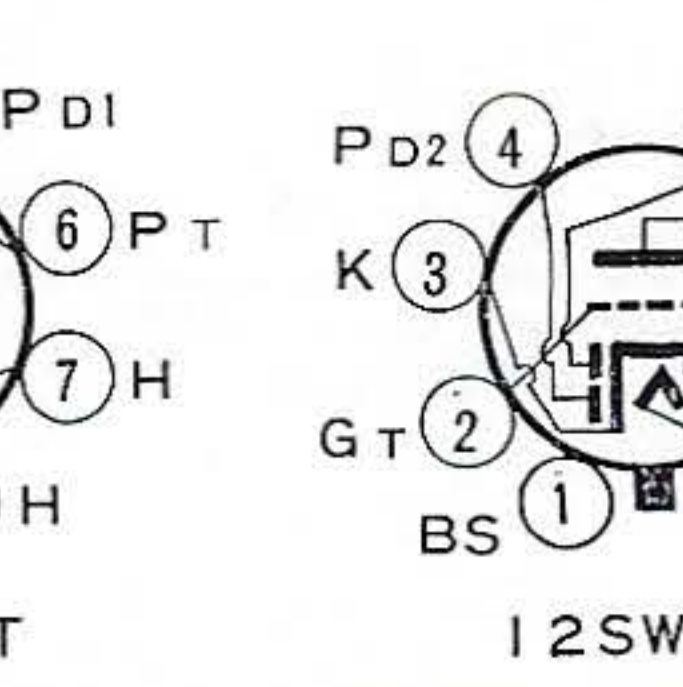
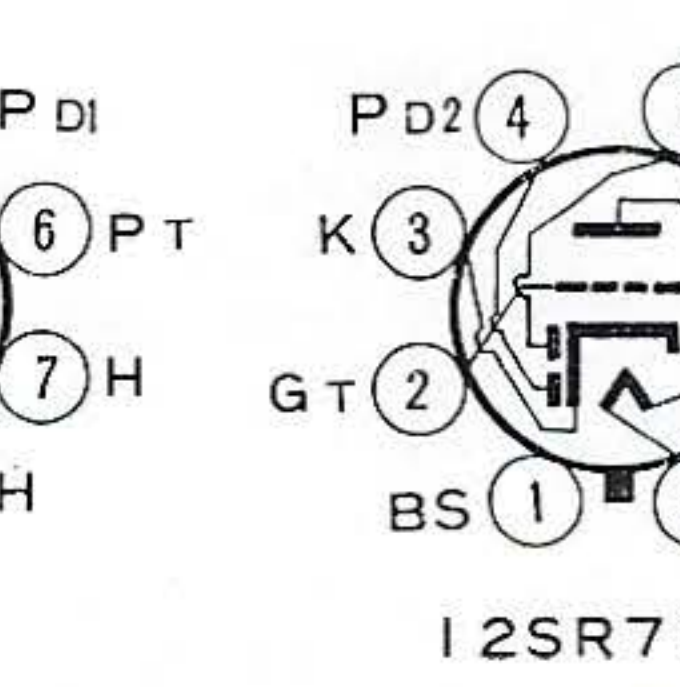
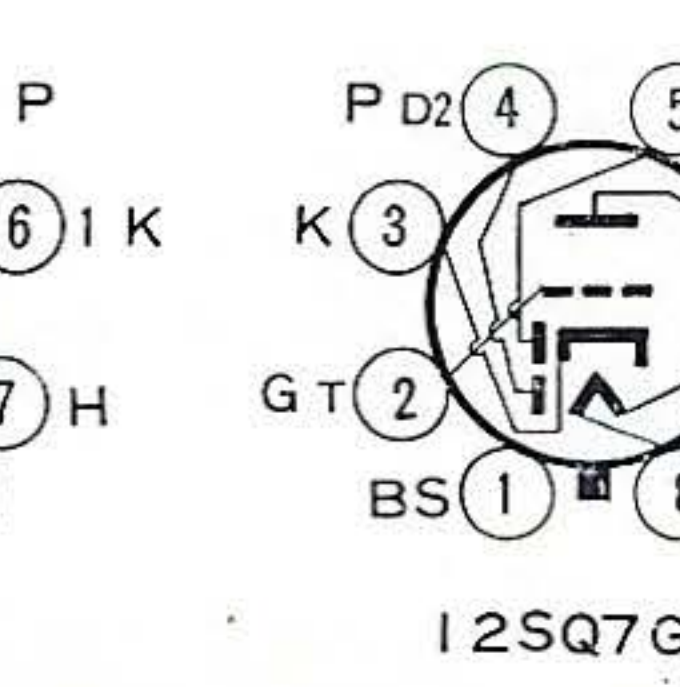
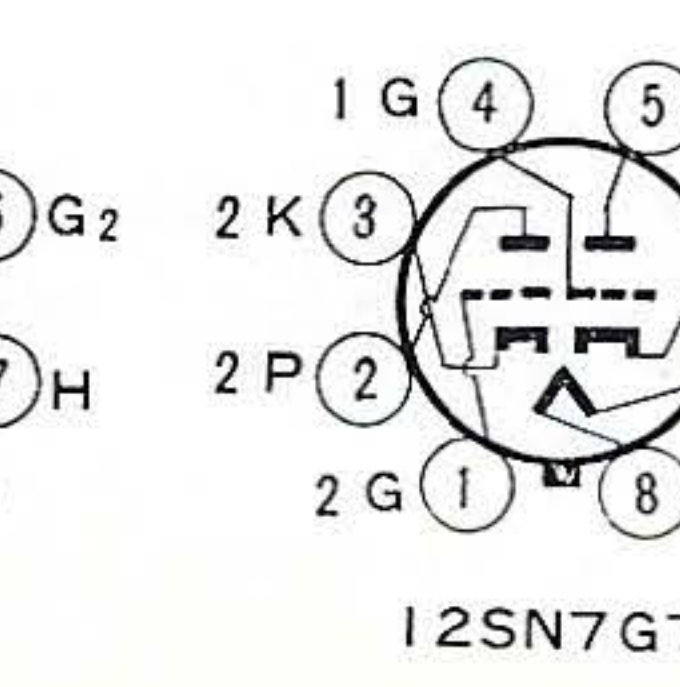
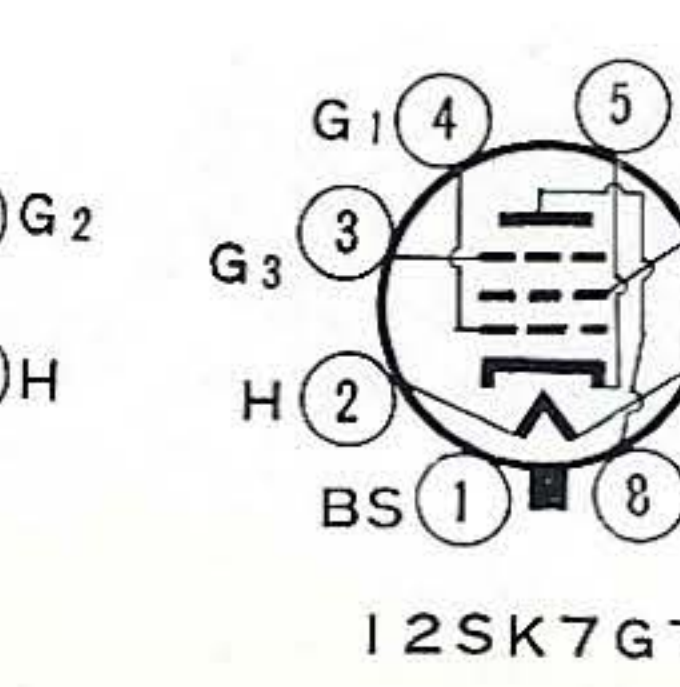
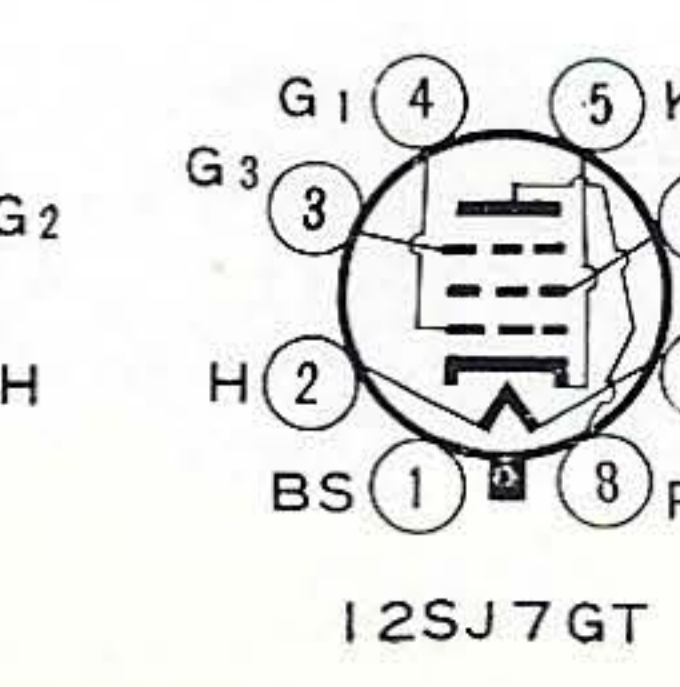
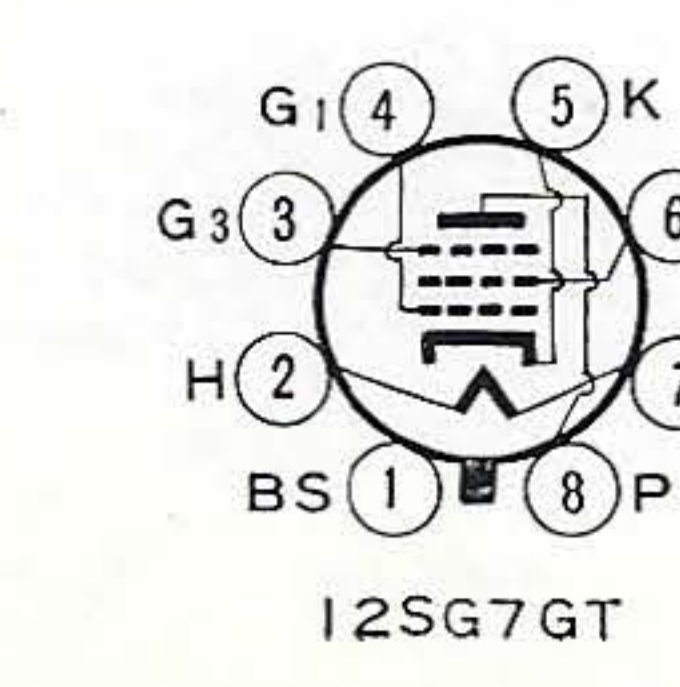
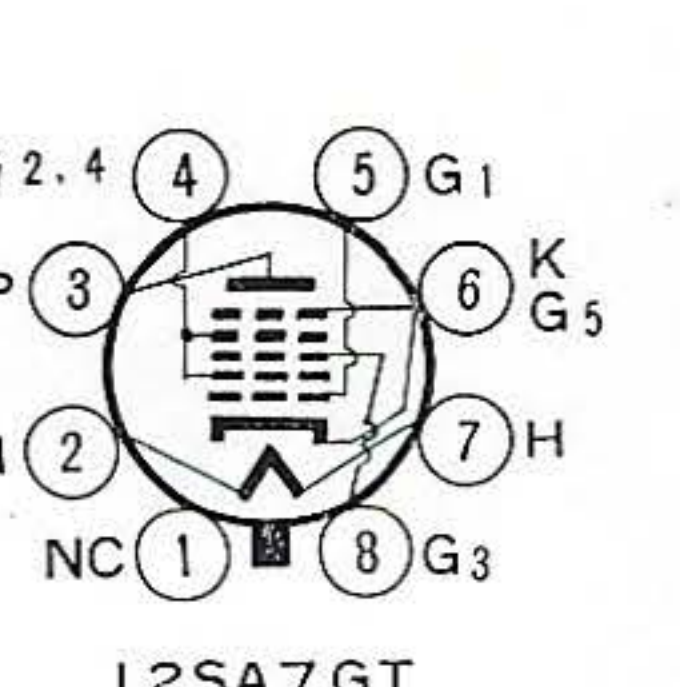
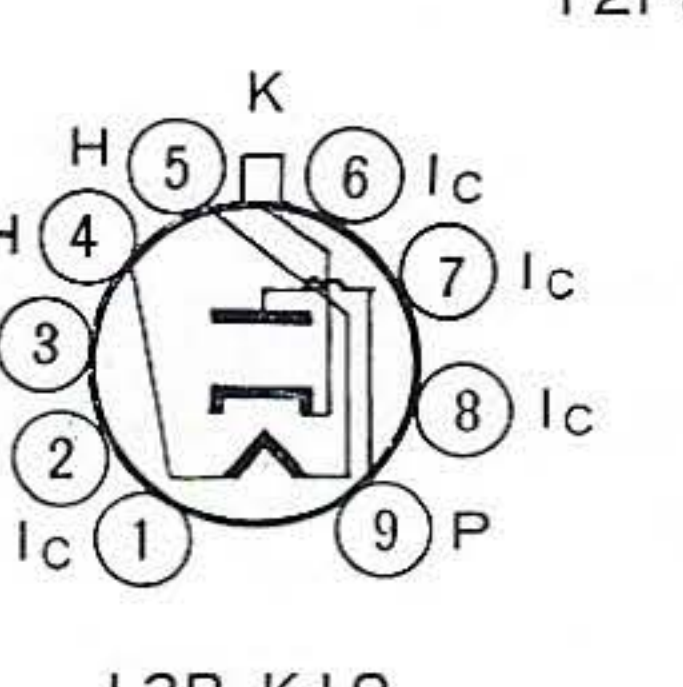
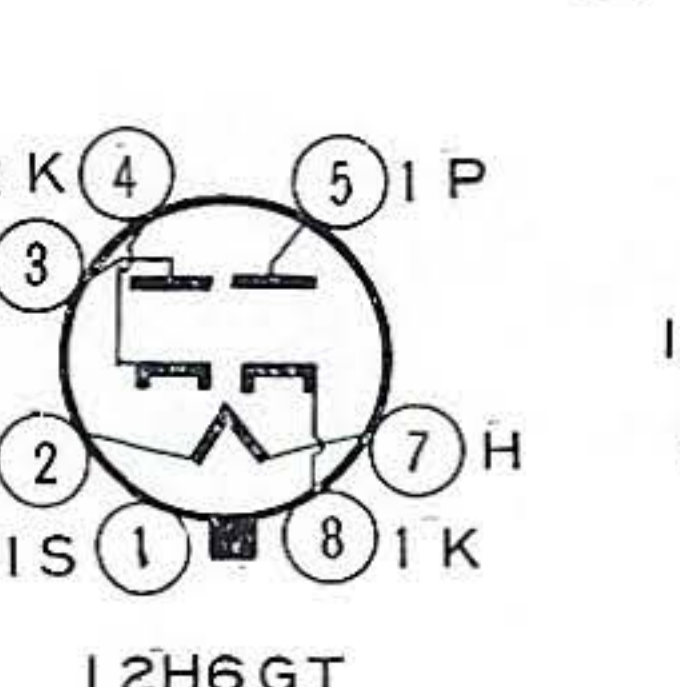
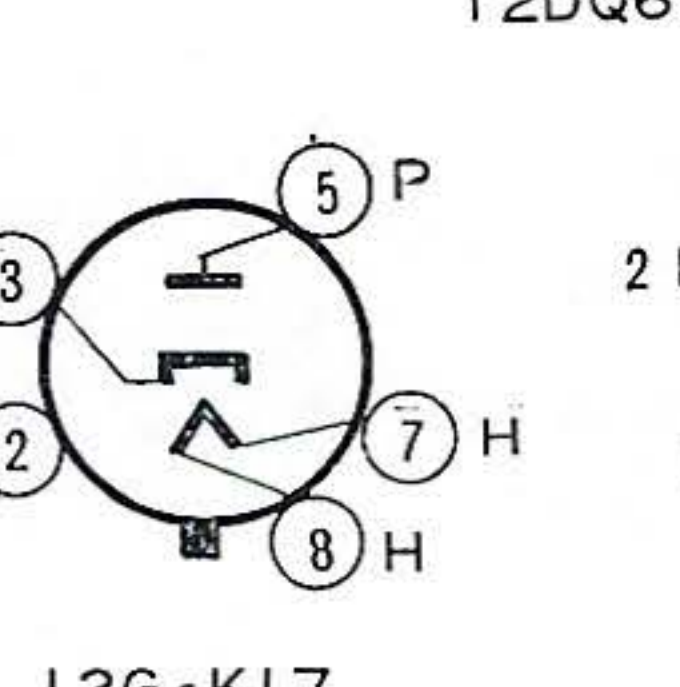
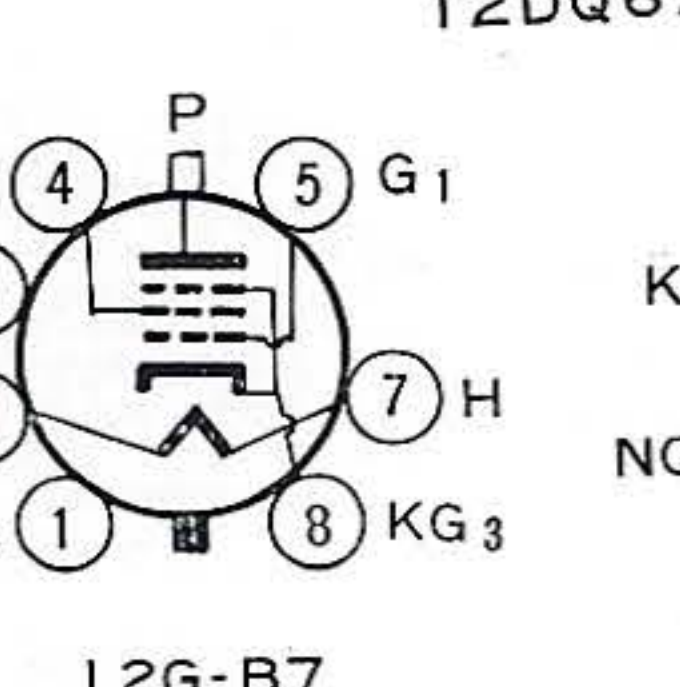
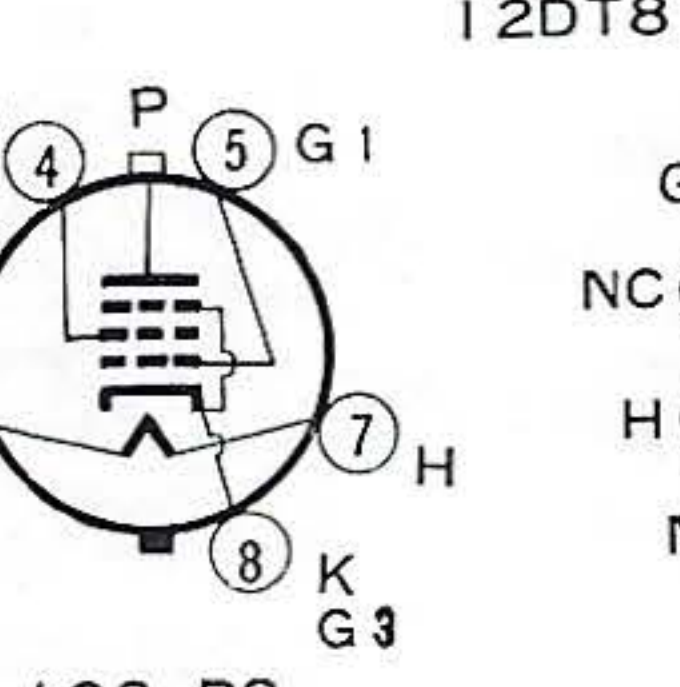
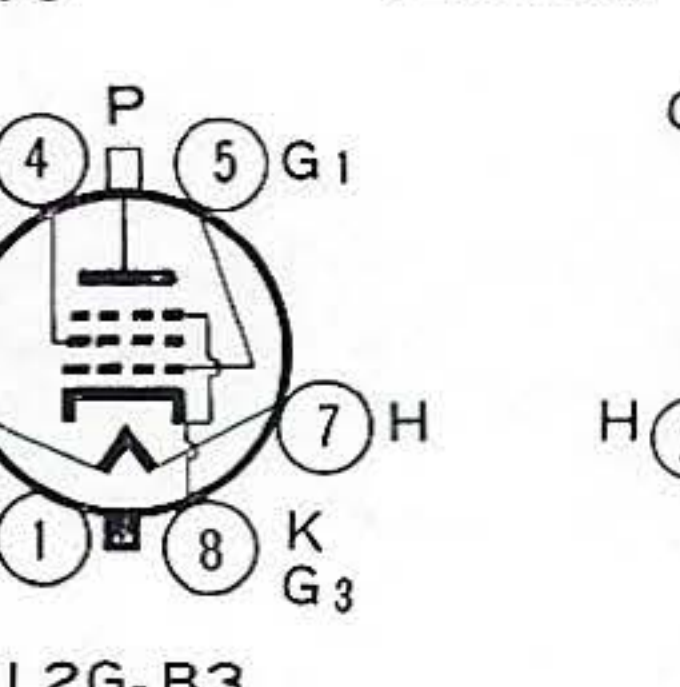
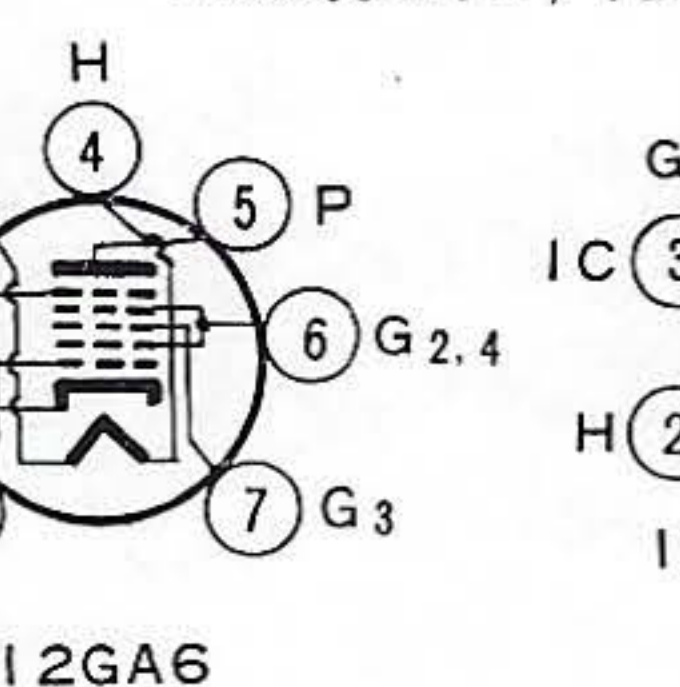
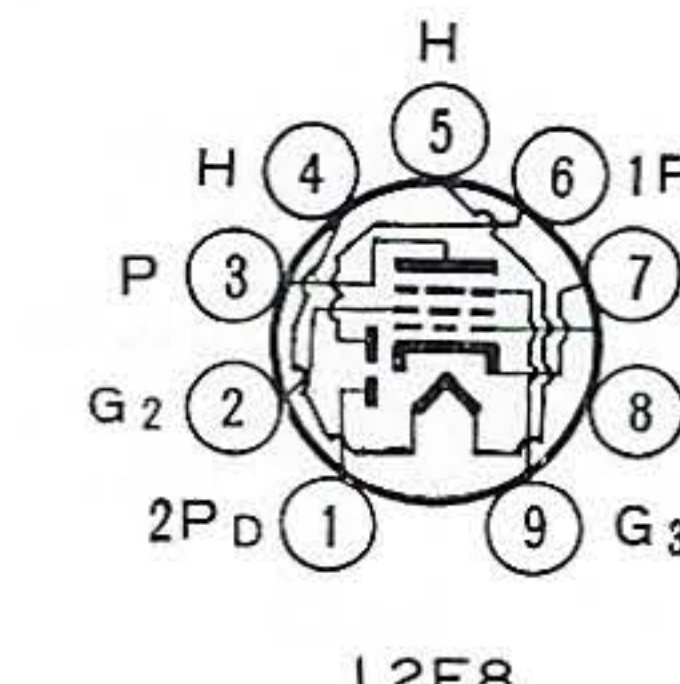
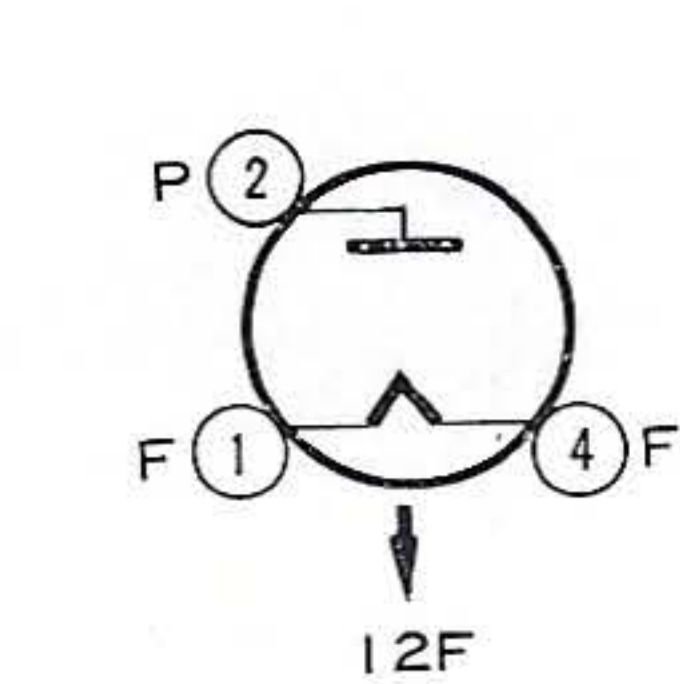
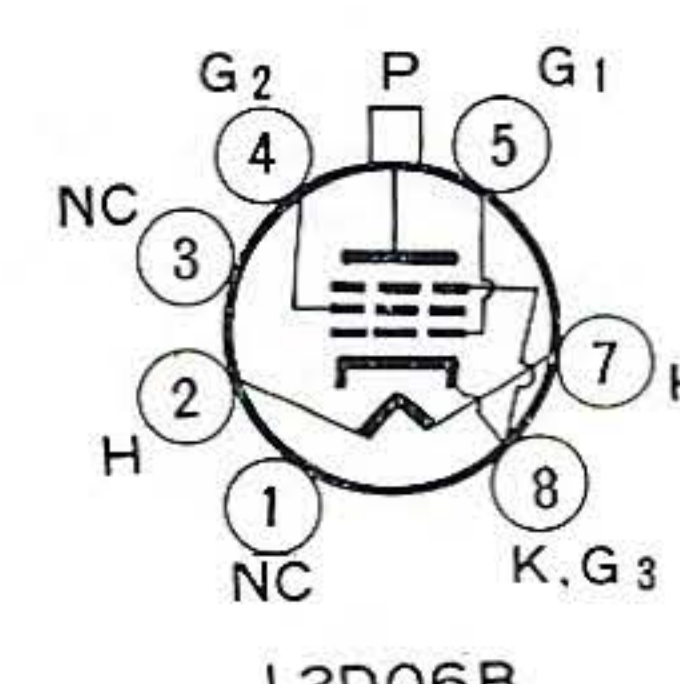
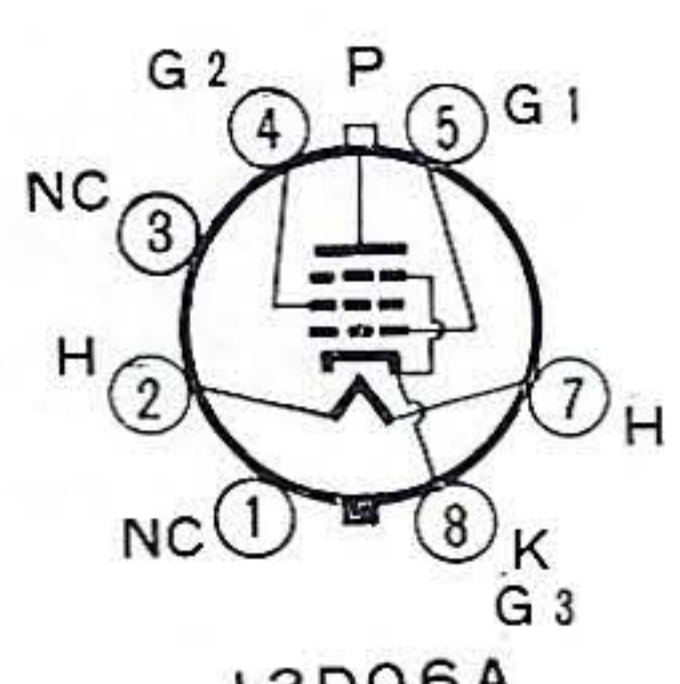
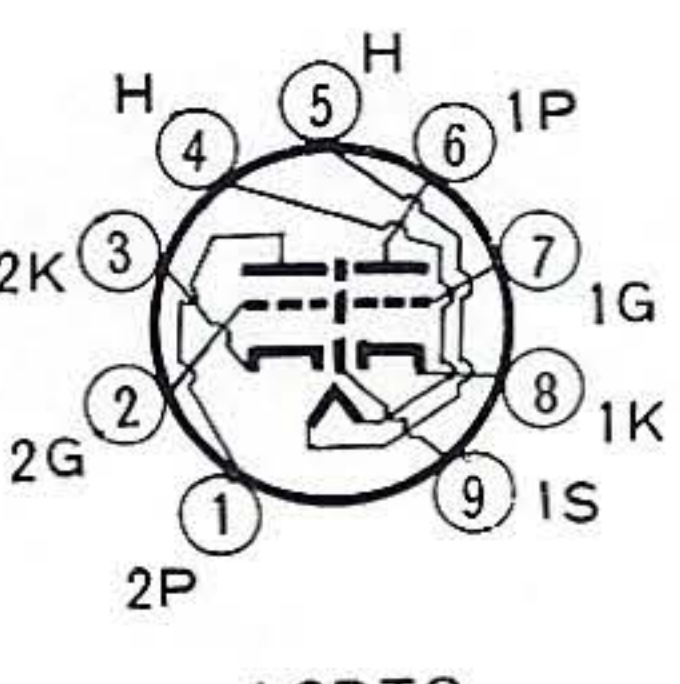
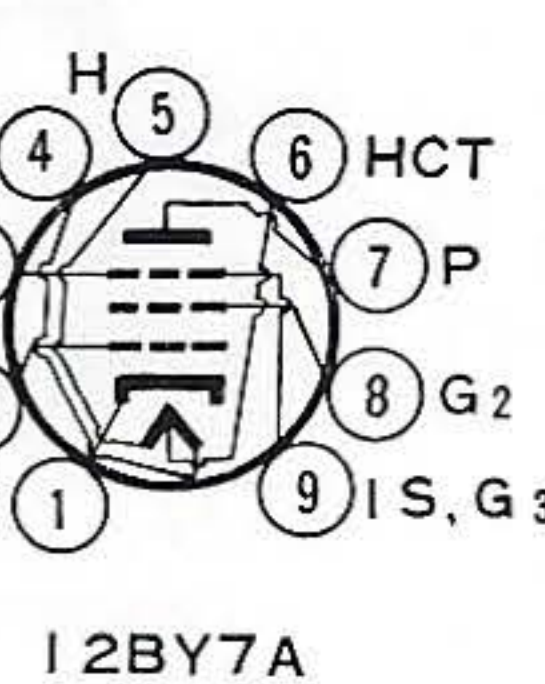
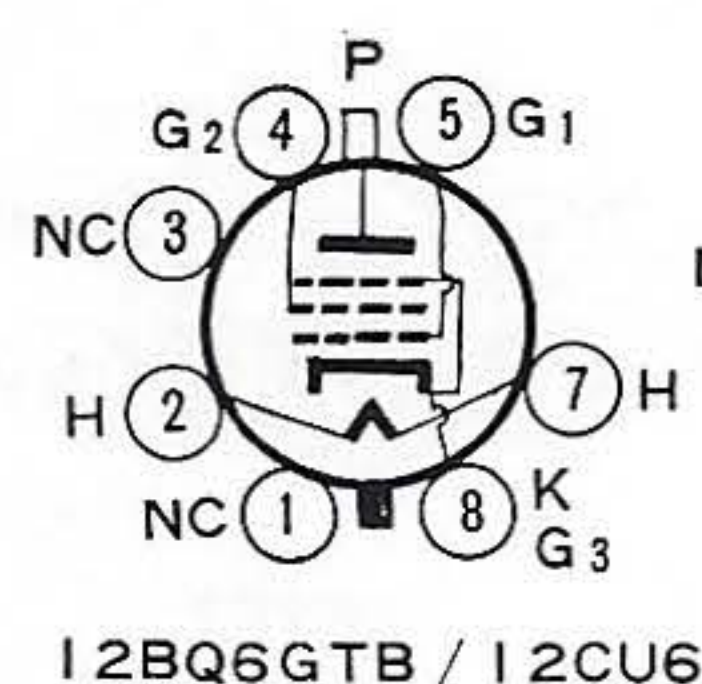


## TOSHIBA ELECTRON TUBES

Miniature, ST, GT, and

12BQ6 to 12SW7GT

| Type            | Name                                          | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)                                                                 | Ec1<br>(V)                      | Ec2<br>(V) | Ib<br>(mA) | Ic2<br>(mA) | rp<br>(KΩ) | gm or Gc<br>(μS) | μ  | RL<br>(Ω) | PO<br>(W) | Remarks      | Type            |
|-----------------|-----------------------------------------------|---------------------|-----------|--------------------|-------------|-------------|---------------------------------------------------------------------------|---------------------------------|------------|------------|-------------|------------|------------------|----|-----------|-----------|--------------|-----------------|
|                 |                                               |                     |           | Heater or Filament | Voltage (V) | Current (A) |                                                                           |                                 |            |            |             |            |                  |    |           |           |              |                 |
| 12BQ6 GTB/12CU6 | Beam Power Amplifier                          | GT                  | 29-11C    | H                  | 12.6        | 0.6         | For other characteristics, refer to Type 6BQ6 GTB/6DU6                    |                                 |            |            |             |            |                  |    |           |           | thw = 11 sec | 12BQ6 GTB/12CU6 |
| 12BY7A          | Sharp Cutoff Pentode                          | mT                  | 21-3      | H                  | 12.6<br>6.3 | 0.3<br>0.6  | 250                                                                       | RK=100Ω                         | 180        | 26         | 5.2         | 93         | 11 000           | —  | —         | —         | "            | 12BY7A          |
| 12DT8           | High-Mu Twin-Triode                           | mT                  | 21-2      | H                  | 12.6        | 0.15        | For other characteristics, refer to Type 6DT8                             |                                 |            |            |             |            |                  |    |           |           |              | 12DT8           |
| 12DQ6A          | Beam Power Amplifier                          | GT                  | 38-17     | H                  | 12.6        | 0.6         | " 6DQ6A                                                                   |                                 |            |            |             |            |                  |    |           |           |              | 12DQ6A          |
| 12DQ6B          | Beam Power Amplifier                          | GT                  | 38-17     | H                  | 12.6        | 0.6         | " 6DQ6B                                                                   |                                 |            |            |             |            |                  |    |           |           |              | 12DQ6B          |
| 12F             | Half-Wave Rectifier                           | ST                  | 38-3      | H                  | 5.0         | 0.5         | Epx=850 V max. I peak=240 mA max. I <sub>o</sub> =40 mA                   |                                 |            |            |             |            |                  |    |           |           |              | 12F             |
| 12F8            | Duplex-Diode Pentode Class A Amp. AM Detector | mT                  | 21-2      | H                  | 12.6        | 0.15        | 12.6                                                                      | 0                               | 12.6       | 110        | 0.38        | 330        | 1 000            | —  | —         | Pentode   |              | 12F8            |
| 12GA6           | Pentagrid Converter                           | mT                  | 18-2      | H                  | 12.6        | 0.15        | 12.6                                                                      | $-1.6$<br>Rg <sub>1</sub> =33KΩ | 0.3        | 0.8        | 1 000       | 140        | —                | —  | —         | —         |              | 12GA6           |
| 12G-B3          | Beam Power Amplifier                          | GT                  | 29-12C    | H                  | 12.6        | 0.6         | 550max.<br>100                                                            | -7.7                            | 100        | 100        | 7           | 5.3        | 14 000           | —  | —         | —         |              | 12G-B3          |
| * 12G-B6        | Beam Power Amplifier                          | GT                  | 12-12C    | H                  | 12.6        | 0.6         | For other characteristics, refer to Type 12BQ6 GTB/6CU6                   |                                 |            |            |             |            |                  |    |           |           |              | 12G-B6*         |
| 12G-B7          | Beam Power Tube                               | GT                  | 38-17     | H                  | 12.6        | 0.6         | 100                                                                       | -7.7                            | 100        | 100        | 7.0         | 5.3        | 14 000           | —  | —         | —         |              | 12G-B7          |
| 12G-K17         | Half-Wave Rectifier                           | GT                  | 29-5C     | H                  | 12.6        | 0.6         | Epx. (V) max. 4 500, I peak (mA) max. 1 050, I <sub>o</sub> (mA) max. 175 |                                 |            |            |             |            |                  |    |           |           |              | 12G-K17         |
| 12H6GT          | Twin Diode                                    | GT                  | 29-2A     | H                  | 12.6        | 0.15        | For other characteristics, refer to Type 6H6-GT                           |                                 |            |            |             |            |                  |    |           |           |              | 12H6<br>GT      |
| 12RK19          | Half Wave Vacuum Rectifier                    | mT                  | 21-08     | H                  | 12.6        | 0.6         | " 6R-K19                                                                  |                                 |            |            |             |            |                  |    |           |           |              | 12RK19          |
| 12SA7 GT        | Pentagrid Converter                           | GT                  | 29-2A     | H                  | 12.6        | 0.15        | " 6SA7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SA7<br>GT     |
| 12SG7 GT        | Remote Cutoff Pentode                         | GT                  | 29-2B     | H                  | 12.6        | 0.15        | " 6SG7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SG7<br>GT     |
| 12SJ7 GT        | Sharp-Cutoff Pentode                          | GT                  | 29-2B     | H                  | 12.6        | 0.15        | " 6SJ7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SJ7<br>GT     |
| 12SK7 GT        | Remote-Cutoff Pentode                         | GT                  | 29-2B     | H                  | 12.6        | 0.15        | " 6SK7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SK7<br>GT     |
| 12SN7 GT        | Medium-Mu Twin-Triode                         | GT                  | 29-2A     | H                  | 12.6        | 0.3         | " 6SN7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SN7<br>GT     |
| 12SQ7 GT        | Twin-Diode High-Mu Triode                     | GT                  | 29-2B     | H                  | 12.6        | 0.15        | " 6SQ7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SQ7<br>GT     |
| 12SR7 GT        | Twin-Diode Medium-Mu Triode                   | GT                  | 29-2B     | H                  | 12.6        | 0.15        | " 6RS7-GT                                                                 |                                 |            |            |             |            |                  |    |           |           |              | 12SR7<br>GT     |
| 12SW7 GT        | Twin-Diode Triode                             | GT                  | 29-2B     | H                  | 12.6        | 0.15        | 250                                                                       | -9                              | —          | 9.5        | —           | 8.5        | 1 900            | 16 | 10 000    | 0.3       |              | 12SW7<br>GT     |

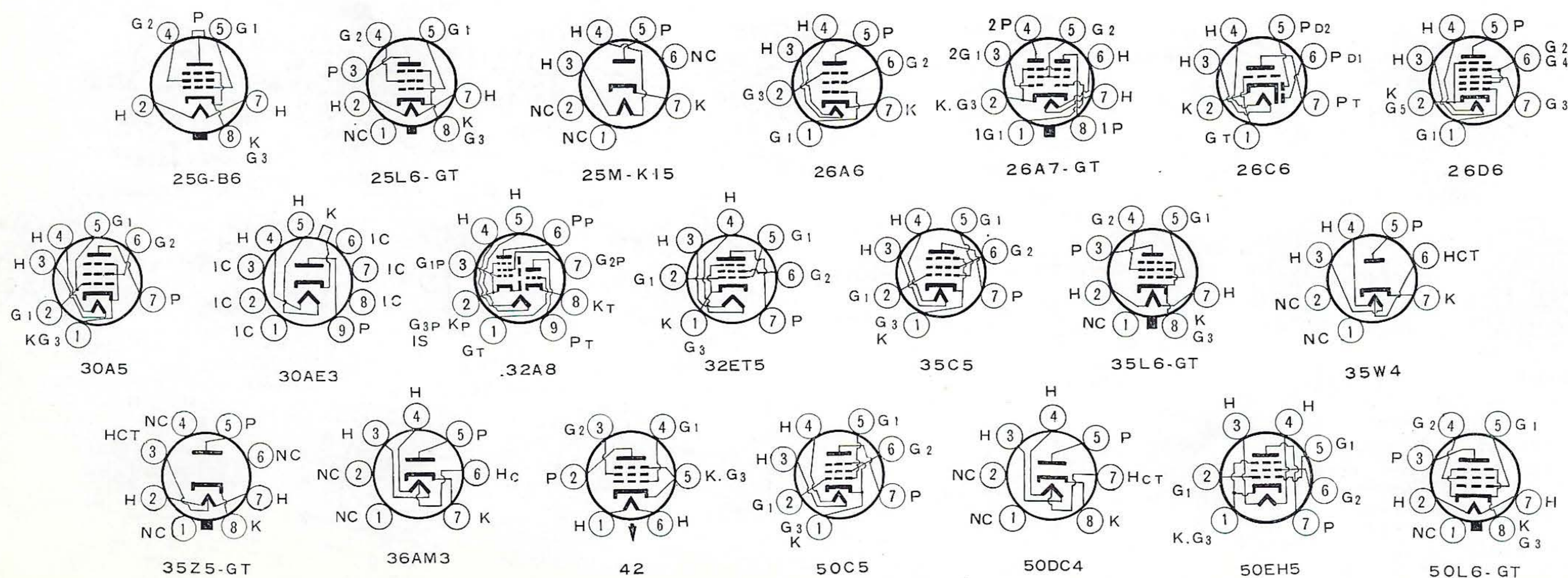


## TOSHIBA ELECTRON TUBES

Miniature, ST, GT, and

25G-B6 to 50L6-GT

| Type    | Name                                     | Bulb Size or St. les | Dimension | Cathode            |             |             | Eb<br>(V)                                                                                                                                                                                                                                                                                                                                                      | Ec <sub>1</sub><br>(V)          | Ec <sub>2</sub><br>(V)         | I <sub>b</sub><br>(mA)     | Ic <sub>2</sub><br>(mA)       | r <sub>p</sub><br>(KΩ)    | g <sub>m</sub> or G <sub>c</sub><br>(μS)  | μ                                        | RL<br>(Ω)                   | PO<br>(W)                     | Remarks                                                                               | Type   |         |
|---------|------------------------------------------|----------------------|-----------|--------------------|-------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|----------------------------|-------------------------------|---------------------------|-------------------------------------------|------------------------------------------|-----------------------------|-------------------------------|---------------------------------------------------------------------------------------|--------|---------|
|         |                                          |                      |           | Heater or Filament | Voltage (V) | Current (A) |                                                                                                                                                                                                                                                                                                                                                                |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        |         |
| *25G-B6 | Beam Power Amplifier                     | GT                   | 29-6C     | H                  | 25          | 0.3         | For other characteristics, refer to Type 6G-B6                                                                                                                                                                                                                                                                                                                 |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 25G-B6* |
| 25L6GT  | Beam Power Amplifier                     | GT                   | 29-2A     | H                  | 25          | 0.3         | 110                                                                                                                                                                                                                                                                                                                                                            | -7.5                            | 110                            | 49                         | 4                             | 13                        | 9 000                                     | —                                        | 2 000                       | 2.1                           |                                                                                       | 25L6GT |         |
| 25M-K15 | Half-Wave Rectifier                      | mT                   | 18-3      | H                  | 25          | 0.15        | Epx. (V) max. 330, I peak (mA) max.420, Ehk (V) 330, I <sub>o</sub> (mA) 70                                                                                                                                                                                                                                                                                    |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 25M-K15 |
| 26A6    | RF Amplifier Pentode                     | mT                   | 18-2      | H                  | 26.5        | 0.07        | 250<br>26.5                                                                                                                                                                                                                                                                                                                                                    | Rk=125Ω<br>Rg <sub>1</sub> =2MΩ | 100<br>26.5                    | 10.5<br>1.7                | 4.0<br>0.7                    | 1 000<br>250              | 4 000<br>2 000                            | —<br>—                                   | —<br>—                      | —<br>—                        |                                                                                       | 26A6   |         |
| 26A7GT  | Twin Beam Power Amplifier                | GT                   | 29-4A     | H                  | 26.5        | 0.6         | 250<br>26.5                                                                                                                                                                                                                                                                                                                                                    | -4.5<br>-7                      | 26.5                           | 20<br>19                   | 1.9<br>2                      | —                         | 5 700<br>—                                | —                                        | 1 500<br>2 500              | 0.18<br>0.5                   | AB <sub>1</sub><br>(push)                                                             | 26A7GT |         |
| 26C6    | Twin-Diode Triode                        | mT                   | 18-2      | H                  | 26.5        | 0.07        | 250<br>26.5                                                                                                                                                                                                                                                                                                                                                    | -9<br>Rg <sub>1</sub> =2MΩ      | —                              | 9.5<br>1.1                 | —                             | 8.5<br>15.5               | 1 900<br>1 100                            | 16<br>17                                 |                             |                               | Diode unit refer type 6SQ7-GT                                                         | 26C6   |         |
| 26D6    | Pentagrid Converter                      | mT                   | 18-2      | H                  | 26.5        | 0.07        | 250<br>26.5                                                                                                                                                                                                                                                                                                                                                    | Rg <sub>1</sub> =20KΩ<br>20KΩ   | Ec <sub>2,4</sub> =100<br>26.5 | 3<br>0.45                  | Ic <sub>2,4</sub> =7.8<br>1.6 | 1 000<br>—                | 475<br>270                                | Ec <sub>3</sub> =-1.5<br>-0.5 (Separate) |                             |                               |                                                                                       | 26D6   |         |
| 30A5    | Beam Power Amplifier                     | mT                   | 18-3      | H                  | 30          | 0.15        | 100                                                                                                                                                                                                                                                                                                                                                            | -6.7                            | 100                            | 43                         | 11                            | 22                        | 9 200                                     | —                                        | 2 400                       | 2.1                           |                                                                                       | 30A5   |         |
| *30AE3  | Half-Wave Vacuum Rectifier               | mT                   | 21-08     | H                  | 30          | 0.3         | For other characteristics, refer to Type 6AL3                                                                                                                                                                                                                                                                                                                  |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 30AE3*  |
| 32A8    | High Mu Triode Power Pentode             | mT                   | 21-4      | H                  | 32.0        | 0.15        | 100<br>170<br>200<br>100<br>100                                                                                                                                                                                                                                                                                                                                | 6<br>11.5<br>16<br>1<br>0       | 100<br>170<br>200<br>—<br>—    | 26<br>41<br>35<br>1<br>3.5 | 5<br>8<br>7<br>—<br>—         | 15<br>16<br>20<br>37<br>— | 6 800<br>7 500<br>6 400<br>1 900<br>2 500 | —<br>—<br>—<br>70<br>70                  | 3.9<br>3.9<br>5.6<br>—<br>— | 1.05<br>3.3<br>3.52<br>—<br>— | Class A <sub>1</sub> Amp.<br>Pentode unit<br>Class A <sub>1</sub> Amp.<br>Triode unit | 32A8   |         |
| 32ET5   | Power Pentode                            | mT                   | 18-3      | H                  | 32          | 0.1         | 110                                                                                                                                                                                                                                                                                                                                                            | -7.5                            | 110                            | 30                         | 2.8                           | 21.5                      | 5 500                                     | —                                        | 2 800                       | 1.2                           |                                                                                       | 32ET5  |         |
| 35C5    | Beam Power Amplifier                     | mT                   | 18-3      | H                  | 35.0        | 0.15        | 110                                                                                                                                                                                                                                                                                                                                                            | -7.5                            | 110                            | 40.0                       | 3.0                           | 13                        | 5 800                                     | —                                        | 2 500                       | 1.5                           |                                                                                       | 35C5   |         |
| 35L6GT  | Beam Power Amplifier                     | GT                   | 29-4A     | H                  | 35.0        | 0.15        | 200                                                                                                                                                                                                                                                                                                                                                            | -8                              | 110                            | 41                         | 2.0                           | 40                        | 5 900                                     | —                                        | 4 500                       | 3.3                           |                                                                                       | 35L6GT |         |
| 35W4    | Half-Wave Rectifier Heater Tap for Pilot | GT                   | 18-3      | H                  | 35.0        | 0.15        | Epx. (V) max. 330, I peak (mA) max. 600, I <sub>o</sub> (mA) max. 100 (without panel lamp), I <sub>o</sub> (mA) max. 60 (with panel lamp and no shunting resister), I <sub>o</sub> (mA) max. 90 (with panel lamp and shunting resister), Ehk (V) max. 330, E <sub>HT</sub> (V) 7.5 (pin 4 : 6), max. panel lamp section voltage when panel lamp fails (RMS) 15 |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 35W4    |
| 35Z5GT  | Half-Wave Rectifier Heater Tap for Pilot | GT                   | 29-3A     | H                  | 35.0        | 0.15        | Epx. max. 700, I peak (mA) max. 600, I <sub>o</sub> (mA) max. 100 (without panel lamp), I <sub>o</sub> (mA) max. 60 (with panel lamp and no shunting resister), I <sub>o</sub> (mA) max. 90 (with panel lamp and shunting resister), Ehk (V) max. 350, E <sub>HT</sub> (V) 7.5 (pin 2 : 3), max. panel lamp section voltage when panel lamp fails (RMS) 15     |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 35Z5GT  |
| 36AM3   | Half-Wave Vacuum Rectifier               | mT                   | 18-3      | H                  | 36          | 0.1         | Eac=117 V, I <sub>o</sub> =75 mA, E <sub>o</sub> =105 V                                                                                                                                                                                                                                                                                                        |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 36AM3   |
| 42      | Power Amplifier Pentode                  | ST                   | 45-1      | H                  | 6.3         | 0.7         | For other characteristics, refer to Type 6F6-GT                                                                                                                                                                                                                                                                                                                |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 42      |
| 50C5    | Beam Power Amplifier                     | GT                   | 18-3      | H                  | 50          | 0.15        | 110                                                                                                                                                                                                                                                                                                                                                            | -7.5                            | 110                            | 49                         | 4                             | 1.0                       | 7 500                                     | —                                        | 2 500                       | 1.9                           |                                                                                       | 50C5   |         |
| 50DC4   | Half-Wave Vacuum Rectifier               | mT                   | 18-3      | H                  | 50          | 0.15        | Epx. (V) max. 330, I <sub>o</sub> (mA) max. 120, Peak I <sub>b</sub> (mA) max. 720 Without Panel lamp                                                                                                                                                                                                                                                          |                                 |                                |                            |                               |                           |                                           |                                          |                             |                               |                                                                                       |        | 50DC4   |
| 50EH5   | Power Amplifier Pentode                  | mT                   | 18-3      | H                  | 50          | 0.15        | 110                                                                                                                                                                                                                                                                                                                                                            | Rk=62Ω                          | 115                            | 42                         | 11.5                          | 11                        | 14 600                                    | —                                        | 3 000                       | 1.4                           |                                                                                       | 50EH5  |         |
| 50L6GT  | Beam Power Amplifier                     | GT                   | 29-3A     | H                  | 50.0        | 0.15        | 220                                                                                                                                                                                                                                                                                                                                                            | -8                              | 110                            | 50                         | 2                             | 30                        | 9 500                                     | —                                        | 3 000                       | 4.3                           |                                                                                       | 50L6GT |         |

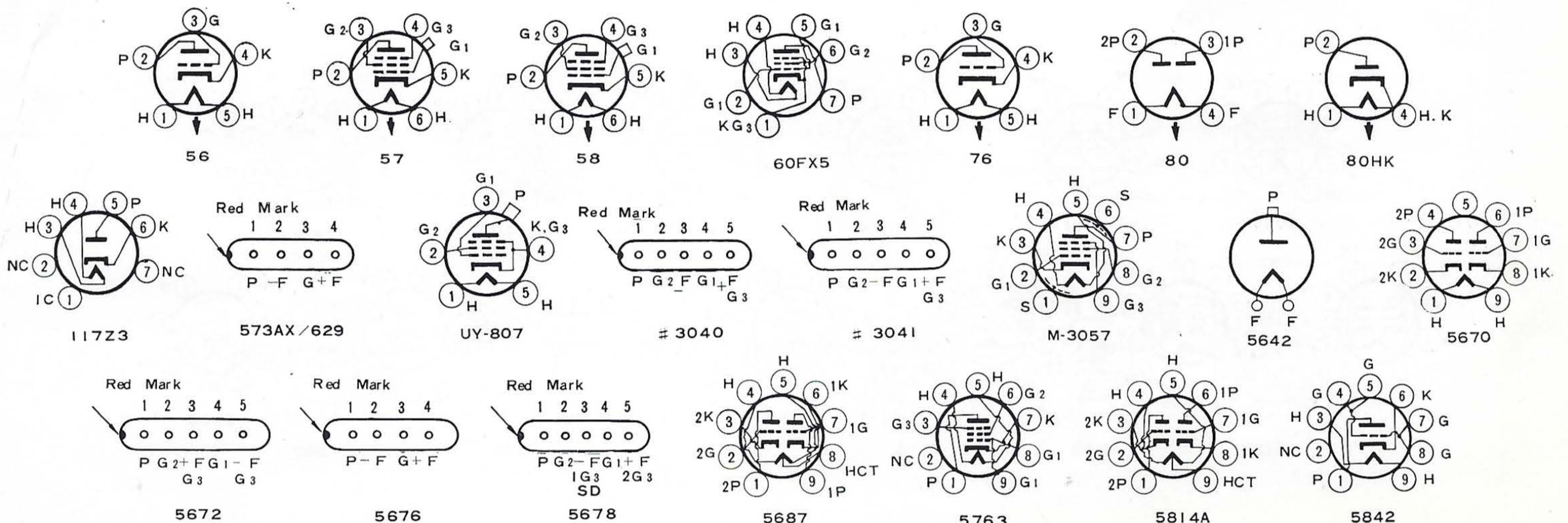


# CHARACTERISTICS CHART

## Other Types

56 to 5842

| Type       | Name                         | Bulb Size or Styles | Dimension | Cathode            |             |               | Eb<br>(V)                                                                                              | Ec <sub>1</sub><br>(V)                     | Ec <sub>2</sub><br>(V) | I <sub>b</sub><br>(mA) | I <sub>c2</sub><br>(mA) | r <sub>p</sub><br>(KΩ) | g <sub>m</sub> or G <sub>c</sub><br>(μS) | μ        | RL<br>(Ω) | PO<br>(W) | Remarks                                    | Type       |
|------------|------------------------------|---------------------|-----------|--------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------|------------------------|-------------------------|------------------------|------------------------------------------|----------|-----------|-----------|--------------------------------------------|------------|
|            |                              |                     |           | Heater or Filament | Voltage (V) | Current (A)   |                                                                                                        |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            |            |
| 56         | Medium-Mu Triode             | ST                  | 38-3      | H                  | 2.5         | 1.0           | For other characteristics, refer to Type 76                                                            |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 56         |
| 57         | Sharp-Cutoff Pentode         | ST                  | 38-1      | H                  | 2.5         | 1.0           | " 6C6                                                                                                  |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 57         |
| 58         | Remote-Cutoff Pentode        | ST                  | 38-1      | H                  | 2.5         | 1.0           | " 6D6                                                                                                  |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 58         |
| 60FX5      | Diode Triode Power Amplifier | mT                  | 18-3      | H                  | 60          | 0.1           | 110                                                                                                    | R <sub>k</sub> =62Ω                        | 115                    | 36                     | 10                      | 17.5                   | 1350                                     | —        | 3000      | 1.3       |                                            | 60FX5      |
| 76         | Medium-Mu Triode             | ST                  | 38-3      | H                  | 6.3         | 0.3           | 250                                                                                                    | -13.5                                      | —                      | 5.0                    | —                       | 9.5                    | 1450                                     | 13.8     | —         | —         |                                            | 76         |
| 80         | Full-Wave Rectifier          | ST                  | 45-1      | F                  | 5.0         | 2.0           | For other characteristics, refer to Type 5Y3-GT                                                        |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 80         |
| * 80HK     | Half-Wave Rectifier          | ST                  | 38-3      | H                  | 5.0         | 0.6           | " 5M-K9                                                                                                |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 80HK       |
| 117Z3      | Half-Wave Rectifier          | mT                  | 18-3      | H                  | 117         | 0.04          | E <sub>p</sub> x. (V) max. 330, I peak (mA) max. 540, I <sub>o</sub> (mA) max. 90                      |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 117Z3      |
| 573AX/6029 | HF-Oscillator Triode         | Sub                 | 7-1       | DC F               | 1.25        | 0.2           | 90                                                                                                     | -4.0                                       | —                      | 11                     | —                       | 4.25                   | 2000                                     | 8.5      | —         | —         |                                            | 573AX/6029 |
| UY807      | Beam Power Amplifier         | ST                  | 50-01     | H                  | 6.3         | 0.9           | 250                                                                                                    | -14.5                                      | 250                    | 72                     | 5                       | —                      | —                                        | —        | 2500      | 6.5       |                                            | UY807      |
| * #3040    | RF Amplifier Pentode         | Sub                 | 5-1       | DC F               | 0.625       | 0.01          | 15                                                                                                     | -0.75                                      | 15                     | 0.06                   | 0.02                    | 1200                   | 90                                       | —        | —         | —         |                                            | * #3040    |
| * #3041    | Power Amplifier Pentode      | Sub                 | 5-2       | DC F               | 1.25        | 0.01          | 22.5                                                                                                   | -1                                         | 22.5                   | 0.2                    | 0.06                    | —                      | 300                                      | —        | 100000    | 0.0016    |                                            | * #3041    |
| * M3057    | Power Pentode                | mT                  | 21-4      | H                  | 6.3         | 0.75          | 200                                                                                                    | -4.5                                       | 200                    | 30                     | 4.1                     | 90                     | 9000                                     | —        | 7000      | 2.5       |                                            | * M3057    |
| 5642       | Half Wave Rectifier          | smT                 | 9-01      | F                  | 1.25        | 0.2           | E <sub>p</sub> x. (V) max. 11000, I peak (mA) max. 5, I <sub>o</sub> (mA) max. 0.25, f (c/s) min. 5000 |                                            |                        |                        |                         |                        |                                          |          |           |           |                                            | 5642       |
| 5670       | High Frequency Twin Triode   | mT                  | 21-2      | H                  | 6.3         | 0.35          | 150<br>300                                                                                             | R <sub>k</sub> =240<br>R <sub>k</sub> =800 | —                      | 8.2<br>9.8             | —                       | 6<br>—                 | 5500<br>—                                | 35<br>—  | 27000     | —<br>1.0  | class A Amp.<br>class AB <sub>1</sub> Amp. | 5670       |
| 5672       | Power Amplifier Pentode      | Sub                 | 7-5       | DC F               | 1.25        | 0.05          | 67.5                                                                                                   | -6.5                                       | 67.5                   | 3.25                   | 1.1                     | —                      | 650                                      | —        | 20000     | 0.065     |                                            | 5672       |
| 5676       | HF-Oscillator Triode         | Sub                 | 7-1       | DC F               | 1.25        | 0.12          | 135                                                                                                    | -5                                         | —                      | 4.0                    | —                       | 9.37                   | 1600                                     | 15       | —         | —         |                                            | 5676       |
| 5678       | RF Amplifier Pentode         | Sub                 | 7-5       | DC F               | 1.25        | 0.05          | 67.5                                                                                                   | 0                                          | 67.5                   | 1.8                    | 0.48                    | 1000                   | 1100                                     | —        | —         | —         |                                            | 5678       |
| 5687       | Medium-Mu Twin Triode        | mT                  | 21-2      | H                  | 12.6<br>6.3 | 0.45<br>0.9   | 180<br>250                                                                                             | -7<br>-12.5                                | —                      | 23<br>12               | —                       | 2.0<br>3.0             | 8500<br>5400                             | 17<br>16 | —         | —         |                                            | 5687       |
| 5763       | VHF Beam Power Amplifier     | mT                  | 21-3      | H                  | 6.0         | 0.75          | 250                                                                                                    | -7.5                                       | 250                    | 45                     | 6.5                     | —                      | 7000                                     | —        | —         | —         |                                            | 5763       |
| 5814A      | Medium-Mu Twin Triode        | mT                  | 21-2      | H                  | 12.6<br>6.3 | 0.175<br>0.35 | 250                                                                                                    | -8.5                                       | —                      | 10.5                   | —                       | 7.7                    | 2200                                     | 17       | —         | —         |                                            | 5814A      |
| 5842       | High Mu Triode               | mT                  | 21-1      | H                  | 6.3         | 0.3           | 150                                                                                                    | R <sub>k</sub> =60Ω                        | —                      | 23                     | —                       | —                      | 25000                                    | 45       | —         | —         |                                            | 5842       |

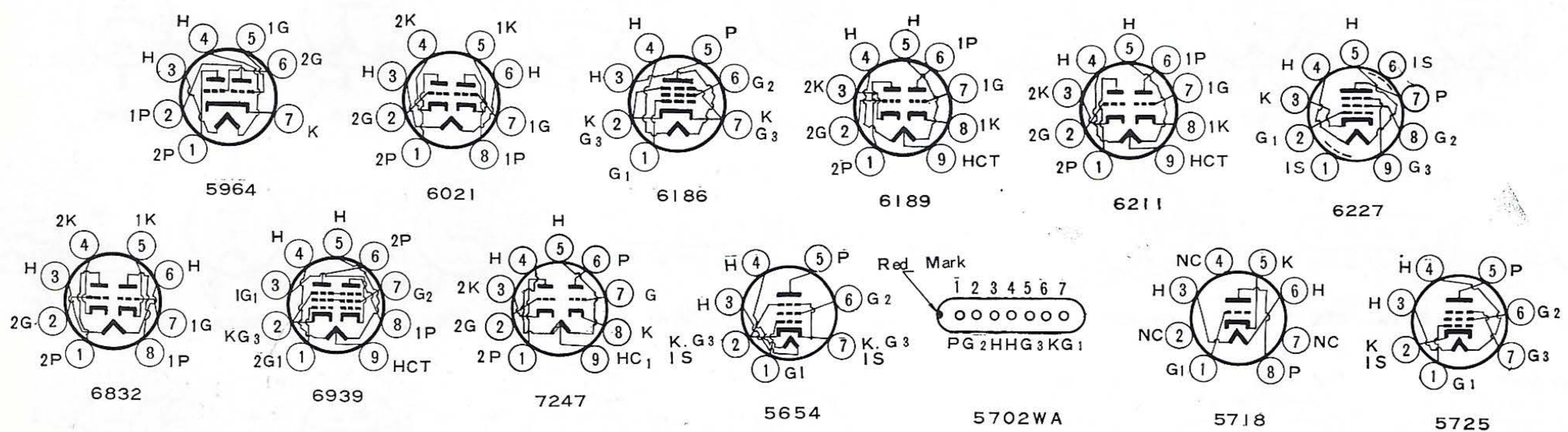


## TOSHIBA ELECTRON TUBES

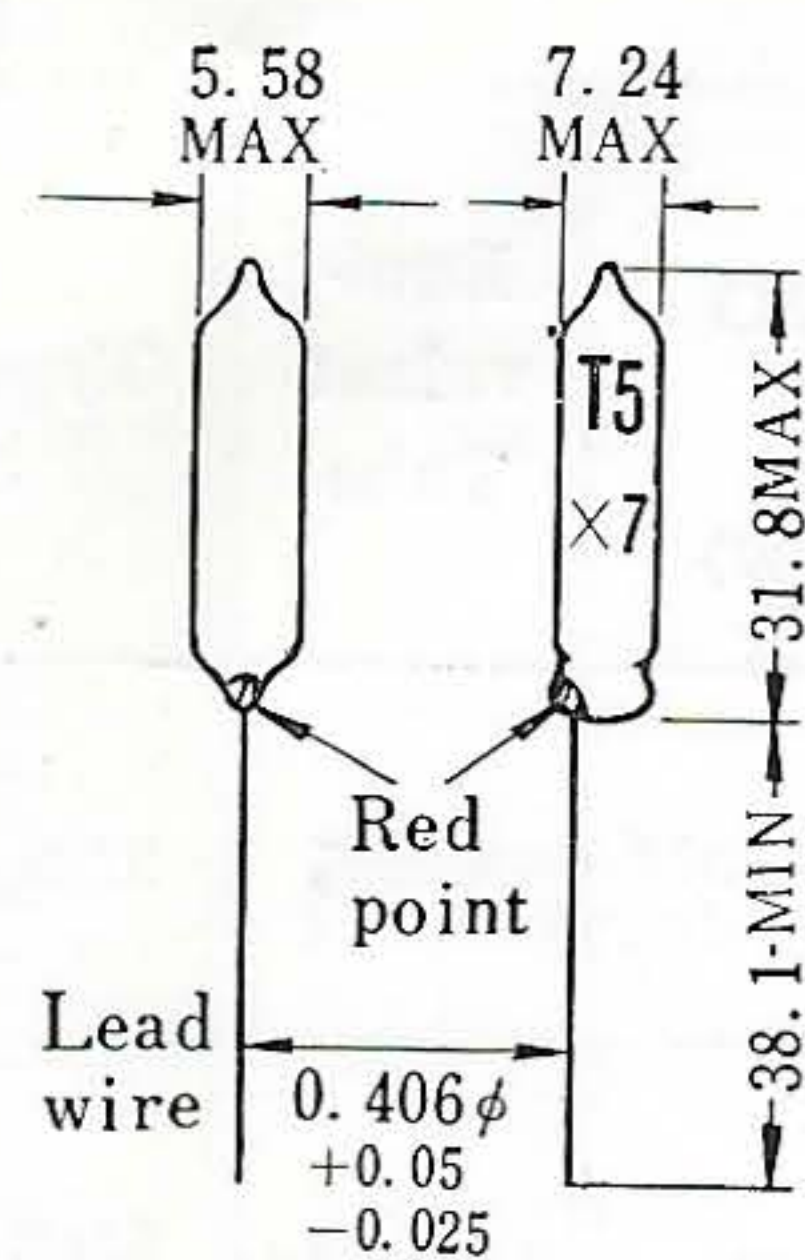
Reliable

5654 to 6201

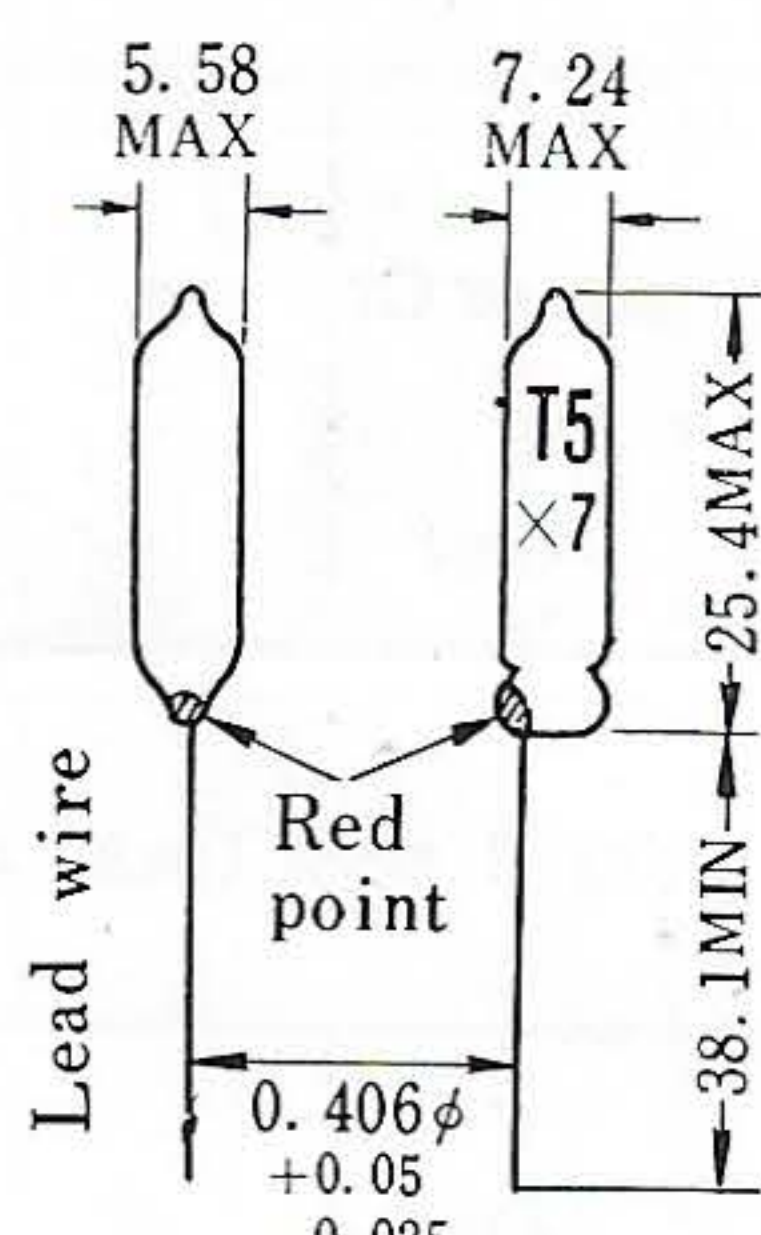
| Type   | Name                  | Bulb Size or Styles | Dimension | Cathode            |             |             | Eb<br>(V)         | Ec1<br>(V)         | Ec2<br>(V)  | Ib<br>(mA)        | Ic2<br>(mA) | rp<br>(KΩ)                   | gm or Gc<br>(μS) | μ            | RL<br>(Ω)             | PO<br>(W)   | Equivalent Tube                | Type   |
|--------|-----------------------|---------------------|-----------|--------------------|-------------|-------------|-------------------|--------------------|-------------|-------------------|-------------|------------------------------|------------------|--------------|-----------------------|-------------|--------------------------------|--------|
|        |                       |                     |           | Heater or Filament | Voltage (V) | Current (A) |                   |                    |             |                   |             |                              |                  |              |                       |             |                                |        |
| 5964   | Medium-Mu Twin Triode | mT                  | 18-2      | H                  | 6.3         | 0.45        | 100<br>150<br>150 | Rk=50Ω<br>-10<br>0 | —           | 9.5<br>0<br>5.0   | —           | 6.5<br>Rg1=47K<br>Rg1=47K    | 6 000            | 39<br>—<br>— | —<br>20 000<br>20 000 | —           | class A1 Amp. Frequency Halfer | 5964   |
| 6021   | Medium-Mu Twin Triode | mT                  | 9-4       | H                  | 6.3         | 0.3         | 100               | Rk=150Ω            | —           | 6.5               | —           | 6.5                          | 5 400            | 35           | —                     | —           |                                | 6021   |
| 6186   | Sharp-Cutoff Pentode  | mT                  | 18-2      | H                  | 6.3         | 0.3         | 250               | 0                  | 250         | 7.0               | 2           | 800                          | 5 000            | —            | —                     | —           |                                | 6186   |
| 6189   | Medium-Mu Twin Triode | Sub mT              | 21-2      | H                  | 12.6<br>6.3 | 0.15<br>0.3 | 250               | -0.85              | —           | 10.5              | —           | —                            | 2 200            | 17           | —                     | —           |                                | 6189   |
| 6211   | Medium-Mu Twin Triode | mT                  | 21-2      | H                  | 12.6<br>6.3 | 0.15<br>0.3 | 100<br>150<br>150 | Rk=470Ω<br>0<br>10 | —<br>—<br>— | 4.6<br>4.8<br>0.1 | —<br>—<br>— | 7.5<br>Rg1=47K<br>" 47 000 Ω | 3 600            | 27           | —<br>20 000<br>20 000 | —<br>—<br>— | class A Amp. Frequency Halfer  | 6211   |
| 6227   | Power Pentode         | mT                  | 21-4      | H                  | 6.3         | 0.75        | 200               | Rk=130Ω            | 200         | 30                | 4.1         | 90                           | 9 000            |              | 7 000                 | 27          |                                | 6227   |
| 6832   | Medium-Mu Twin Triode | Sub mT              | 9-02      | H                  | 6.3         | 0.4         | 100               | Rk=3 000           | —           | 0.8               | —           | —                            | 1 050            | 26           | —                     | —           |                                | 6832   |
| 6939   | Twin Power            | mT                  | 21-3      | H                  | 6.3<br>12.6 | 0.6<br>0.3  | 150               | -3.5               | 150         | 13.5              | 3.6         | —                            | 7 000            | μt=31        | —                     | 4.5         | f=500Mc                        | 6939   |
| 7247   | Double Triode         | mT                  | 21-2      | H                  | 12.6        | 0.15        | 250               | -2                 | —           | 1.2               | —           | 62.5                         | 1 600            | 100          | —                     | —           |                                | 7247   |
| 5654   | HF Amplifier Pentode  | mT                  | 18-1      | H                  | 6.3         | 0.175       | 120               | Rk=200Ω            | 120         | 7.5               | 2.5         | 340                          | 5 000            | —            | —                     | —           | 6AK5                           | 5654   |
| 5702WA | HF Amplifier Pentode  | Sub mT              | 9-1       | H                  | 6.3         | 0.2         | 120               | Rk=200Ω            | 120         | 7.5               | 2.5         | 340                          | 5 000            | —            | —                     | —           | ÷6AK5                          | 5702WA |
| 5718   | Amplifier Triode      | Sub mT              | 9-4       | H                  | 6.3         | 0.16        | 100               | Rk=150Ω            | —           | 8.5               | —           | 3.65                         | 5 800            | 20           | —                     | —           | ½÷6J6                          | 5718   |
| 5725   | HF Amplifier Pentode  | mT                  | 18-1      | H                  | 6.3         | 0.175       | 120               | -2                 | 120         | 5.2               | 3.5         | —                            | 3 200            | —            | Ecs=0V                | —           | 6AS6                           | 5725   |



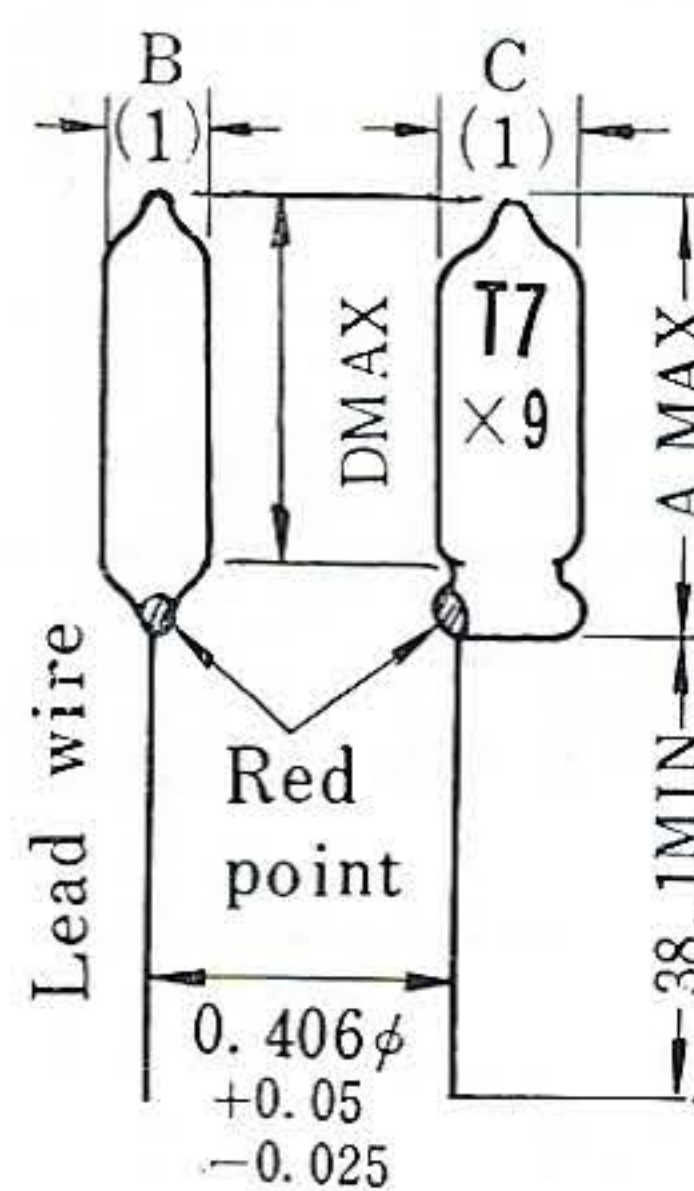
## DIMENSIONAL OUTLINE



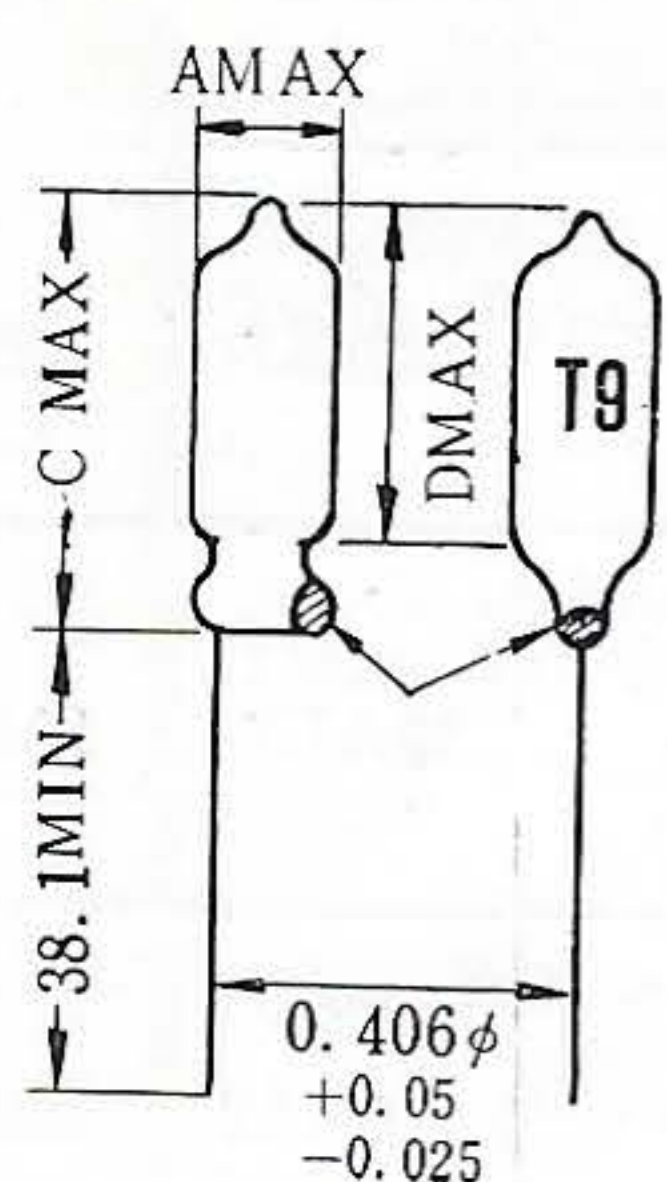
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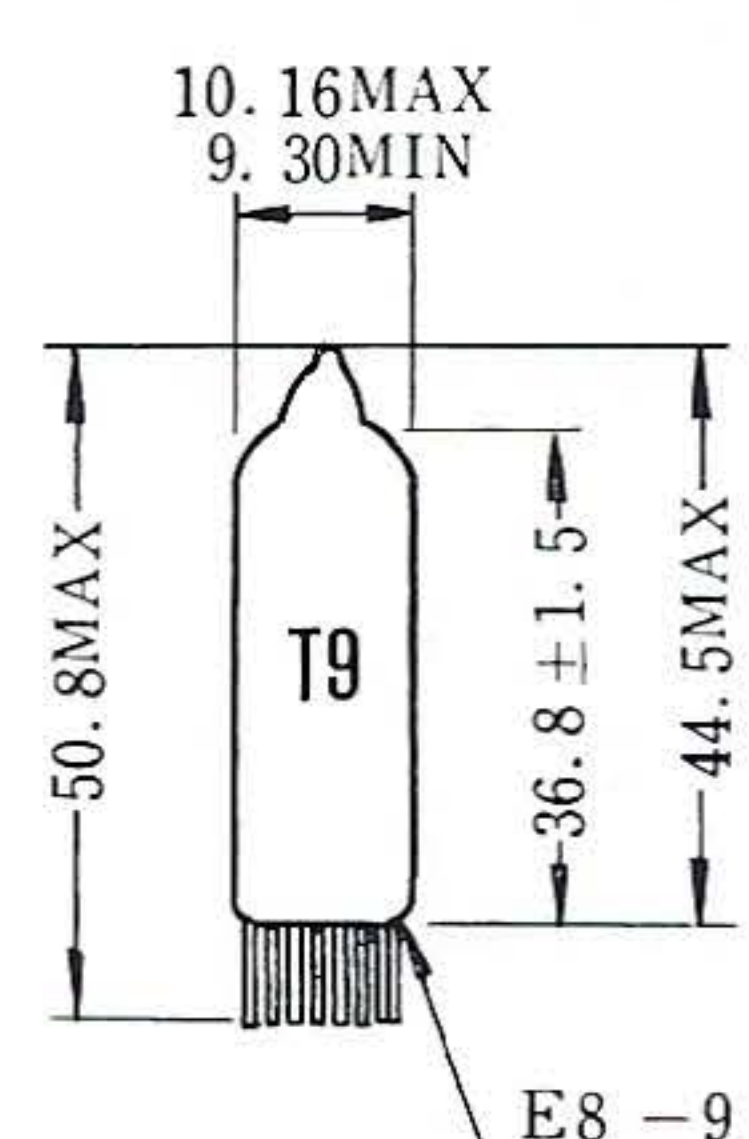
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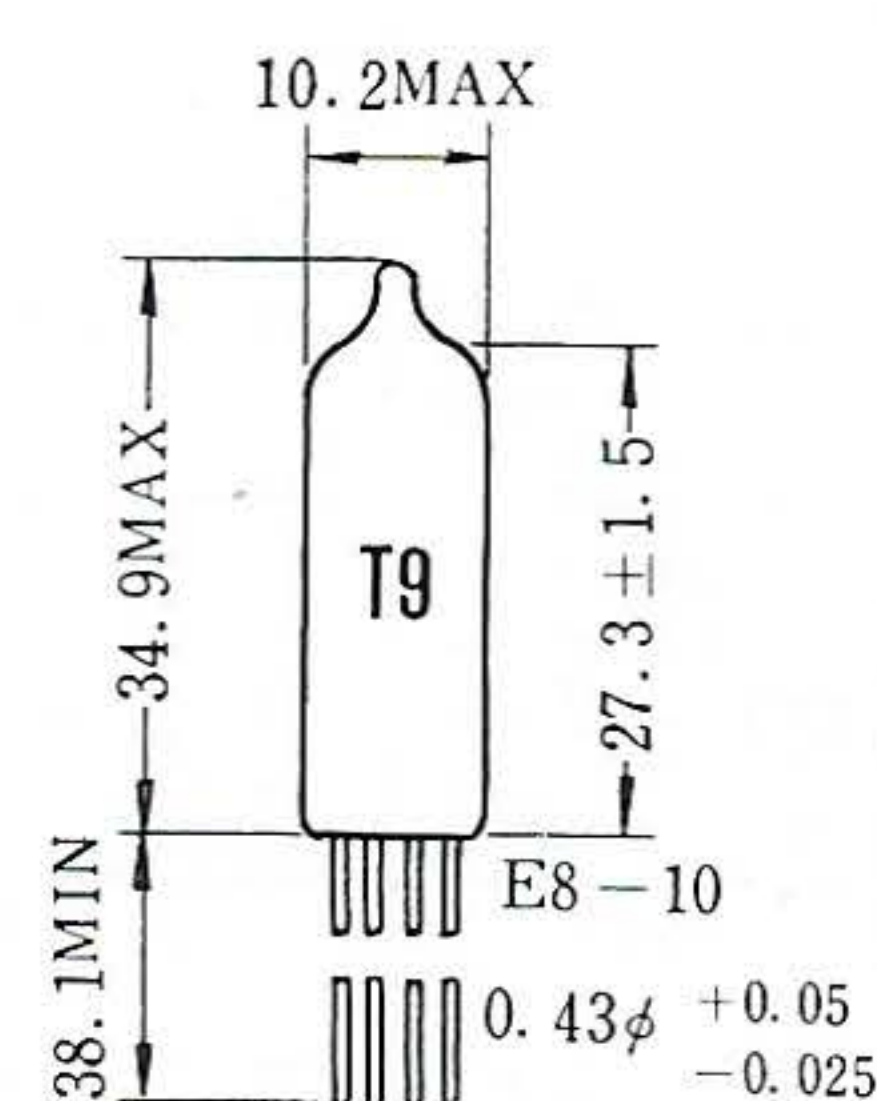
| Outline No. | A MAX (1) | B MAX (1) | C MAX (1) | D (5)      |
|-------------|-----------|-----------|-----------|------------|
| 7-1(4)      | 38.1      | 7.24      | 9.78      | 33.0 ± 2.5 |
| 7-2(4)      | 31.8      | 7.24      | 9.78      | 27.2 ± 2.5 |
| 7-3         | 38.1      | 7.24      | 10.41     | 33.0 ± 2.5 |
| 7-4         | 31.8      | 7.24      | 10.41     | 27.2 ± 2.5 |
| 7-5         | 38.1      | 7.24      | 10.16     | 33.0 ± 2.5 |
| 7-6         | 31.8      | 7.24      | 10.16     | 27.2 ± 2.5 |
| 7-7         | 39.6      | 7.24      | 10.16     | 34.5 ± 2.5 |



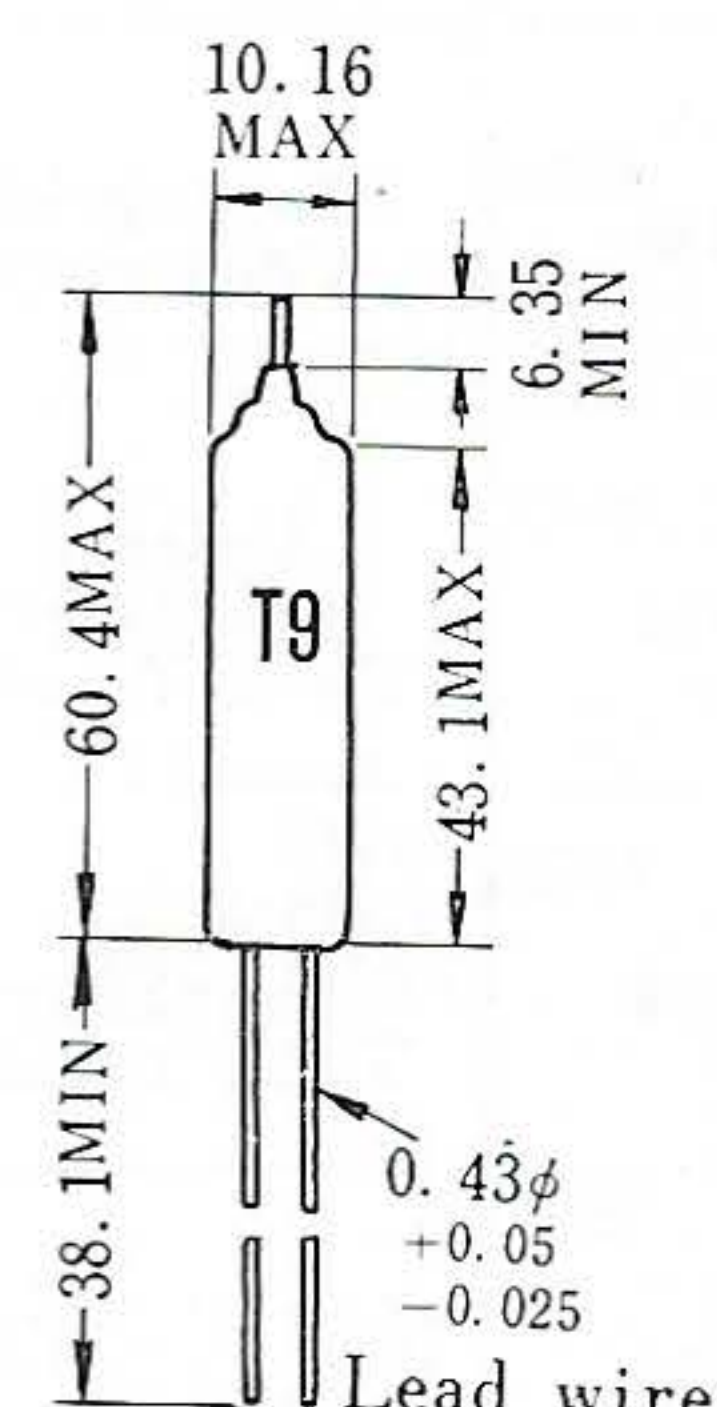
| Outline No. | A MAX (1) | C MAX | D MAX      |
|-------------|-----------|-------|------------|
| 9-1         | 10.16     | 38.1  | 31.8 ± 2.5 |
| 9-2         | 10.16     | 38.1  | 31.8 ± 2.5 |



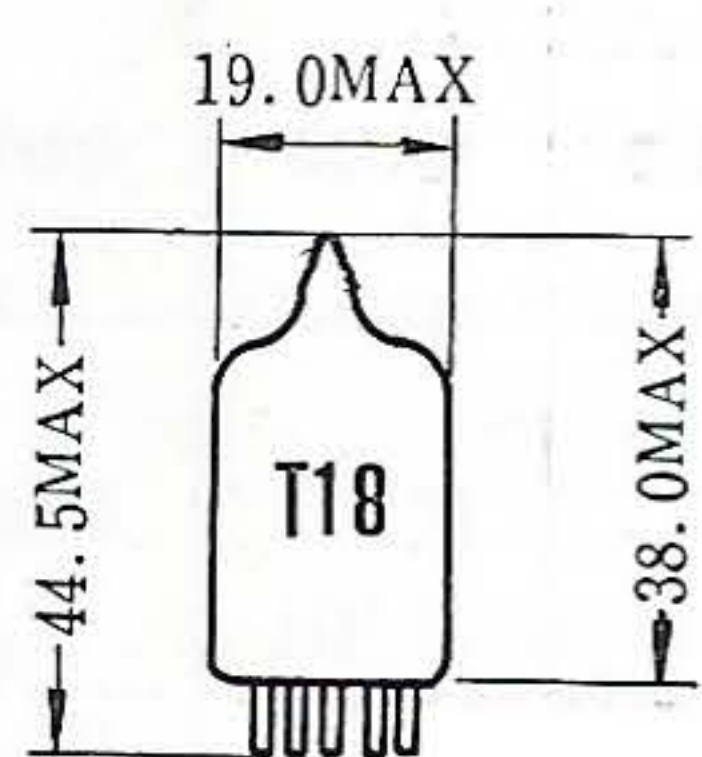
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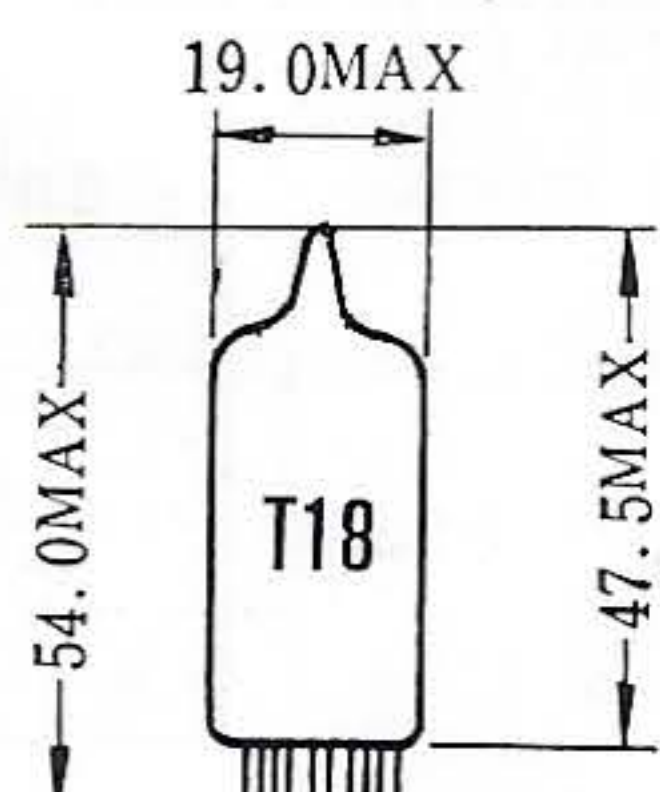
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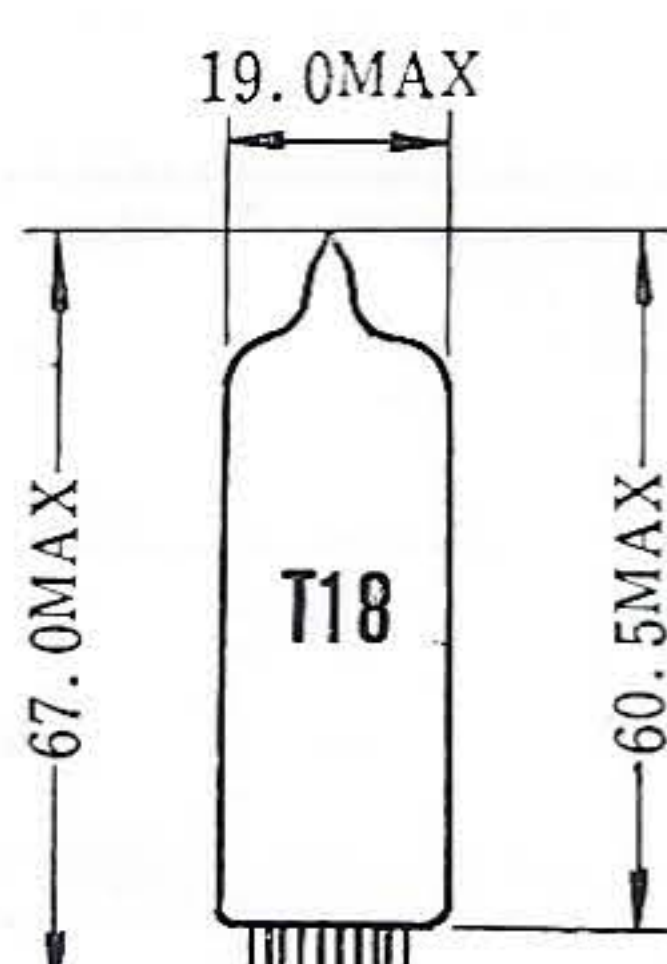
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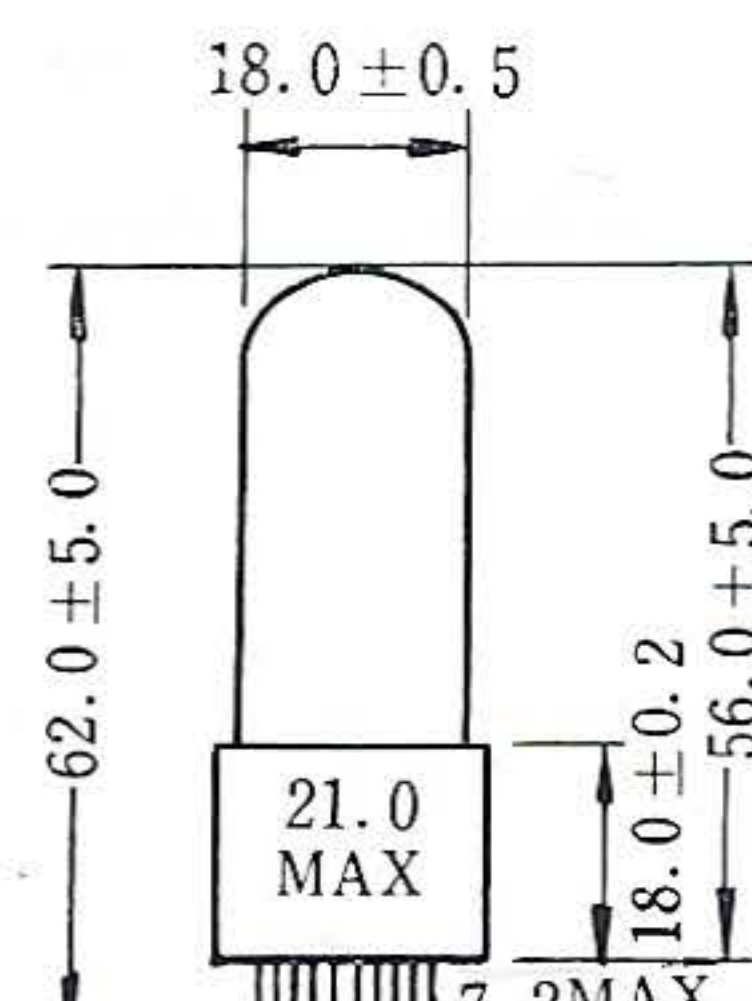
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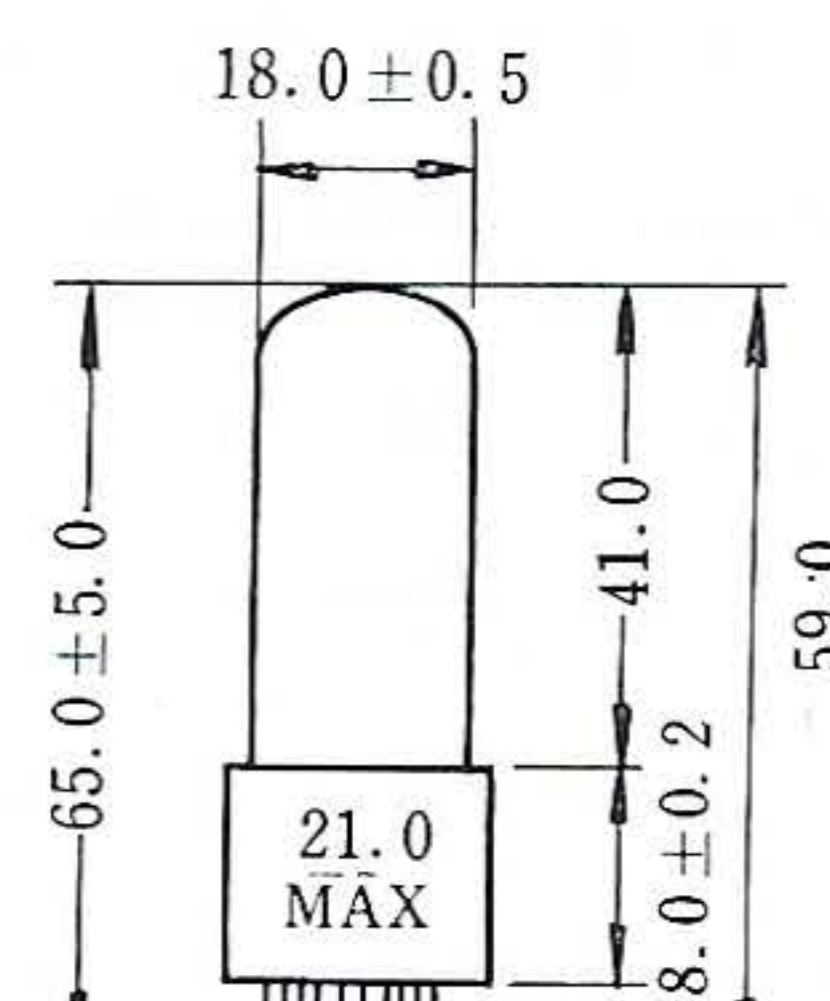
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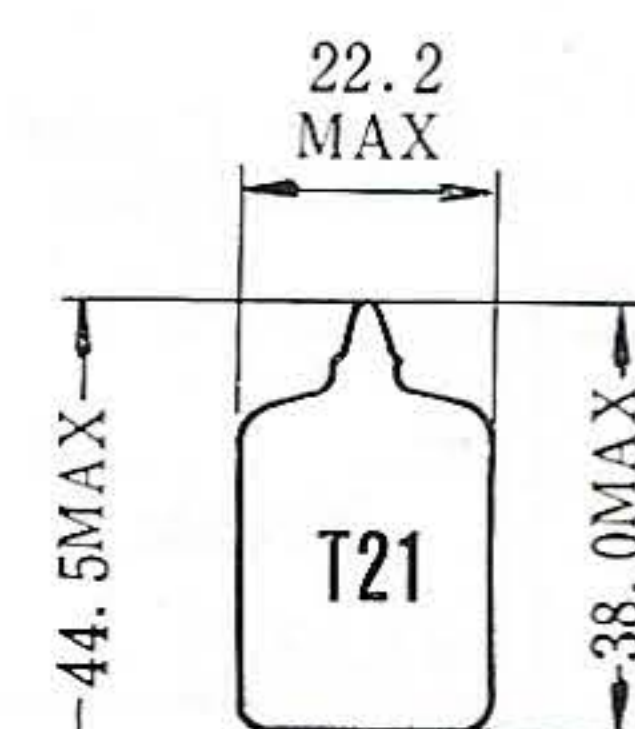
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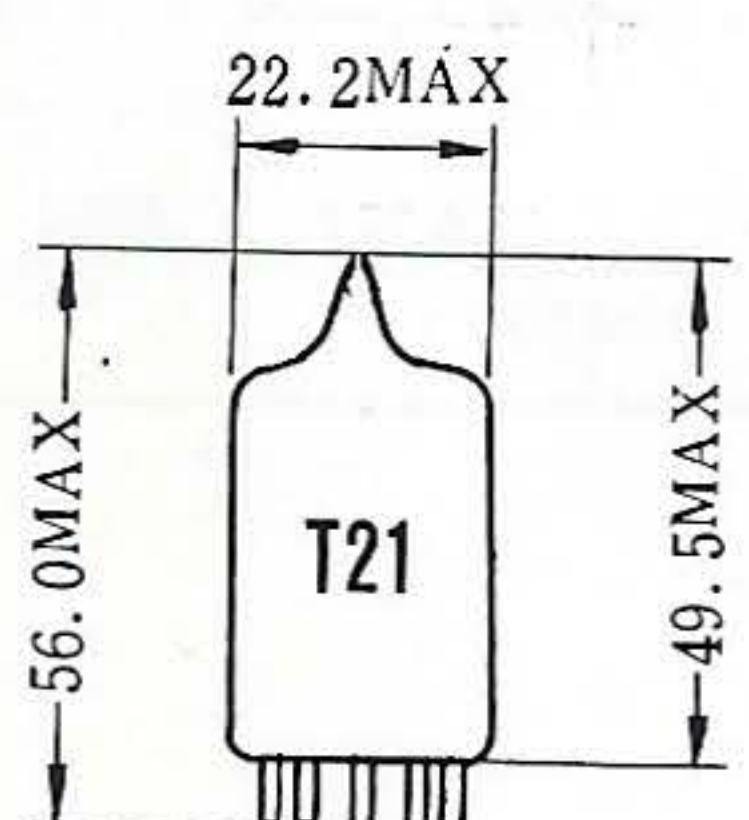
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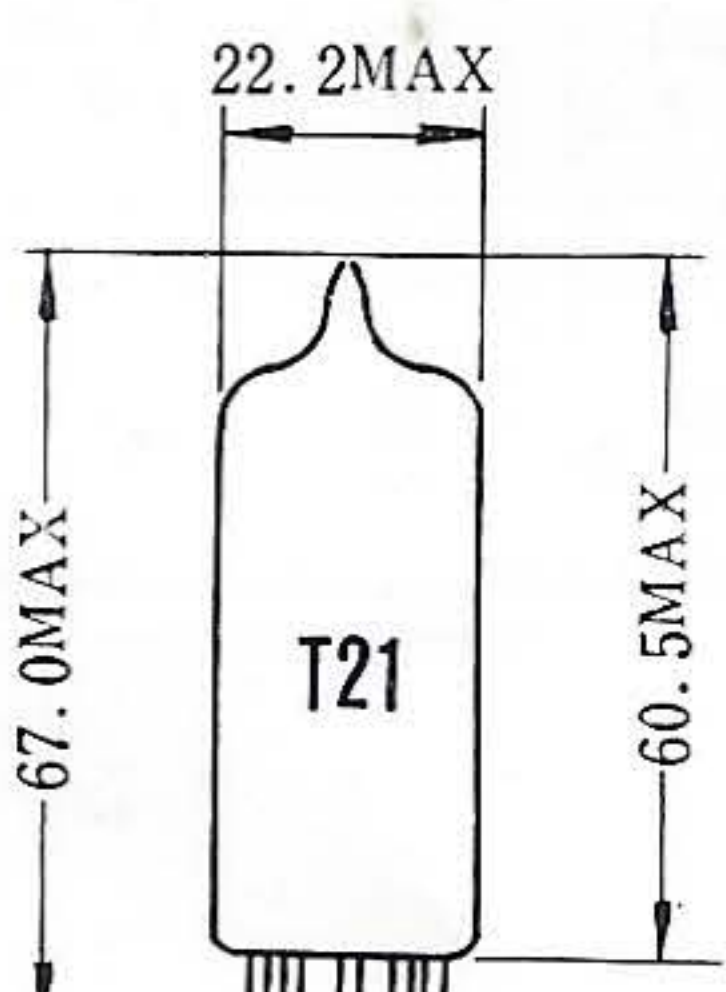
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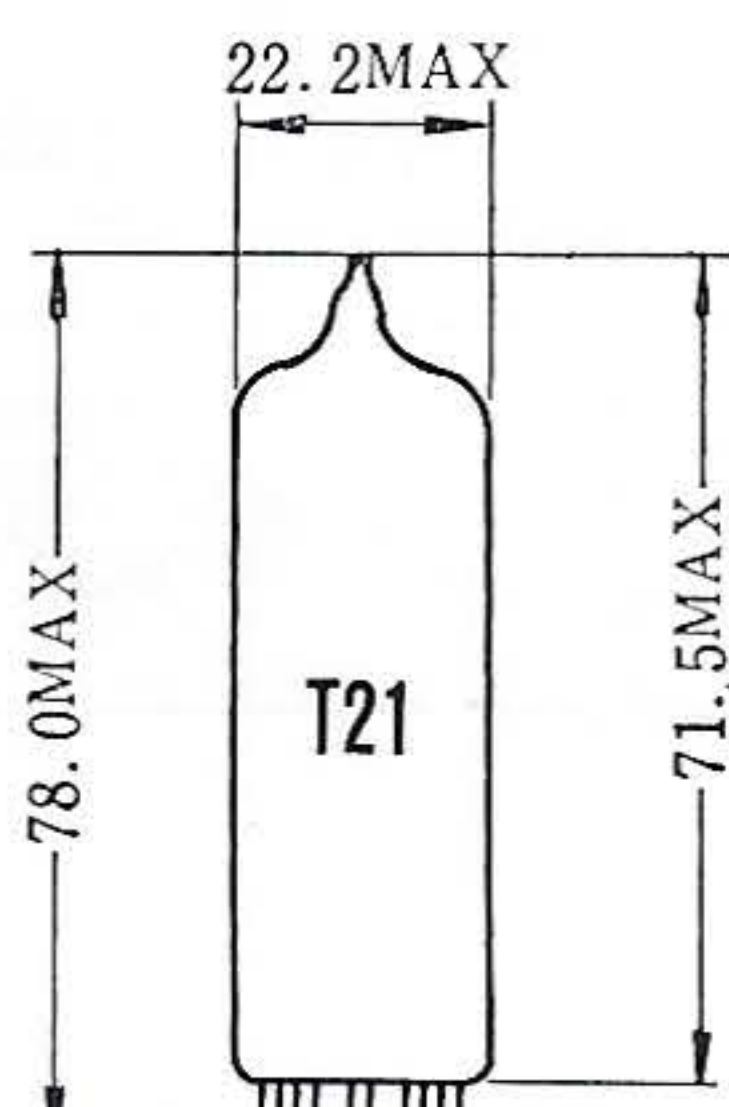
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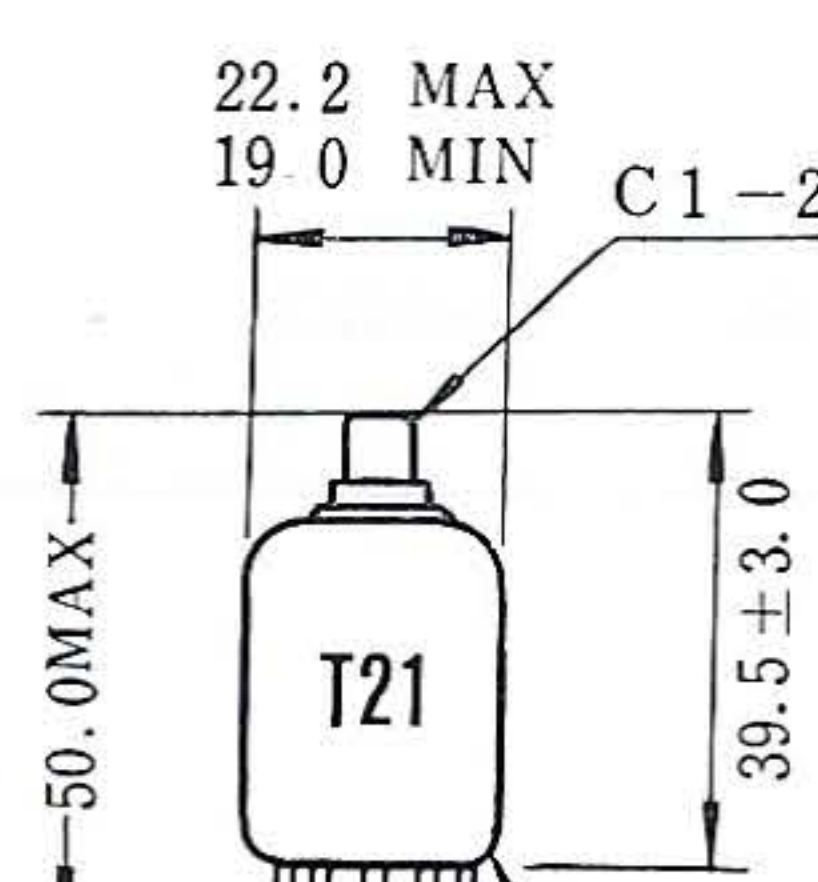
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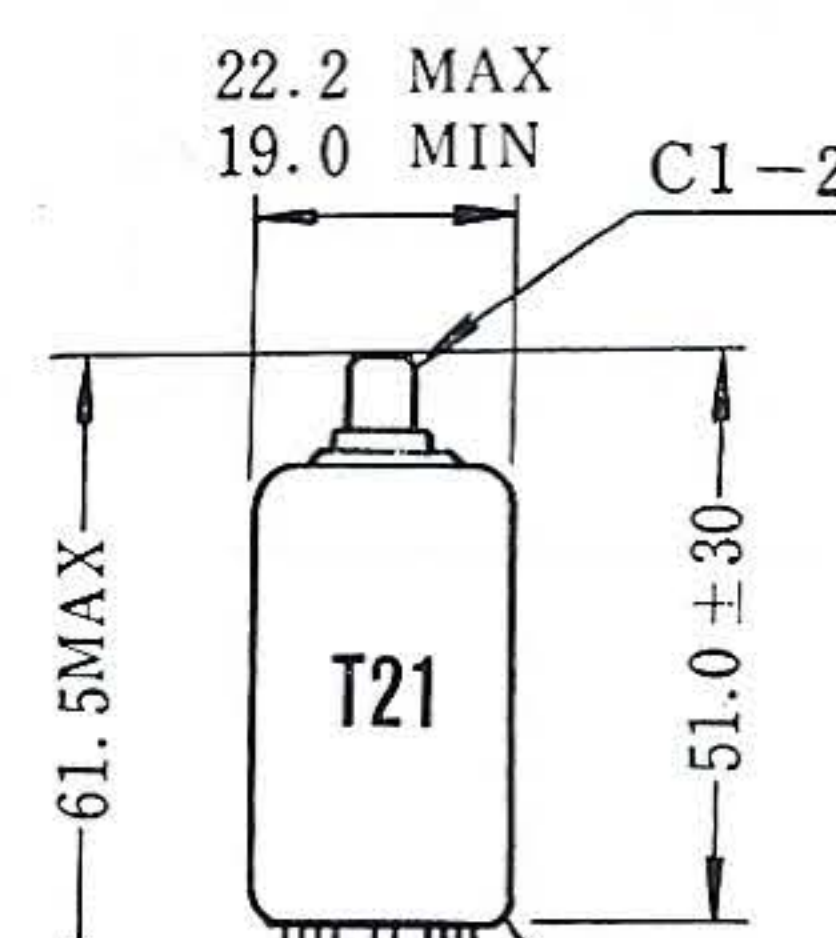
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21-4



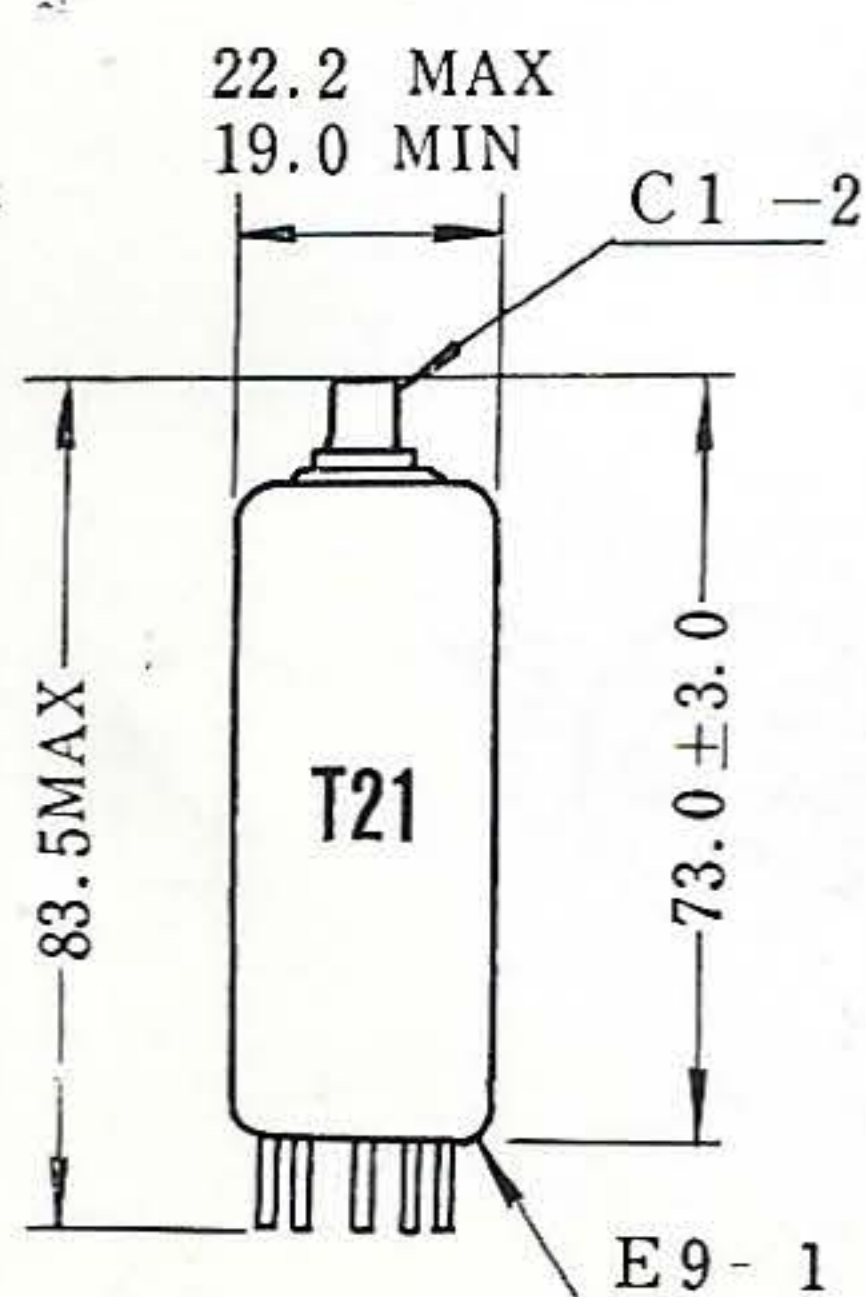
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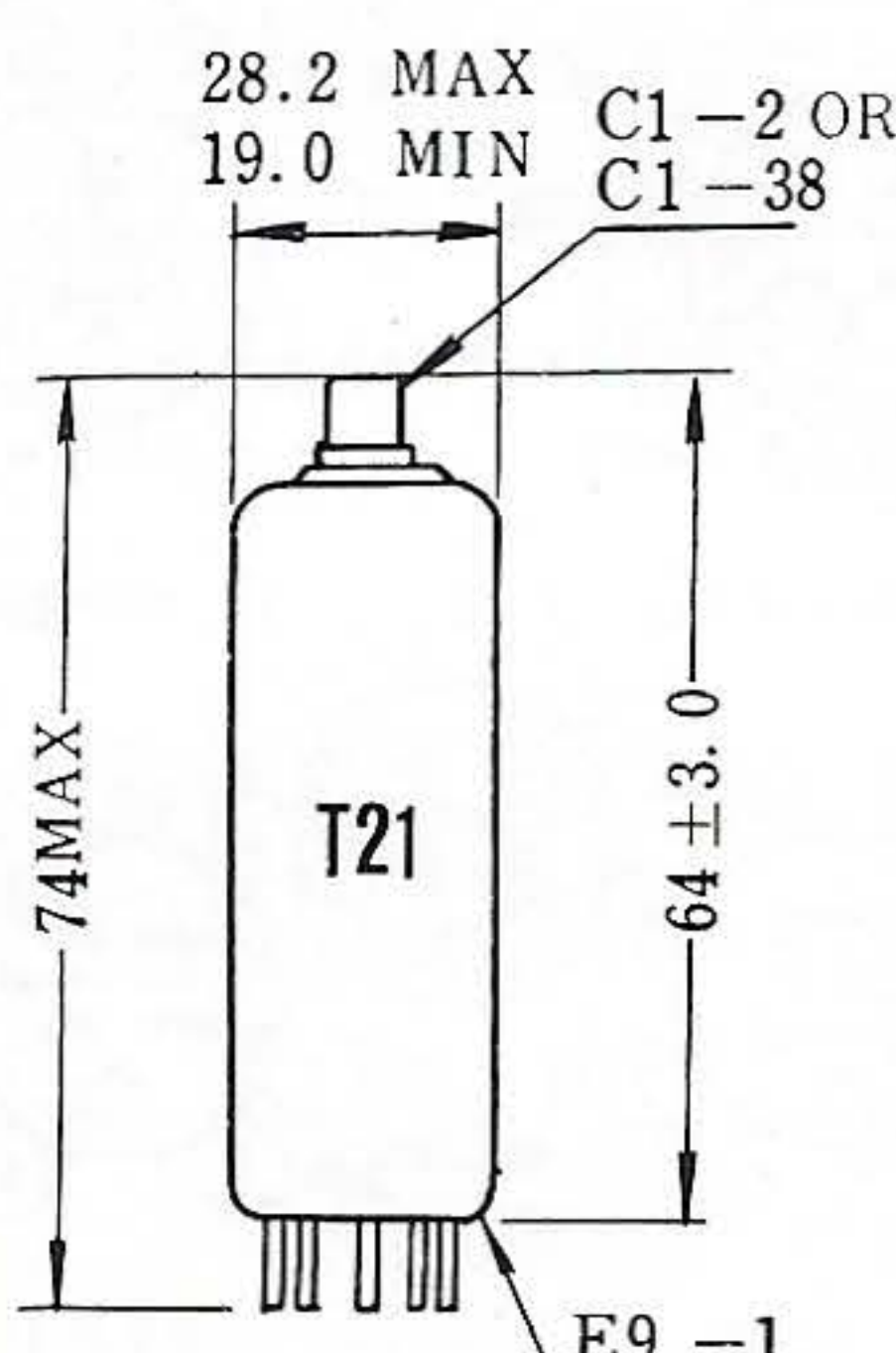
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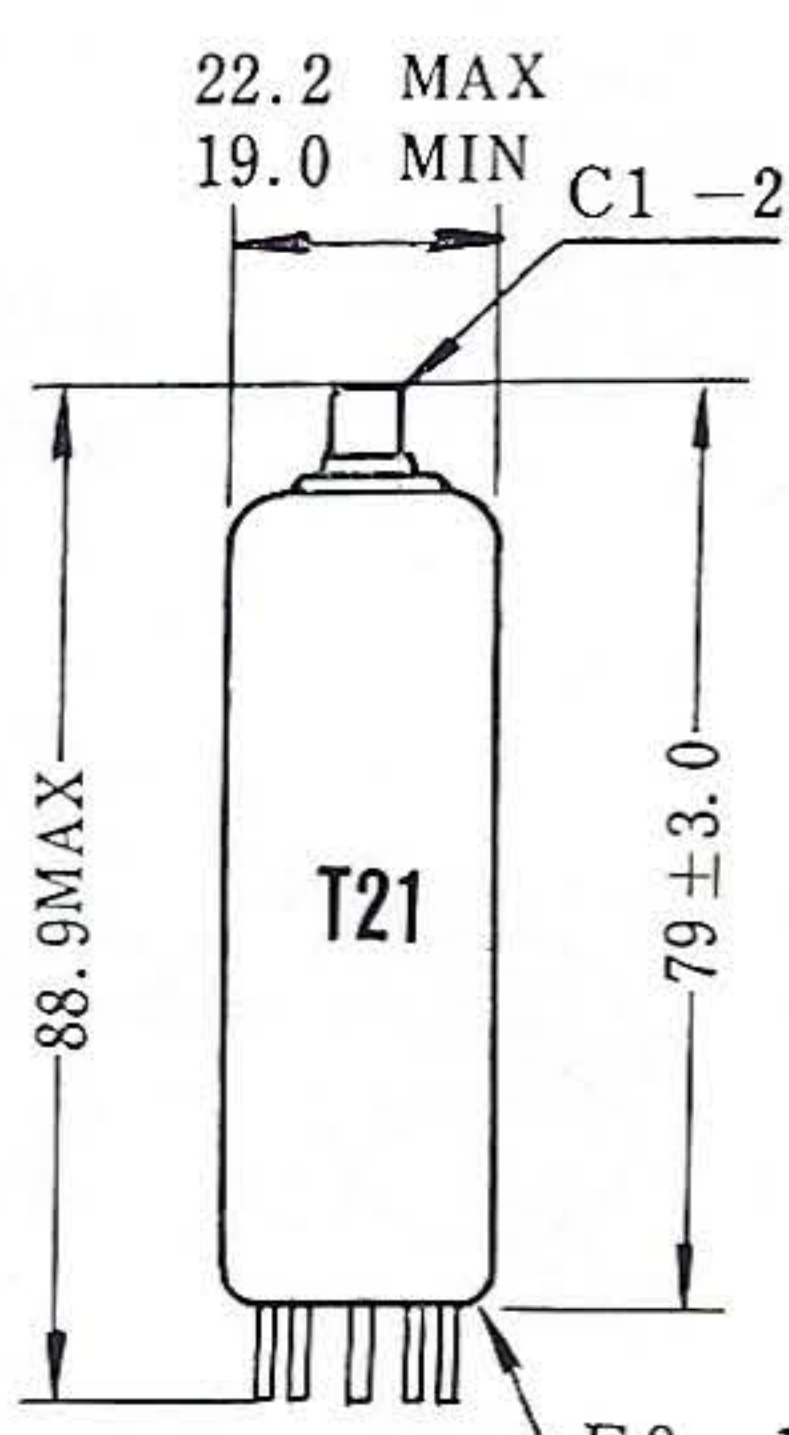
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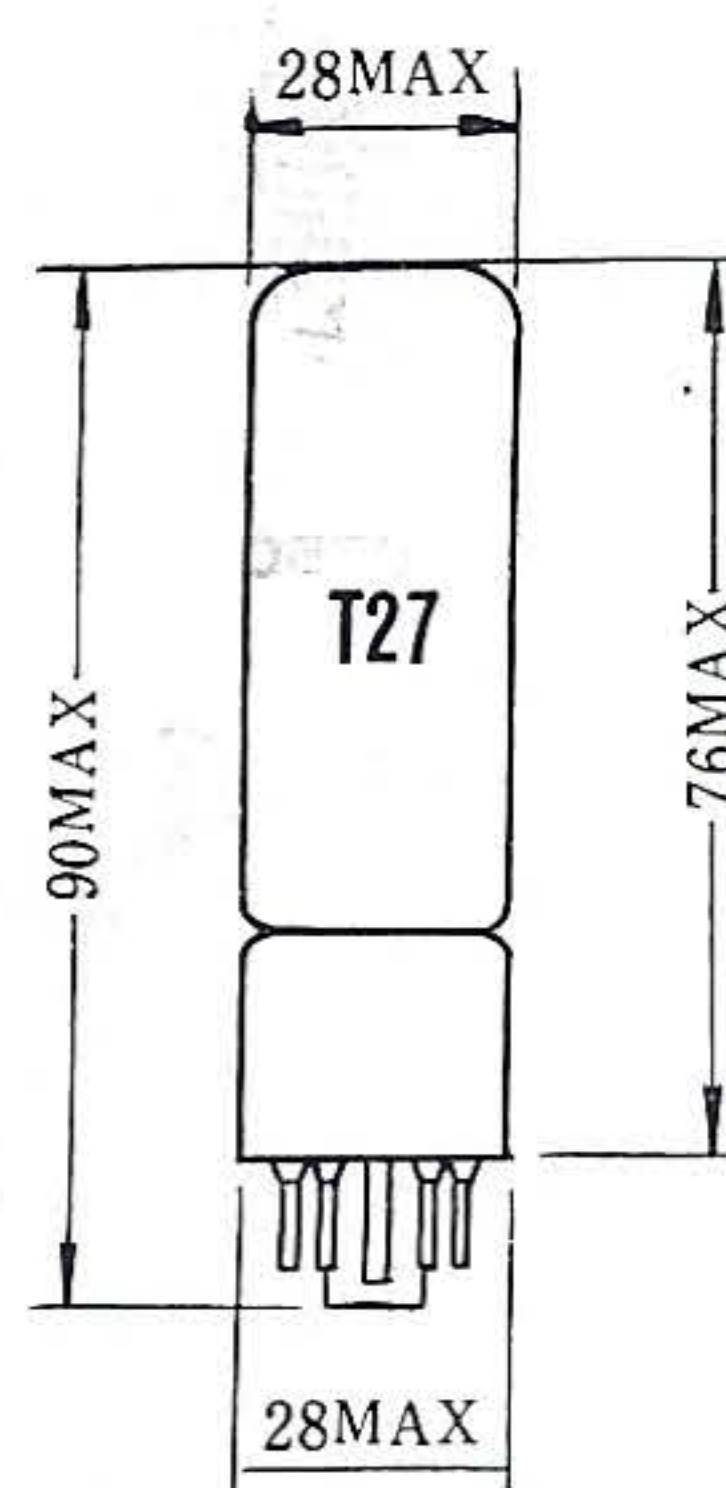
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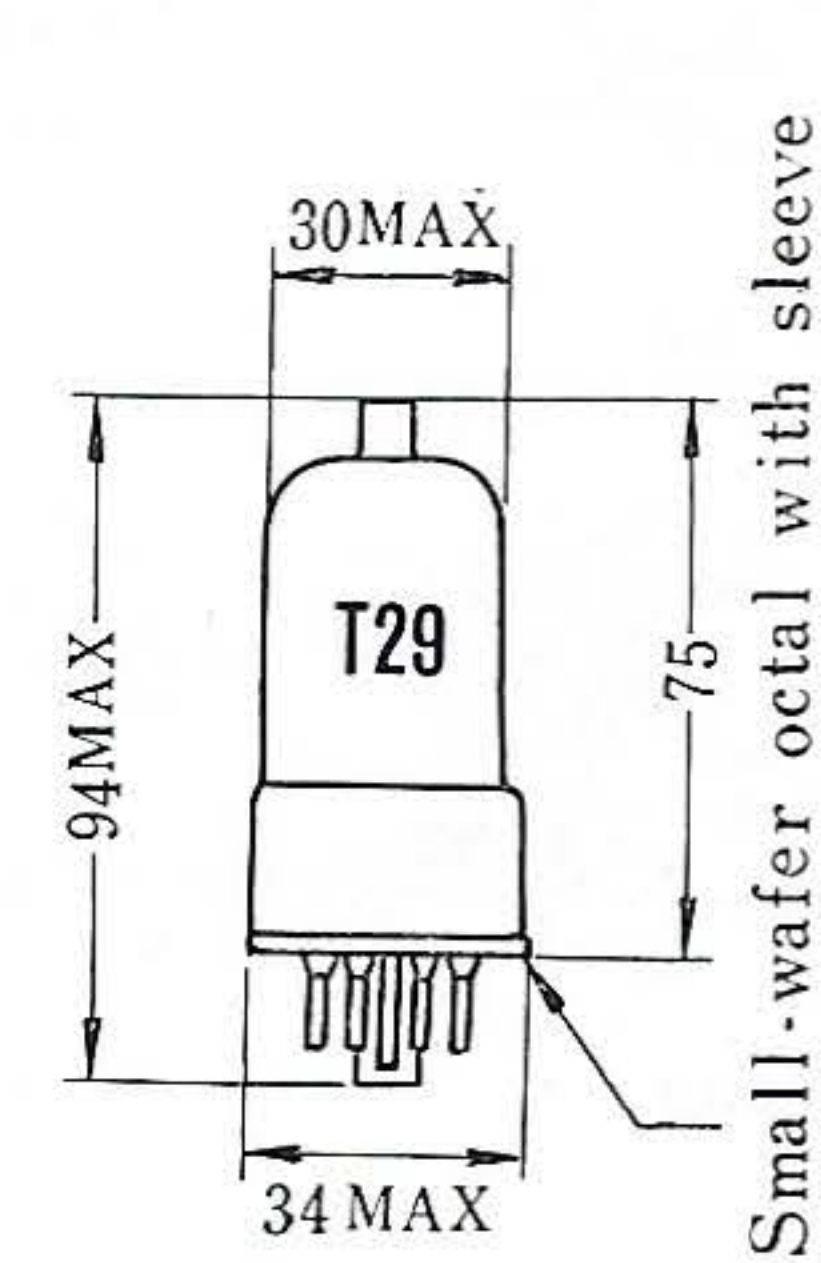
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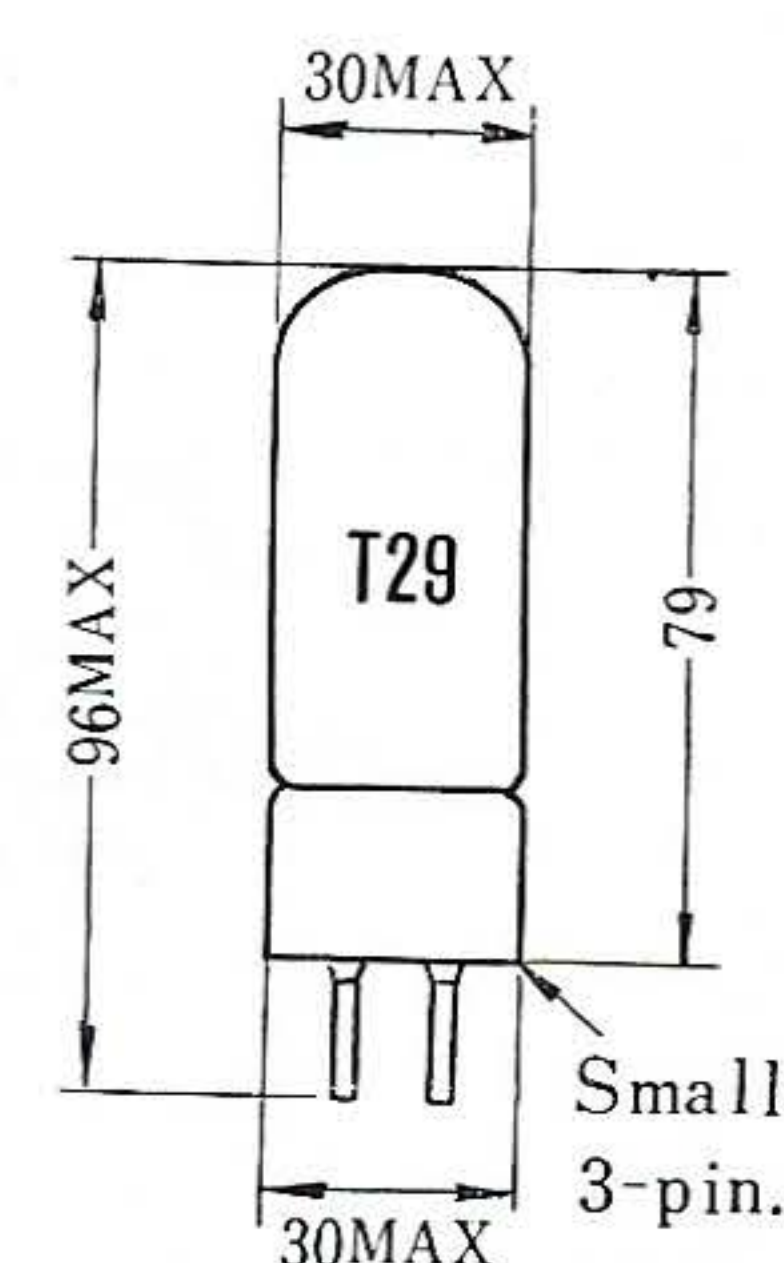
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27-1

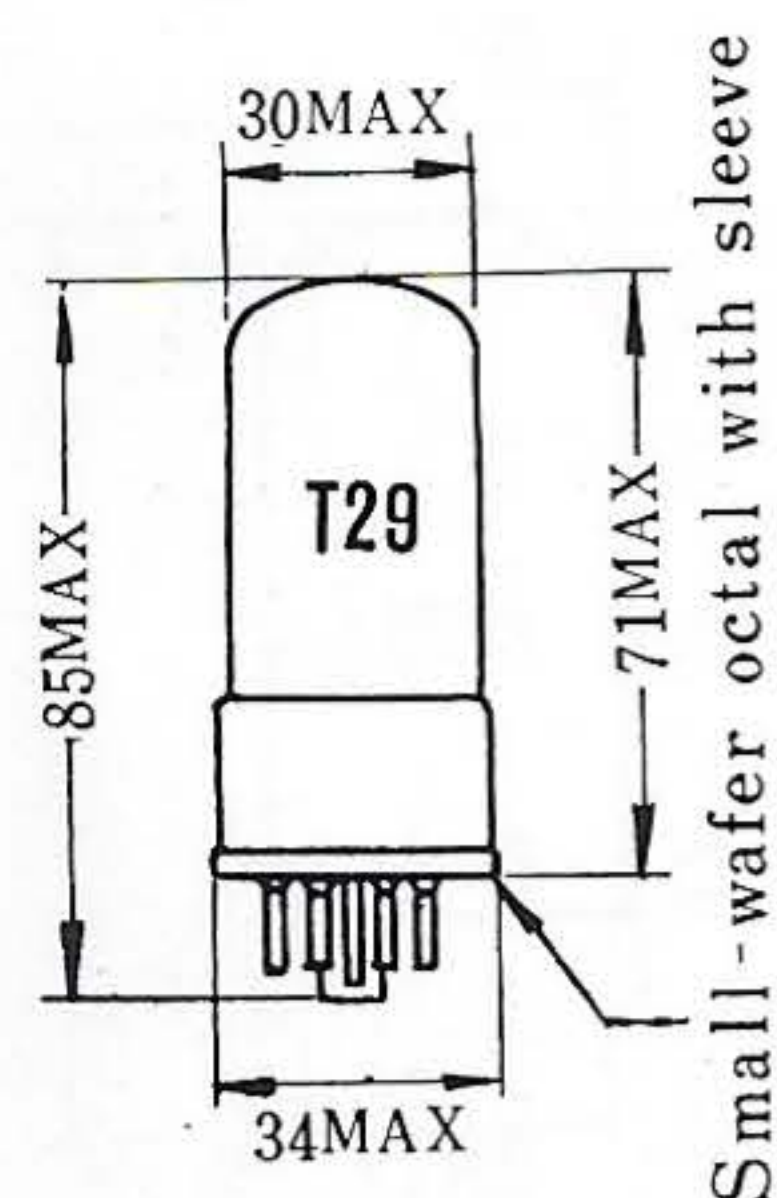


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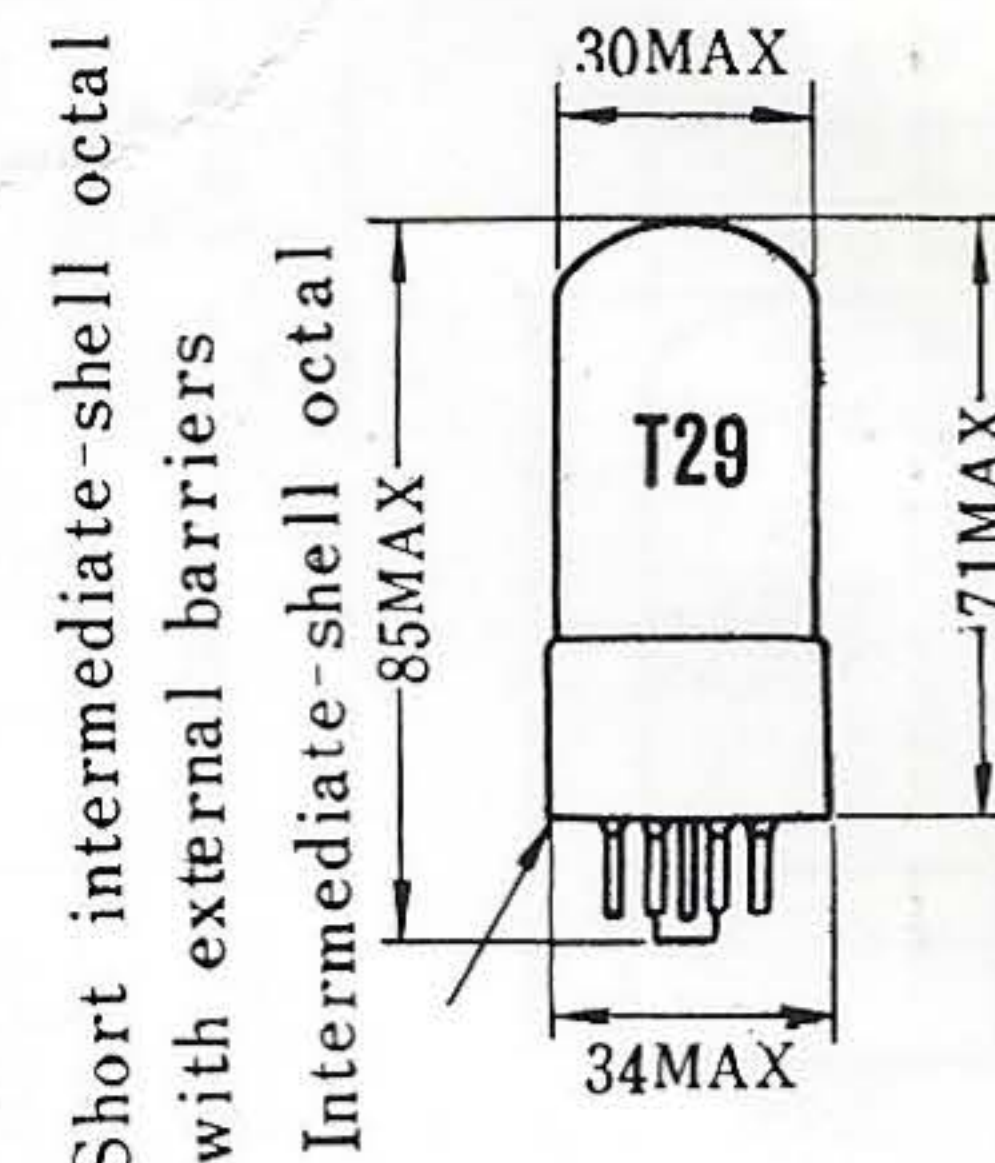
(29-02)

# DIMENSIONAL OUTLINE

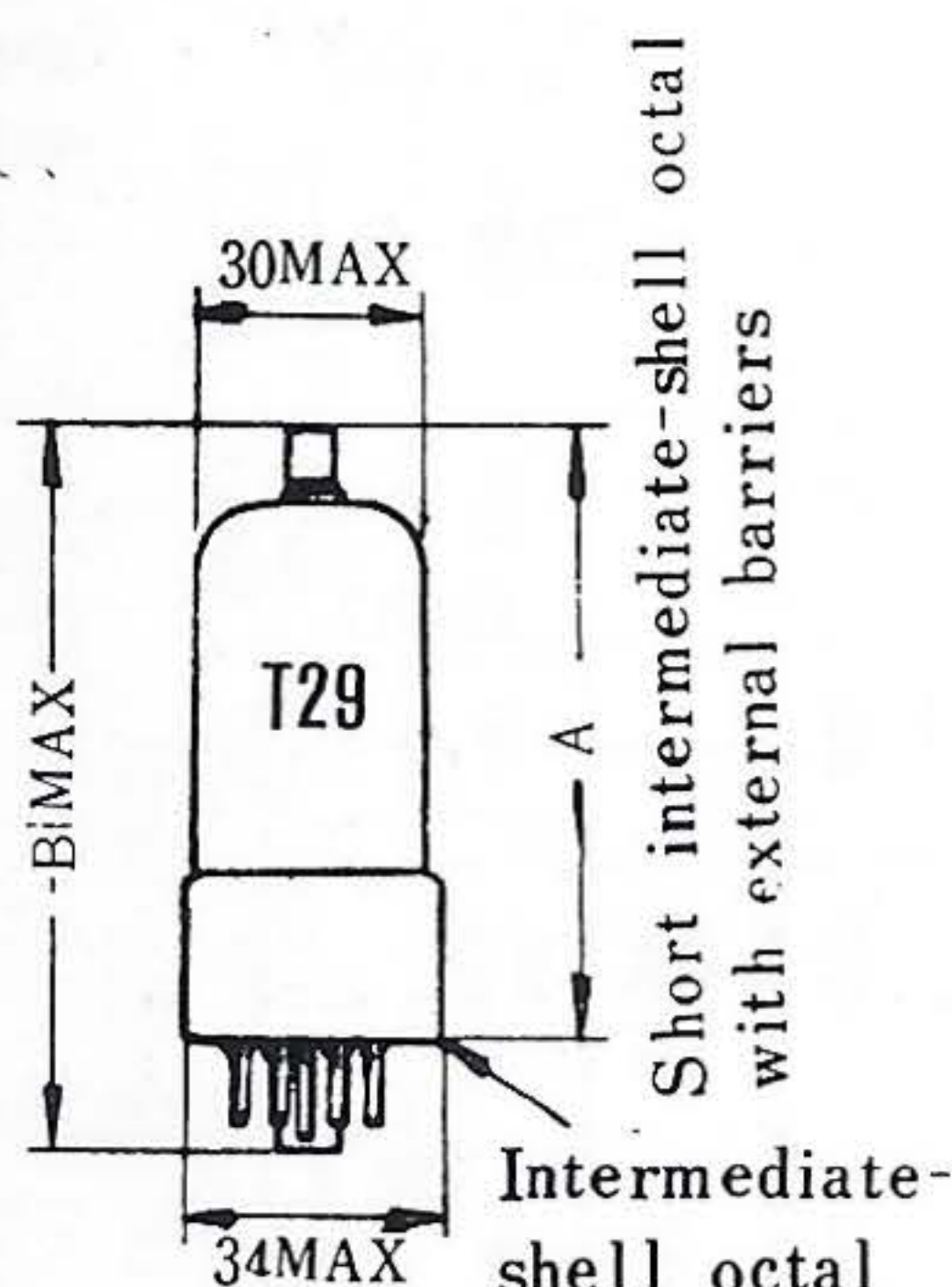


Small-wafer octal with sleeve

| Intermediate shell octal | Small-wafer octal with sleeve | Short Intermediate-shell octal with external barriers | Dimensions |       |
|--------------------------|-------------------------------|-------------------------------------------------------|------------|-------|
|                          |                               |                                                       | A MAX      | B MAX |
| 29-1 A                   | 29-1 B                        | 29-1 C                                                | 46         | 60    |
| 29-2 A                   | 29-2 B                        | 29-2 C                                                | 71         | 85    |
| 29-3 A                   | 29-3 B                        | 29-3 C                                                | 76         | 90    |
| 29-4 A                   | 29-4 B                        | 29-4 C                                                | 81         | 95    |
| 29-5 A                   | 29-5 B                        | 29-5 C                                                | 86         | 100   |
| 29-6 A                   | 29-6 B                        | 29-6 C                                                | 96         | 110   |

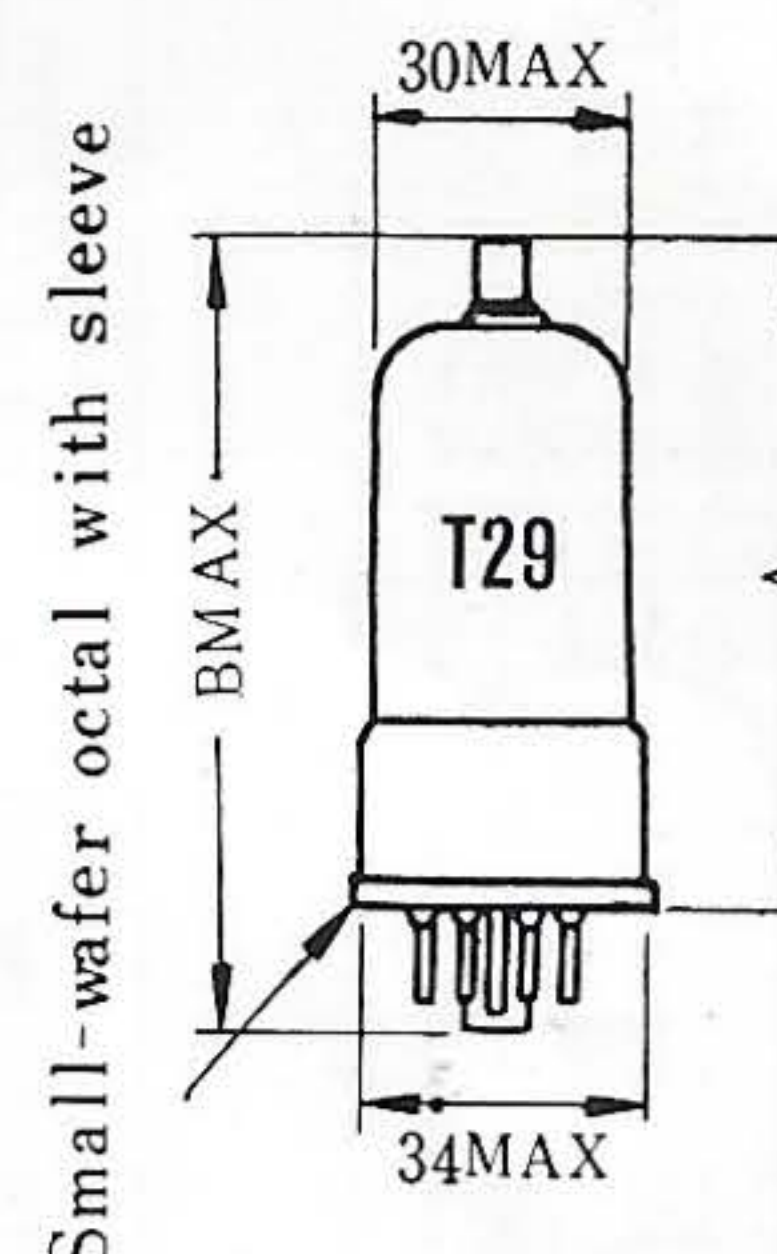


Short intermediate-shell octal with external barriers

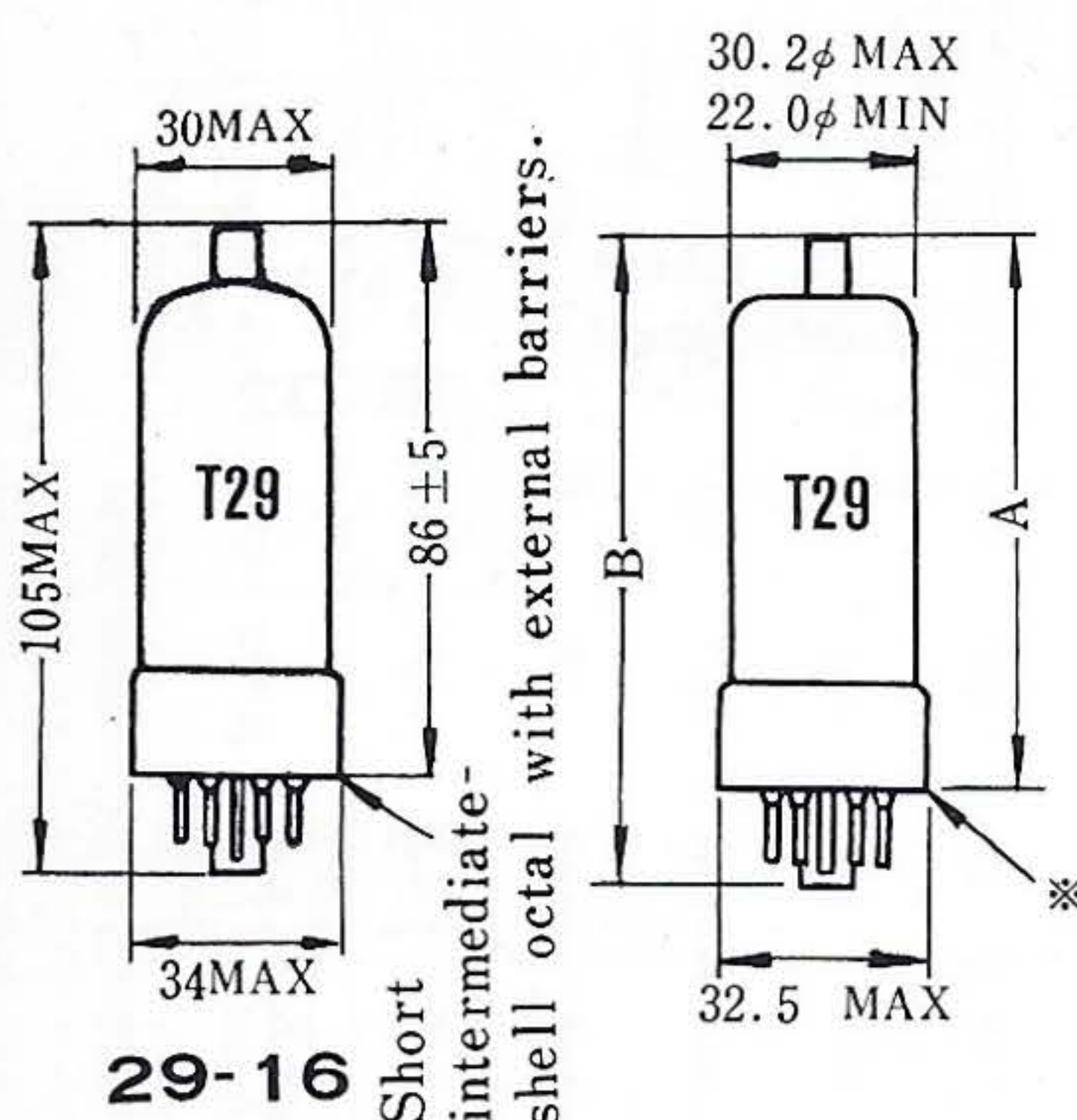


Short intermediate-shell octal with external barriers

| Intermediate-shell octal | Small-wafer octal with sleeve | Short Intermediate-shell octal with external barriers | Dimensions |     |       |
|--------------------------|-------------------------------|-------------------------------------------------------|------------|-----|-------|
|                          |                               |                                                       | A          |     | B     |
|                          |                               |                                                       | MIN        | MAX | MAX   |
| 2 9-1 1 A                | 2 9-1 1 B                     | 2 9-1 1 C                                             | 7 6        | 8 6 | 1 0 0 |
| 2 9-1 2 A                | 2 9-1 2 B                     | 2 9-1 2 C                                             | 8 6        | 9 6 | 1 1 0 |



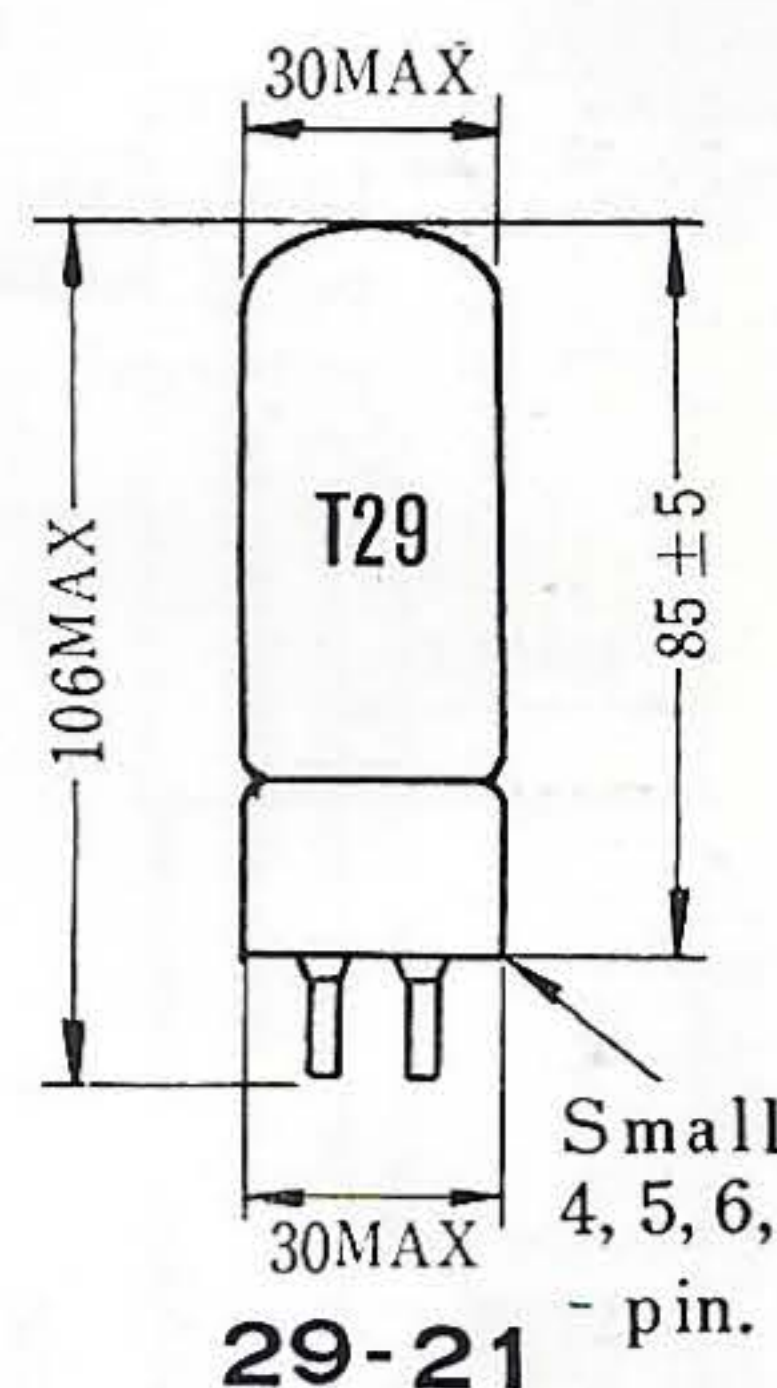
Small-wafer octal with sleeve



29-16

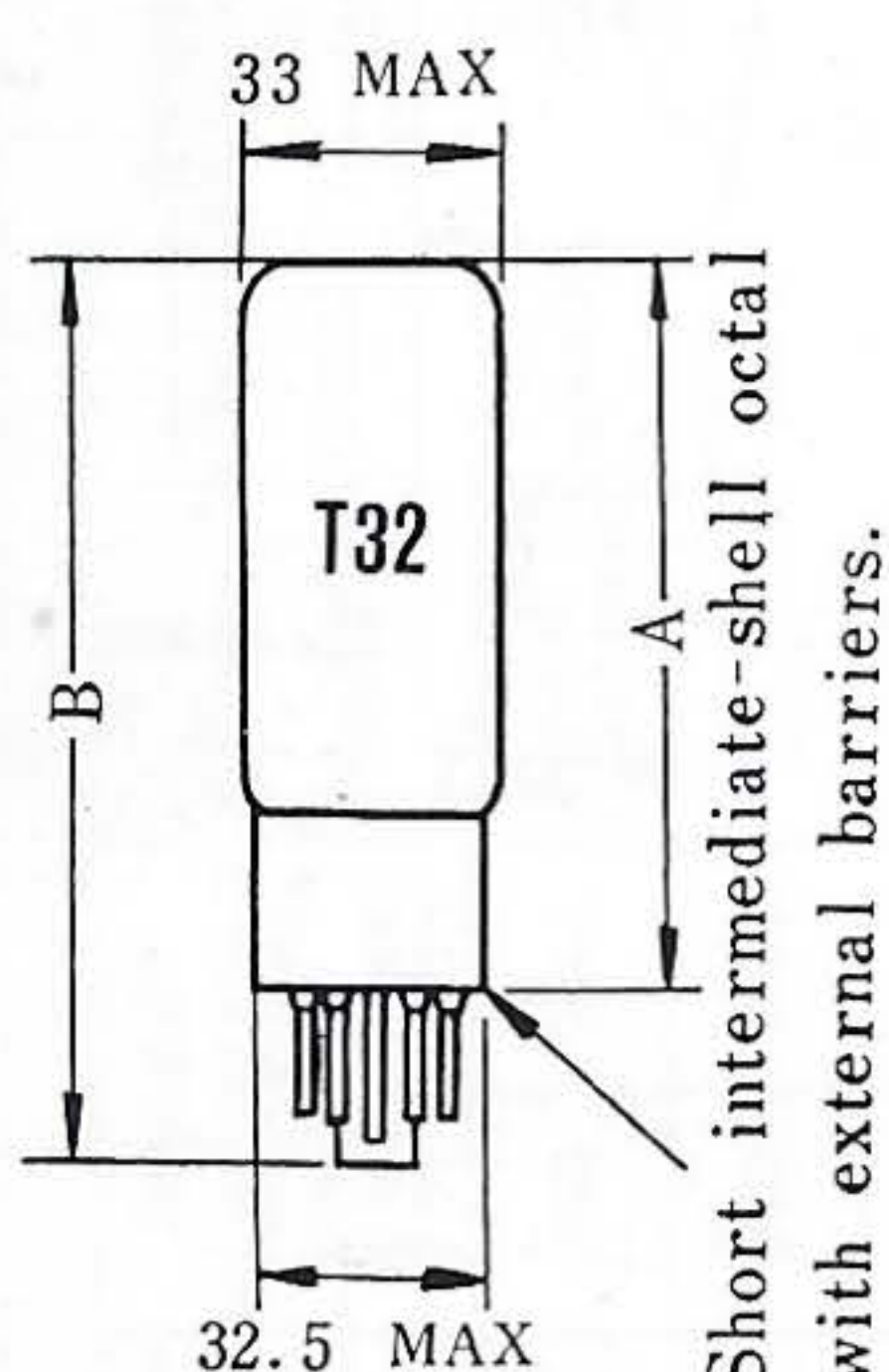
Short intermediate-shell octal with external barriers

| ※ Intermediate-shell octal | ※ Small Intermediate-shell octal | ※ Small wafer octal with sleeve | Dimensions |     |          |
|----------------------------|----------------------------------|---------------------------------|------------|-----|----------|
|                            |                                  |                                 | A          |     | B<br>MAX |
|                            |                                  |                                 | MIN        | MAX |          |
| 29-16A                     | 29-16B                           | 29-16C                          | 81         | 91  | 105      |



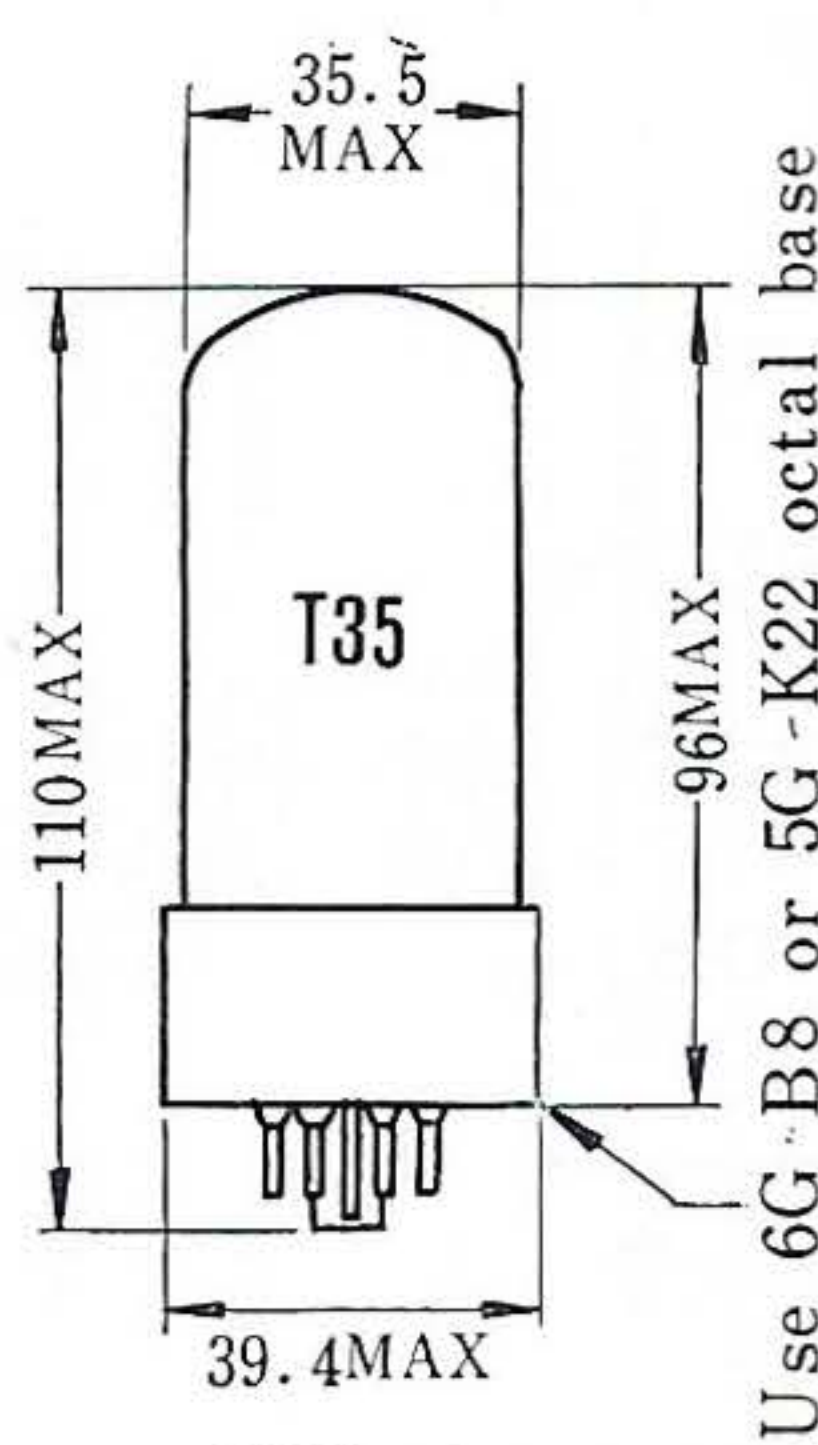
29-21

Small 4, 5, 6, 7-pin.



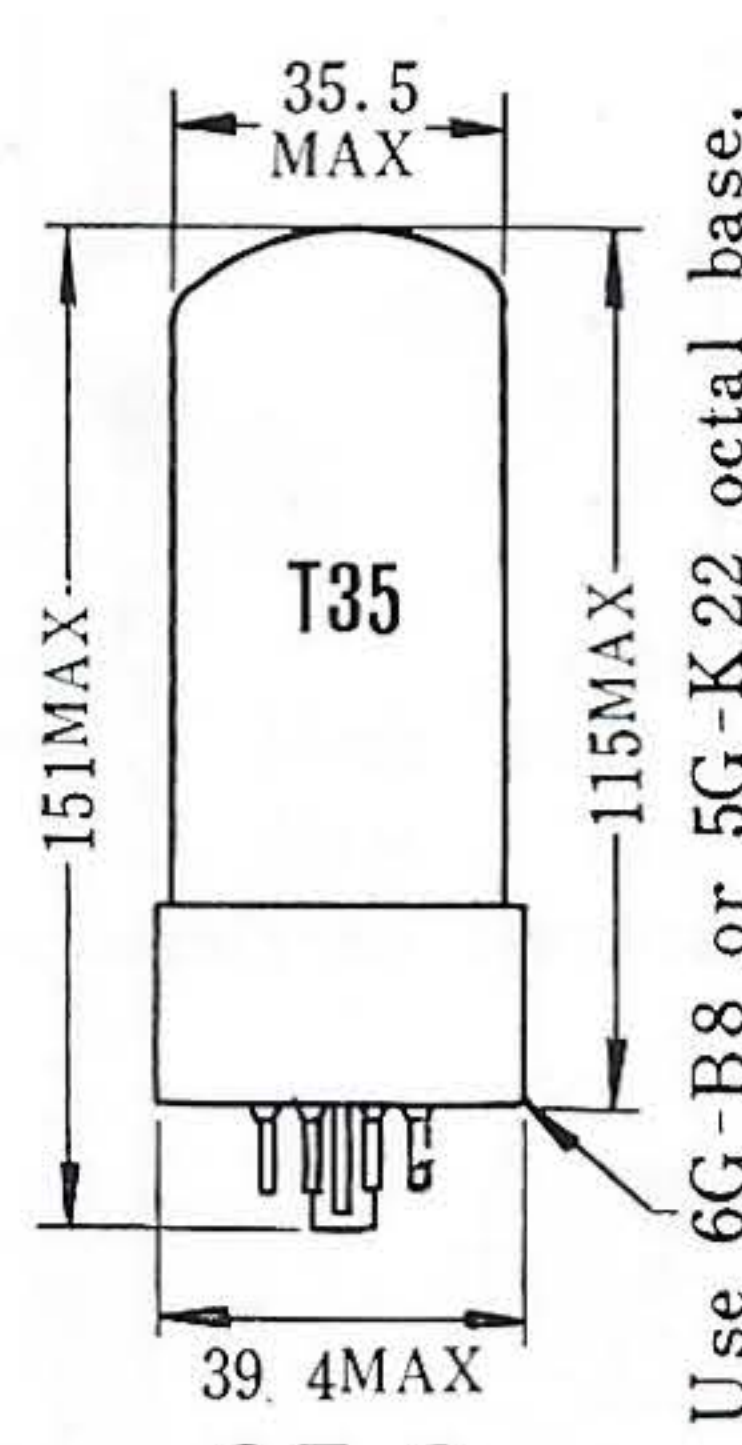
Short intermediate-shell octal with external barriers

| Outline No. | A MAX | B MAX |
|-------------|-------|-------|
| 32-1        | 71    | 85    |
| 32-2        | 101   | 115   |



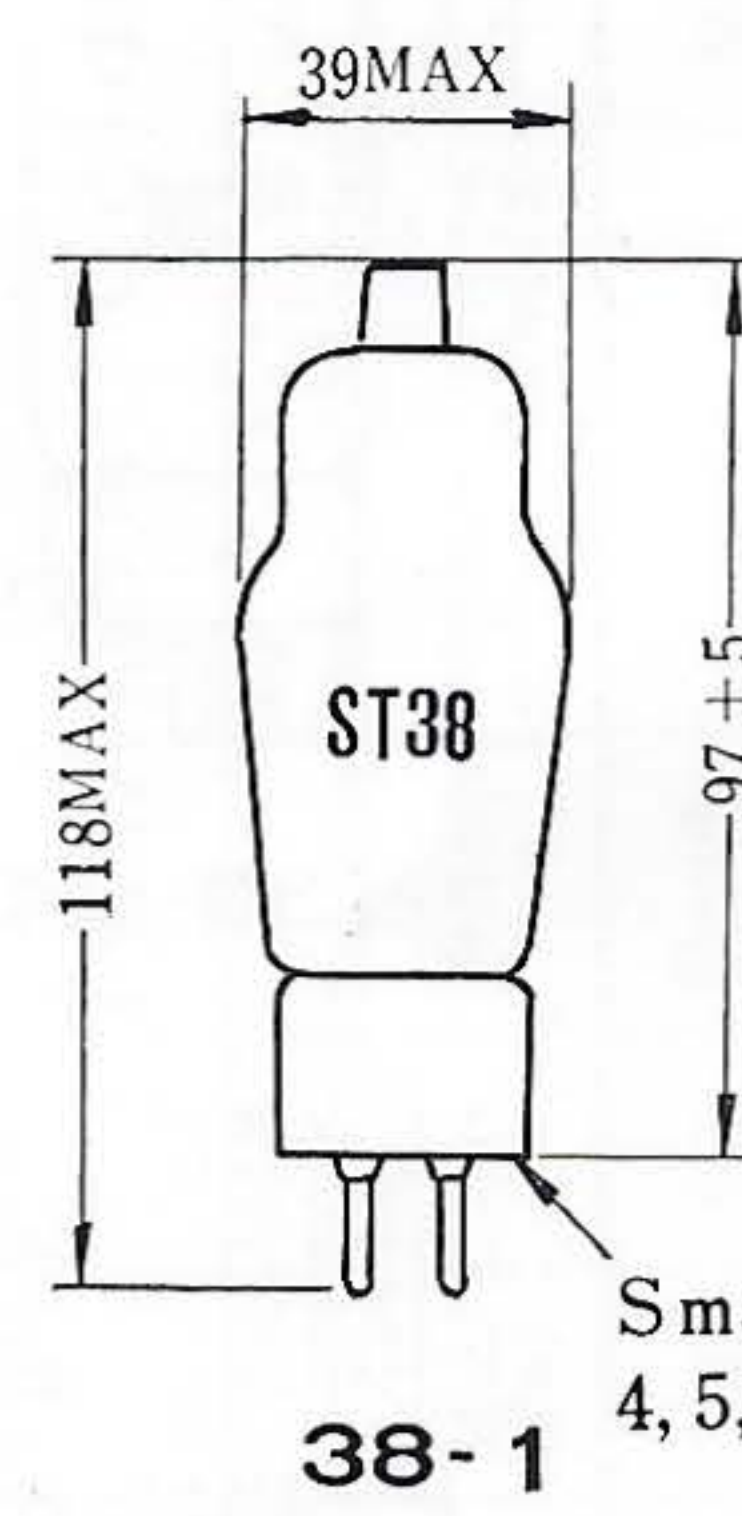
35-1

Use 6G-B8 or 5G-K22 octal base



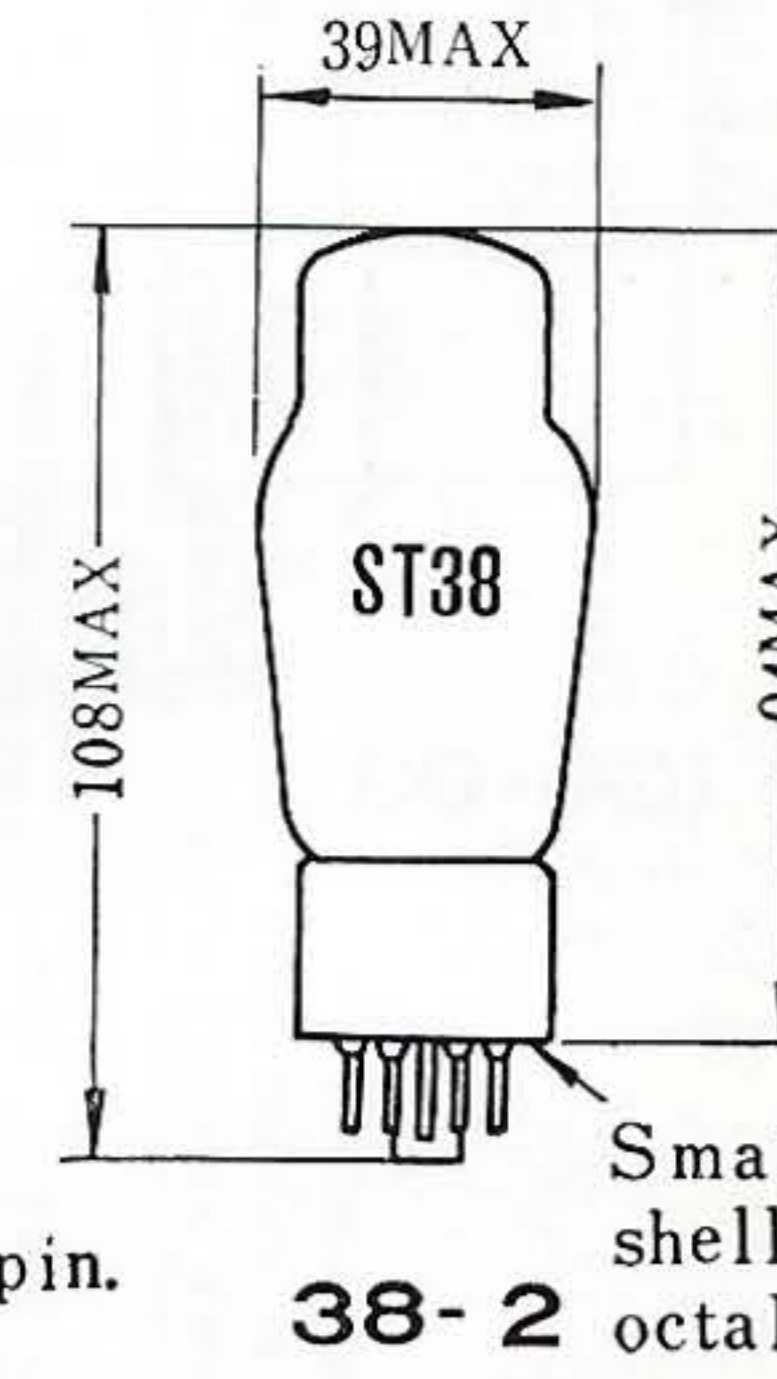
35-2

Use 6G-B8 or 5G-K22 octal base.



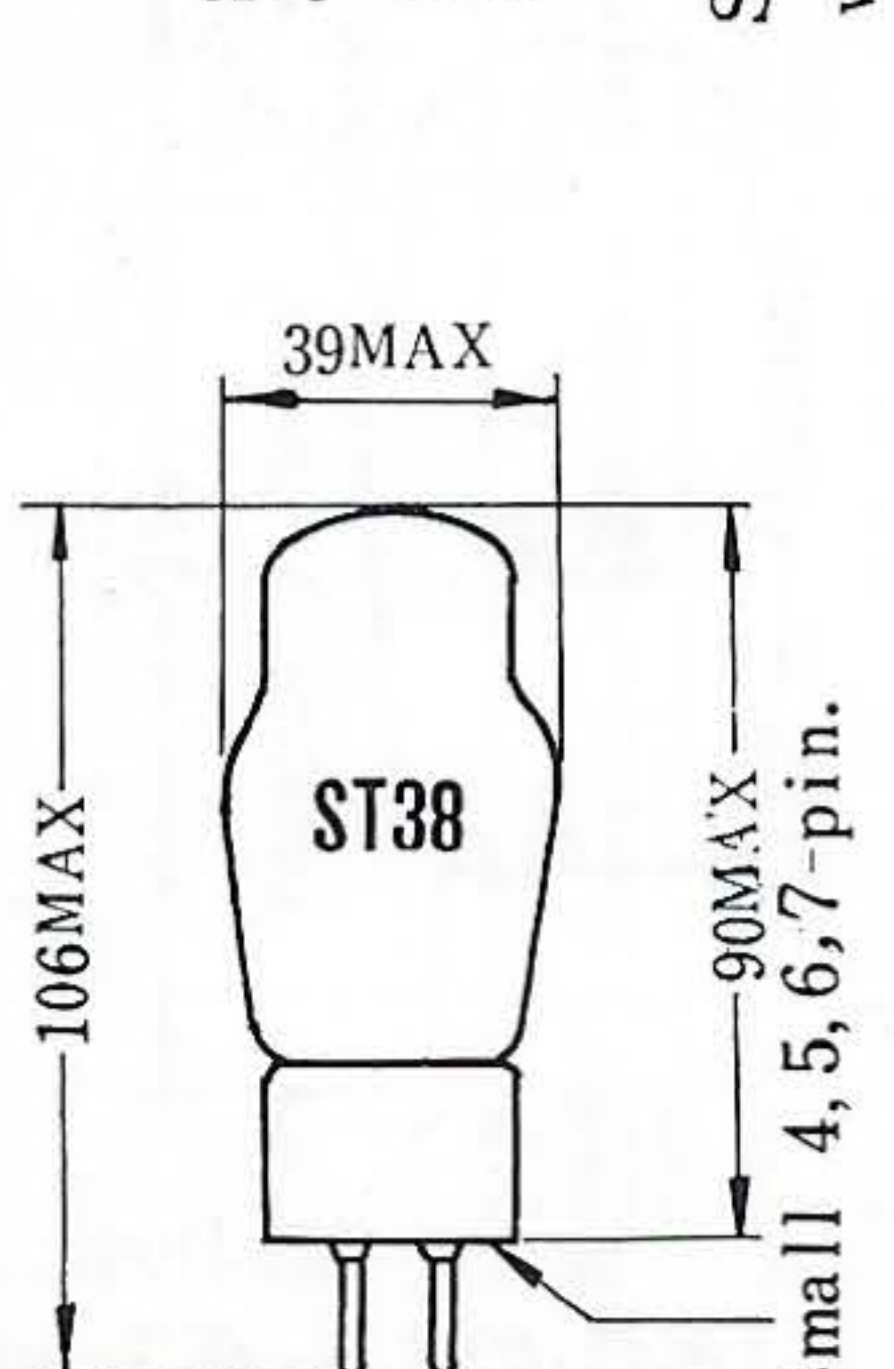
38-1

Small 4, 5, 6, 7-pin.



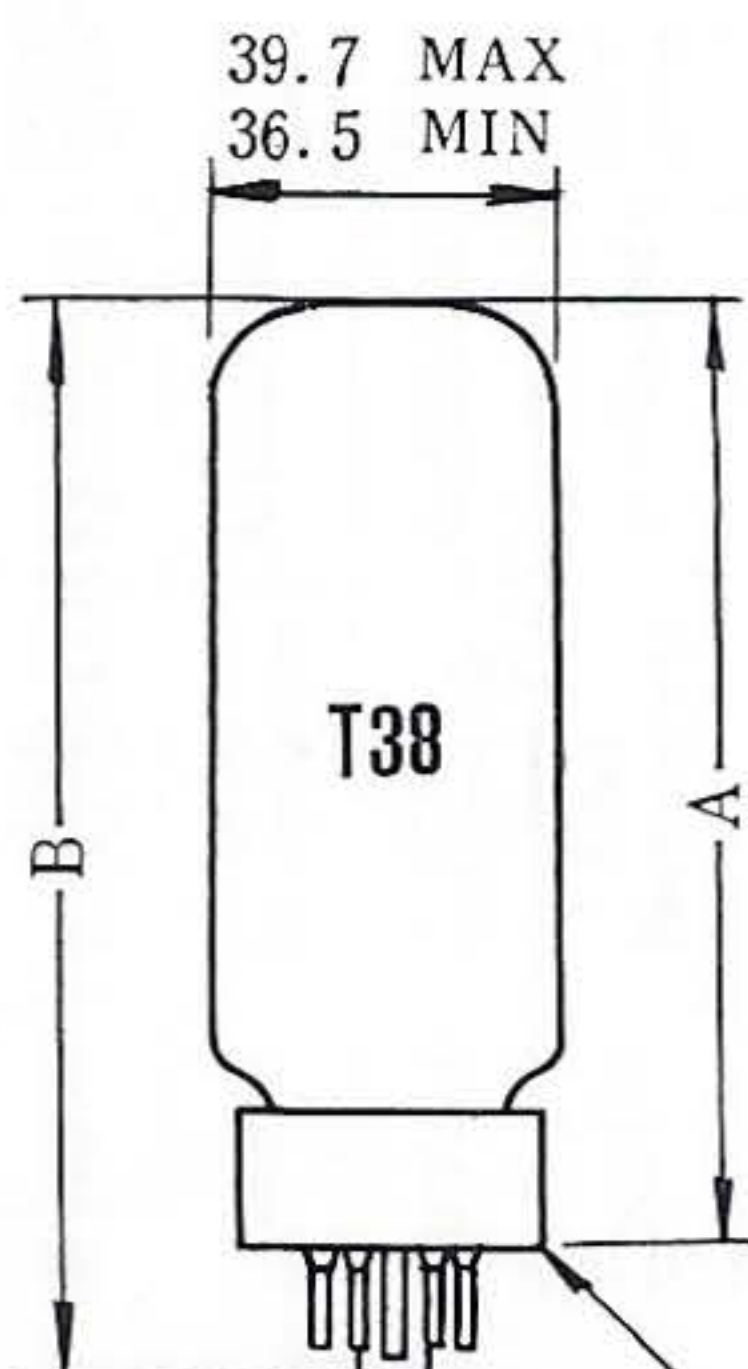
38-2

Small shell octal



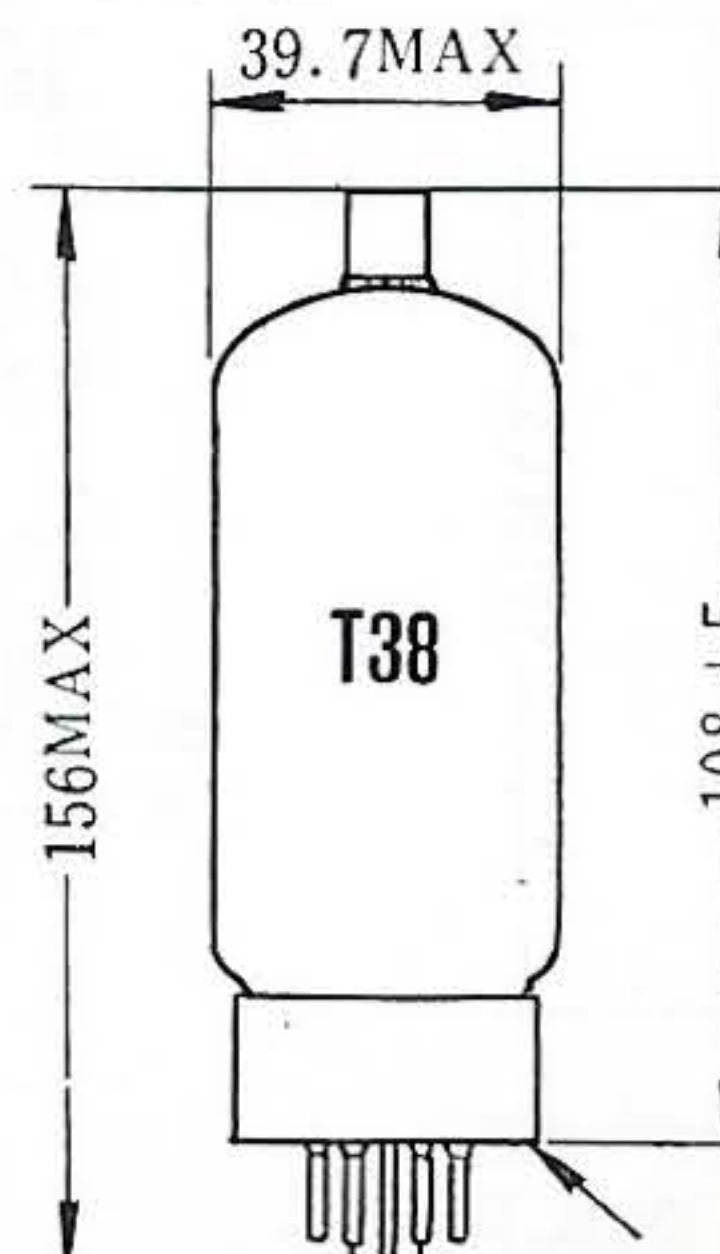
38-3

Small 4, 5, 6, 7-pin.



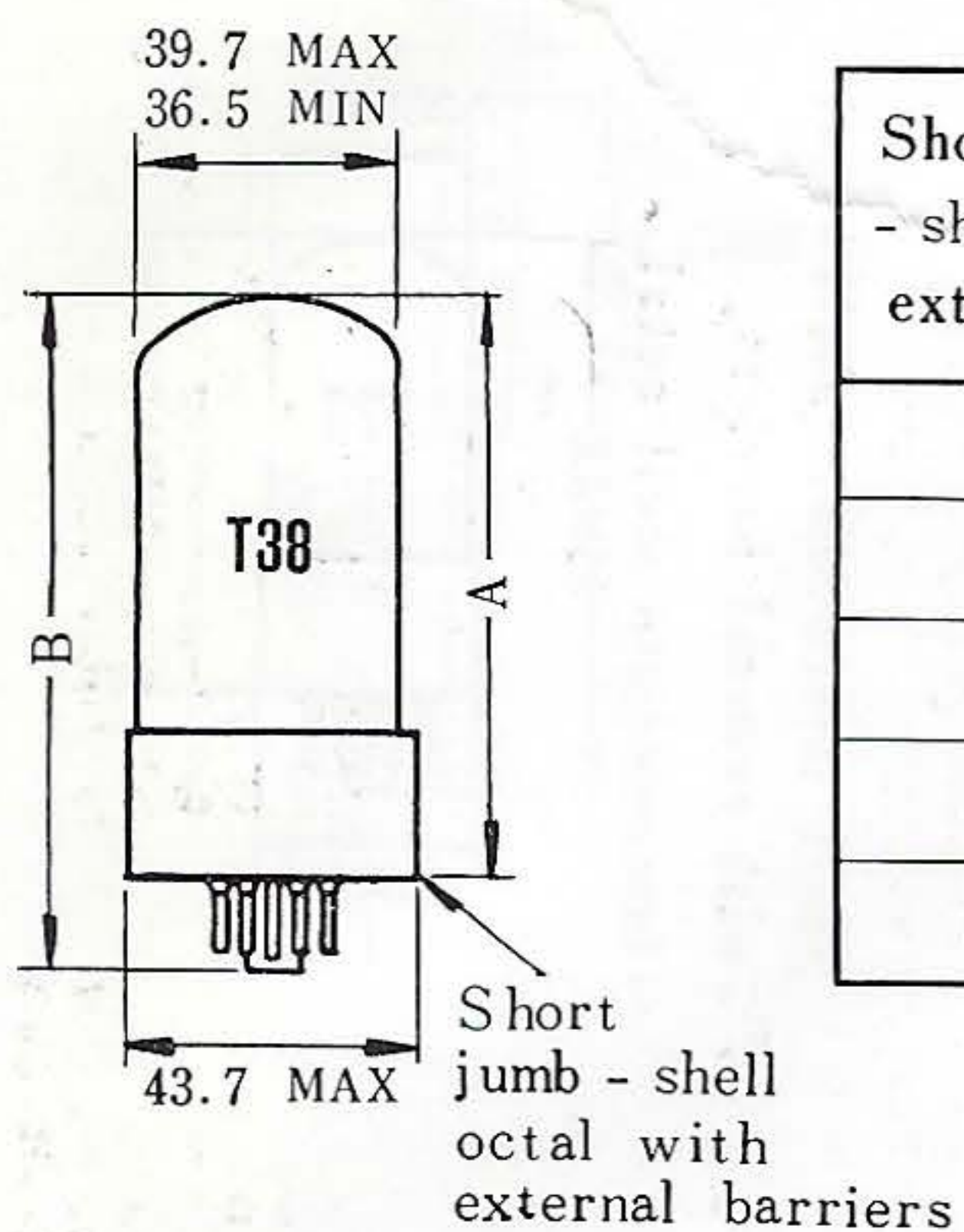
Short medium-shell octal with external barriers.

| Outline No. | Dimensions |       |
|-------------|------------|-------|
|             | A MAX      | B MAX |
| 38-11       | 74.9       | 88.9  |
| 38-12       | 84.4       | 98.4  |
| 38-13       | 94         | 108   |
| 38-14       | 103        | 117   |
| 38-15       | 113        | 127   |

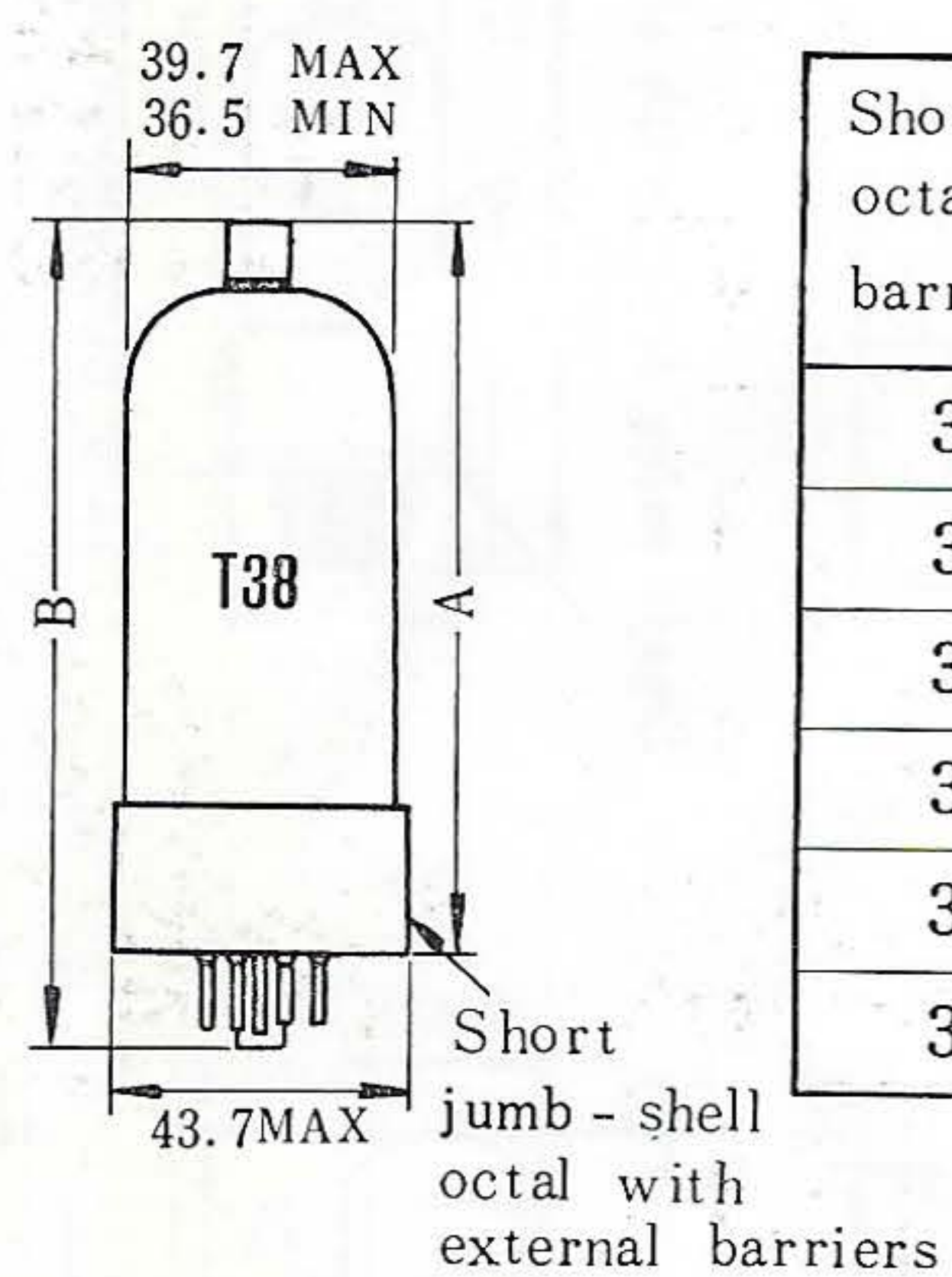
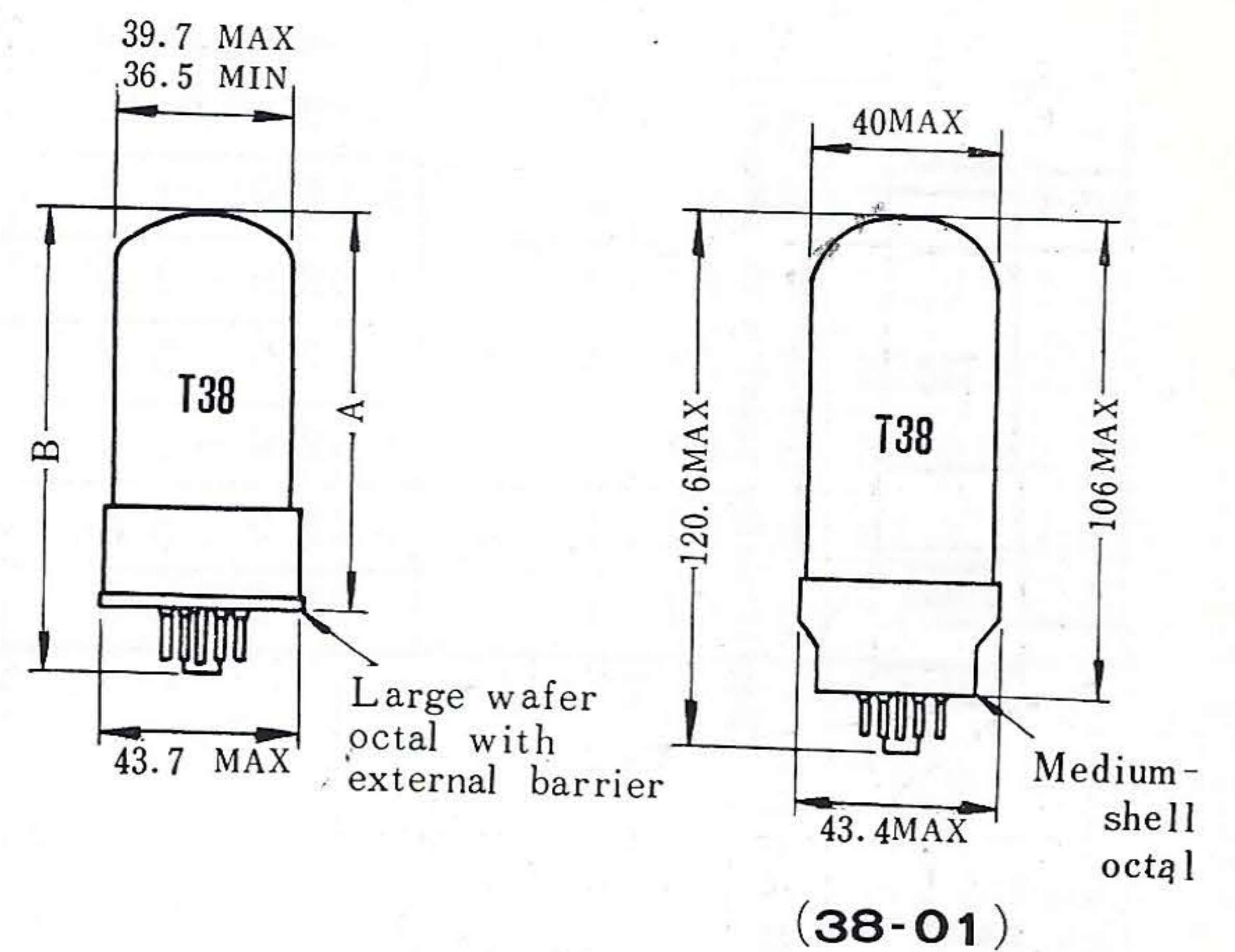


| Outline No. | Dimensions |       |
|-------------|------------|-------|
|             | A ± 5      | B MAX |
| 38-16       | 79.4       | 98.4  |
| 38-17       | 89         | 108   |
| 38-18       | 98         | 117   |
| 38-19       | 108        | 127   |
| 38-20       | 118        | 137   |

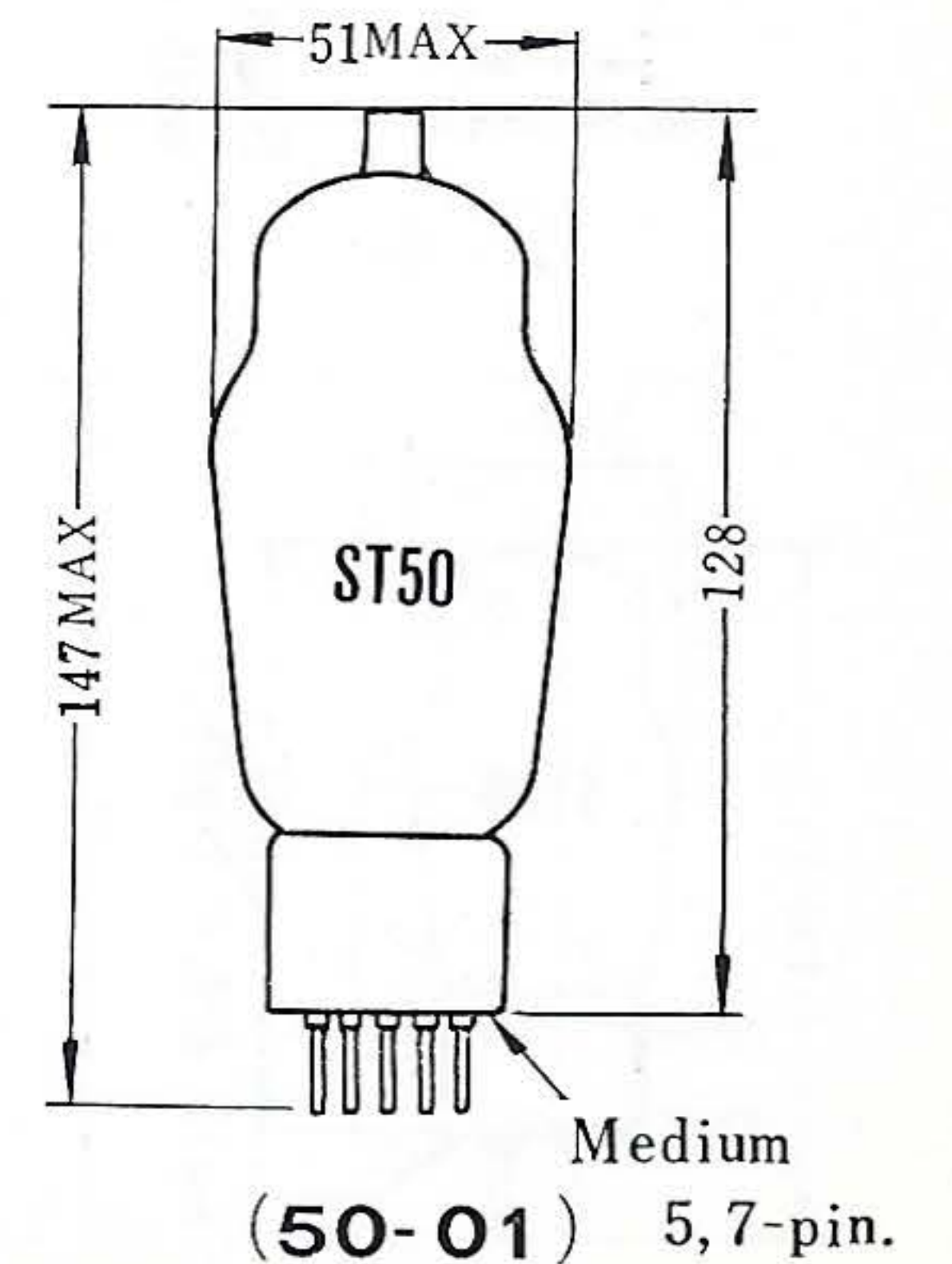
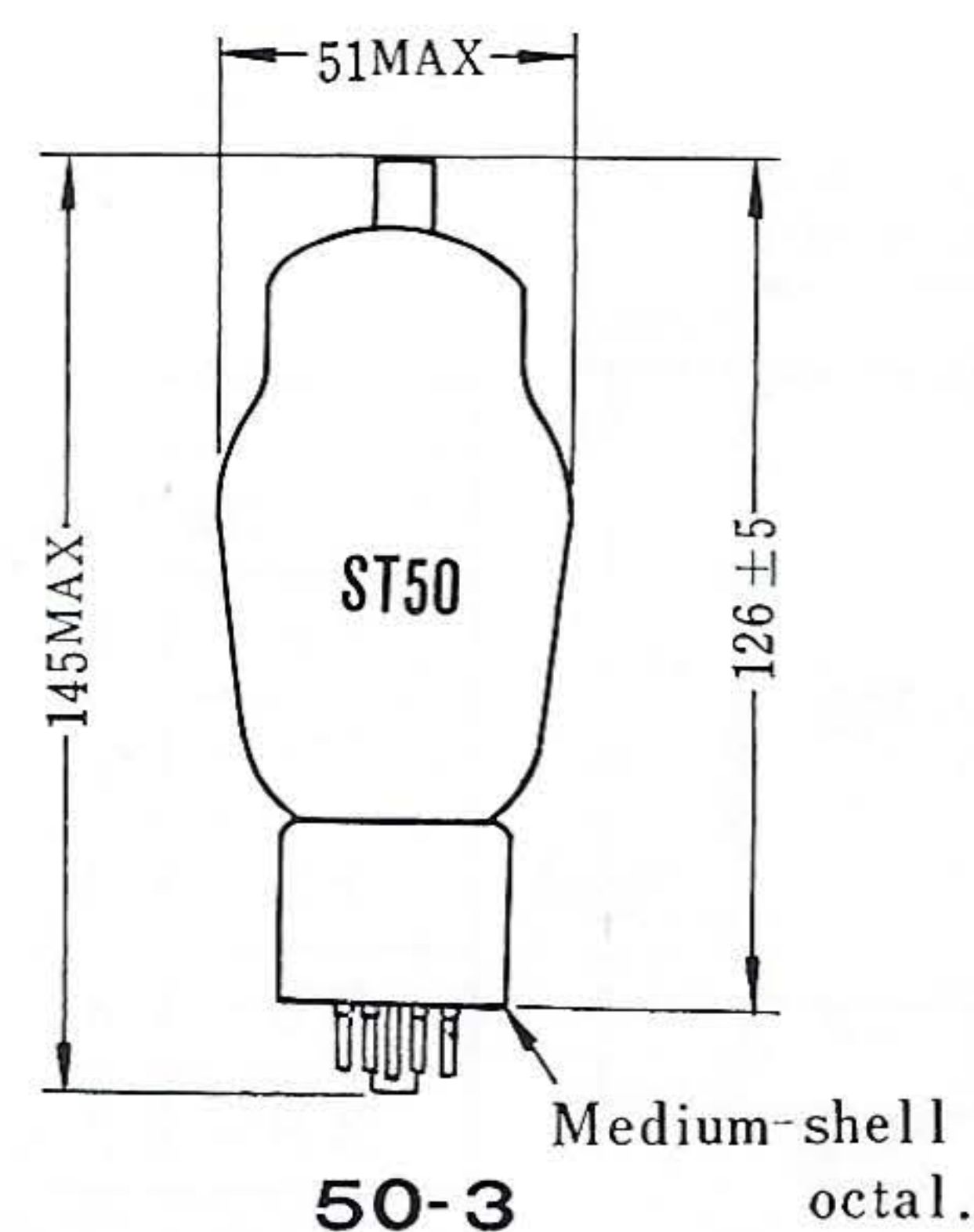
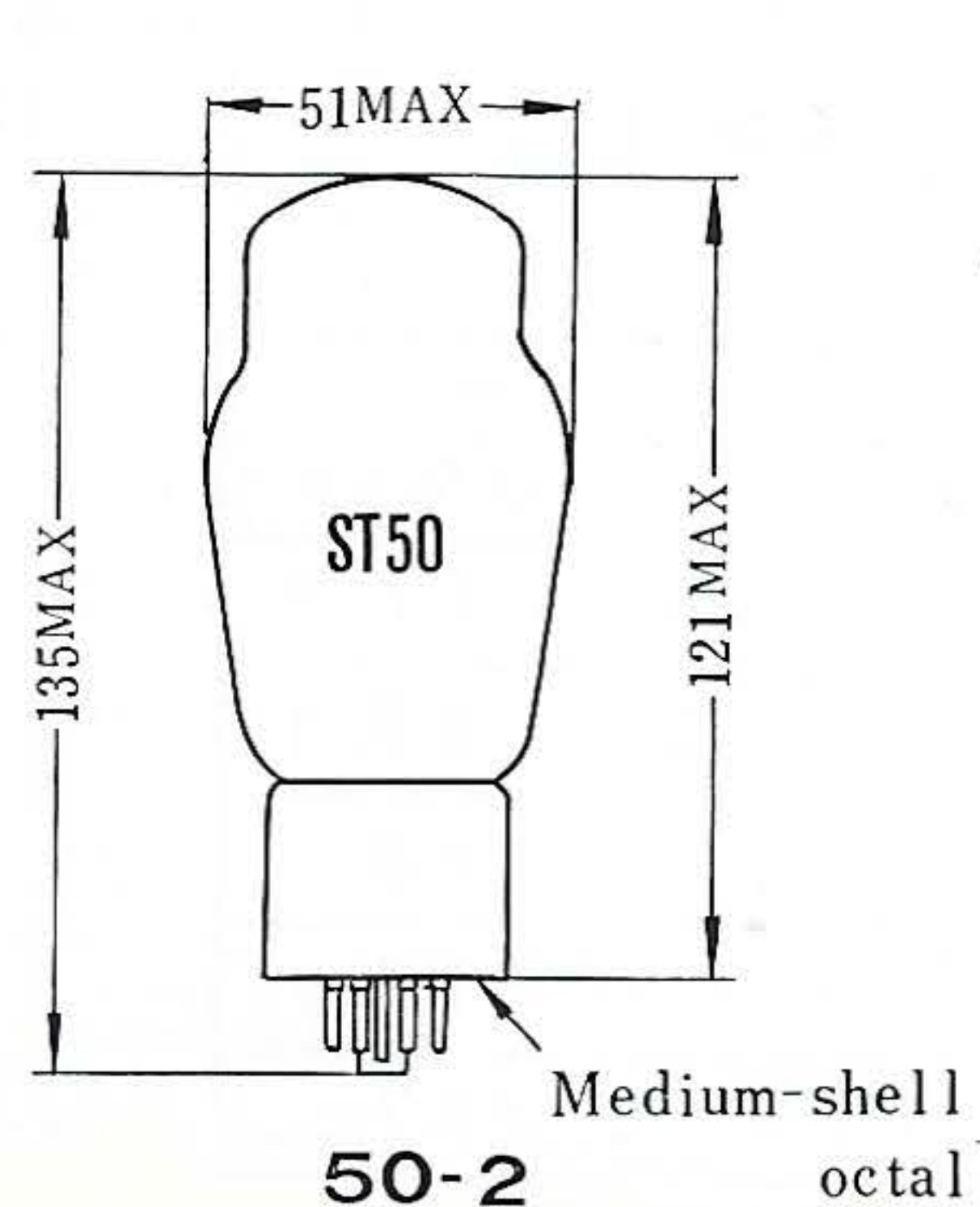
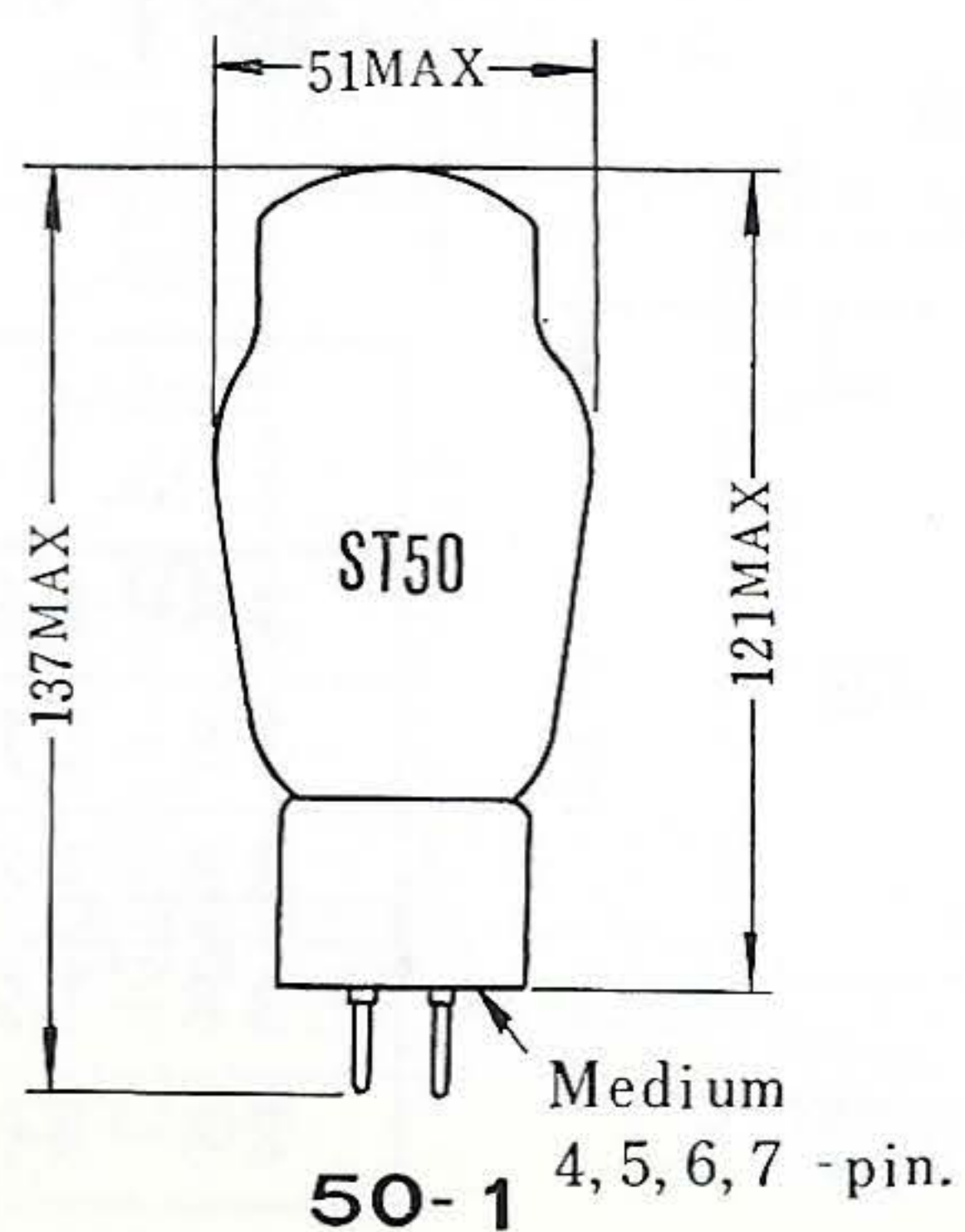
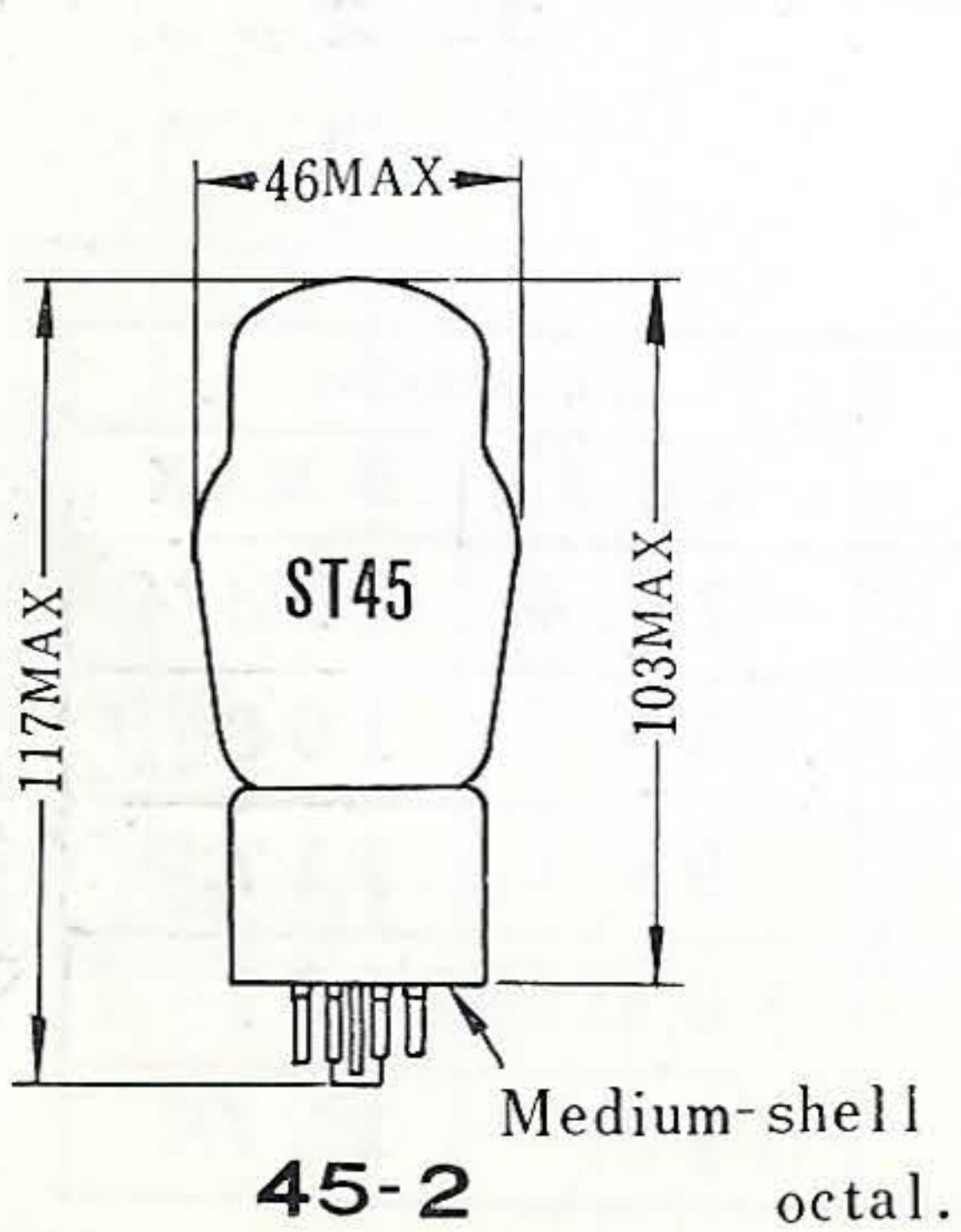
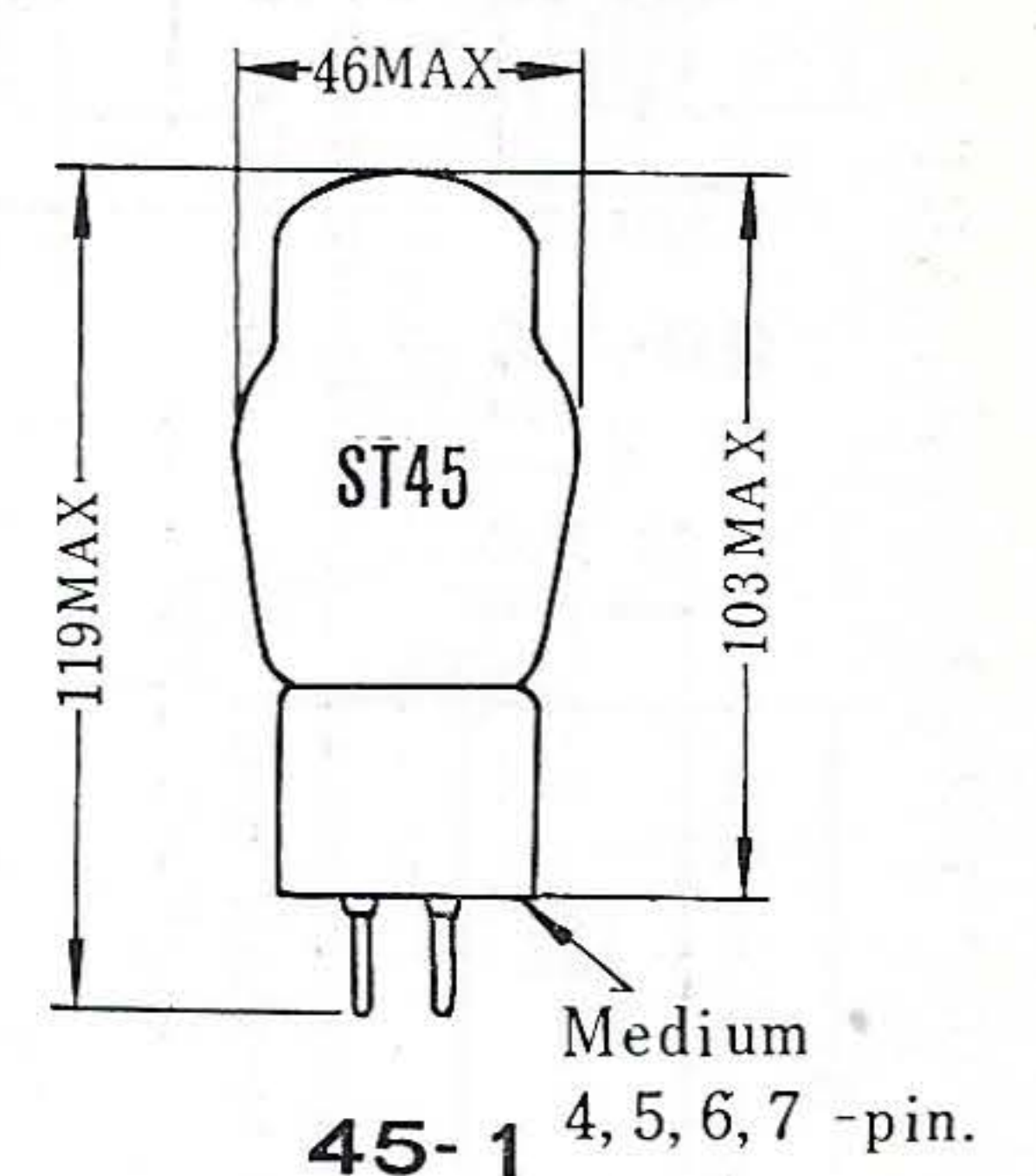
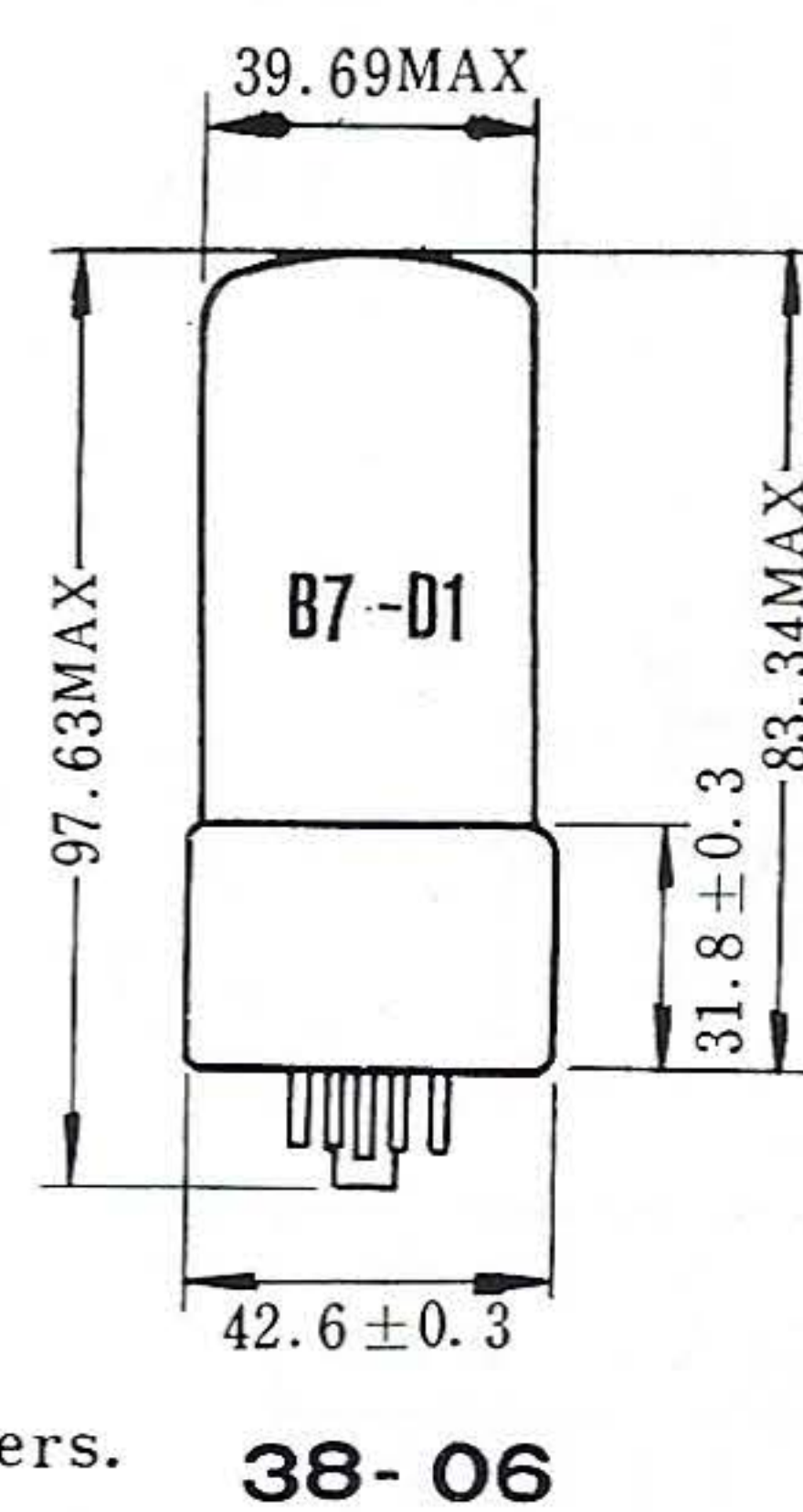
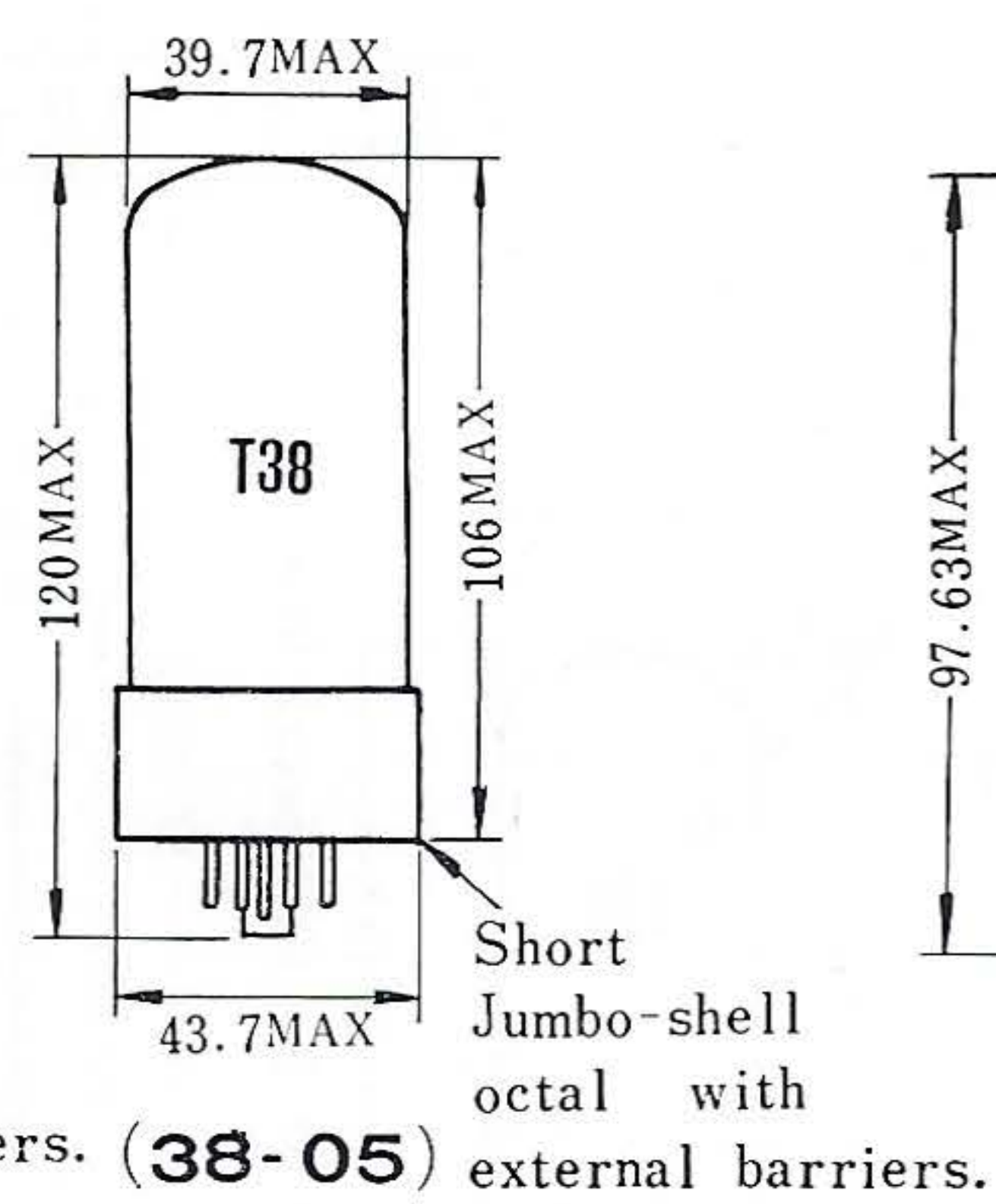
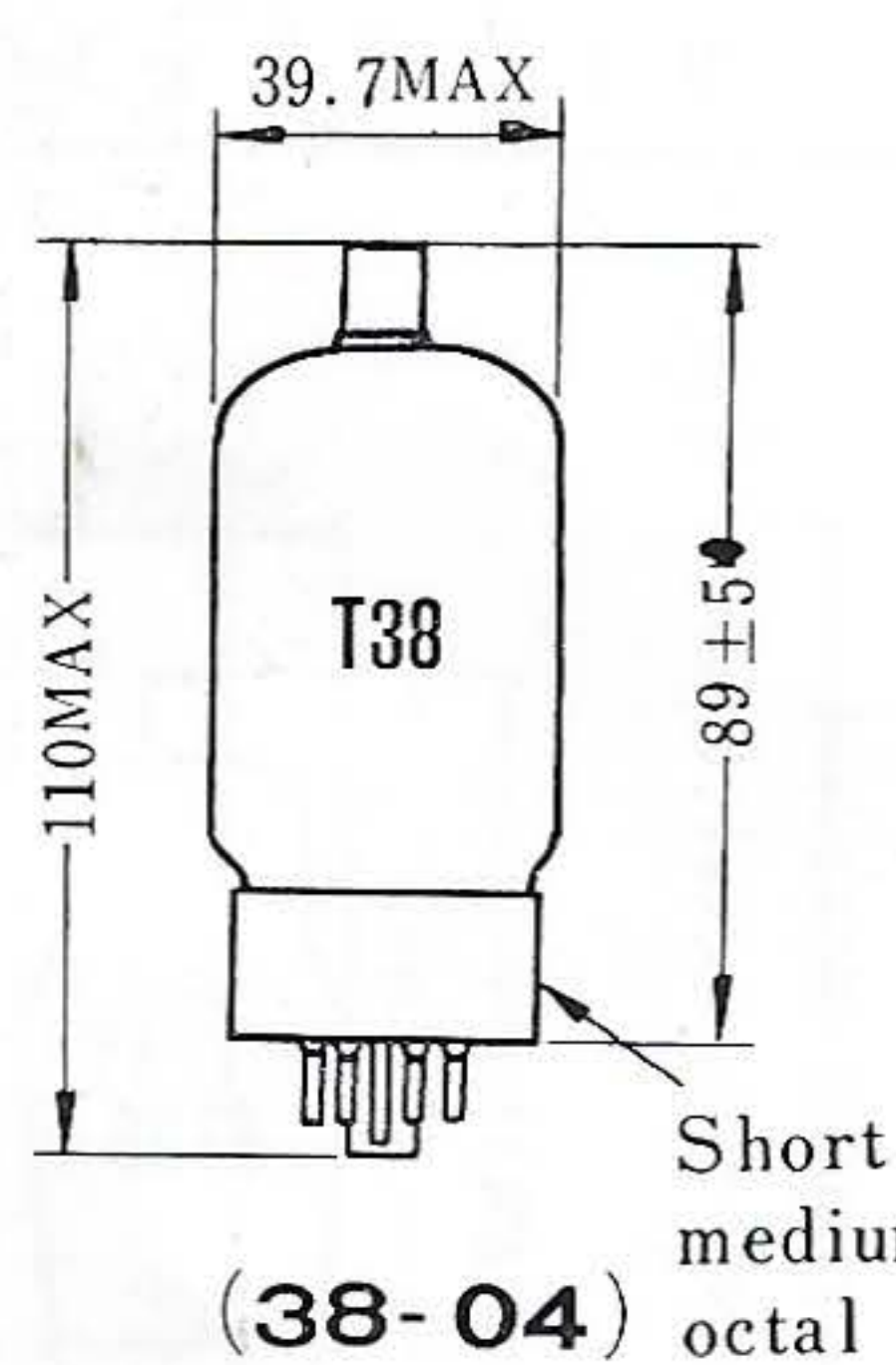
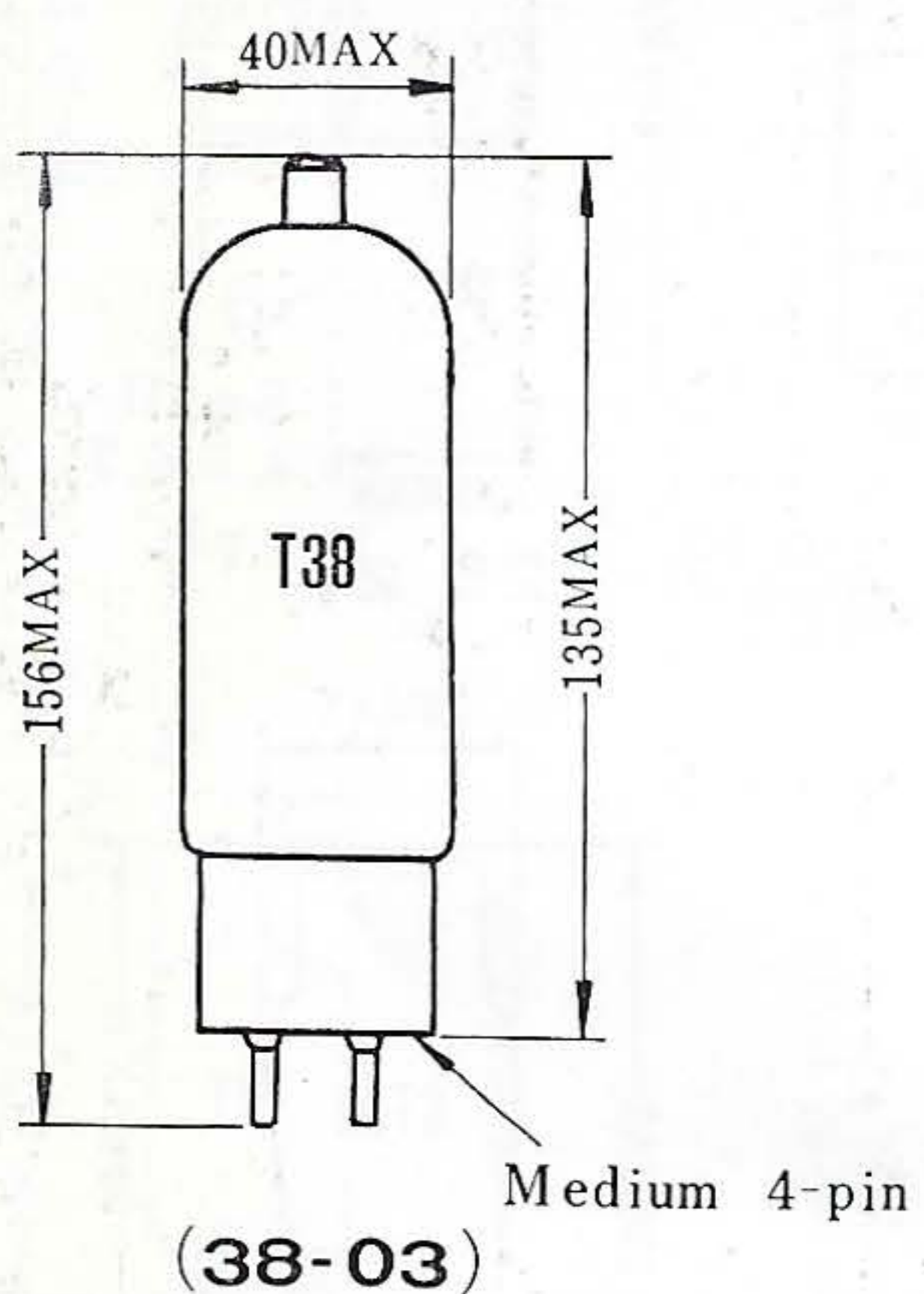
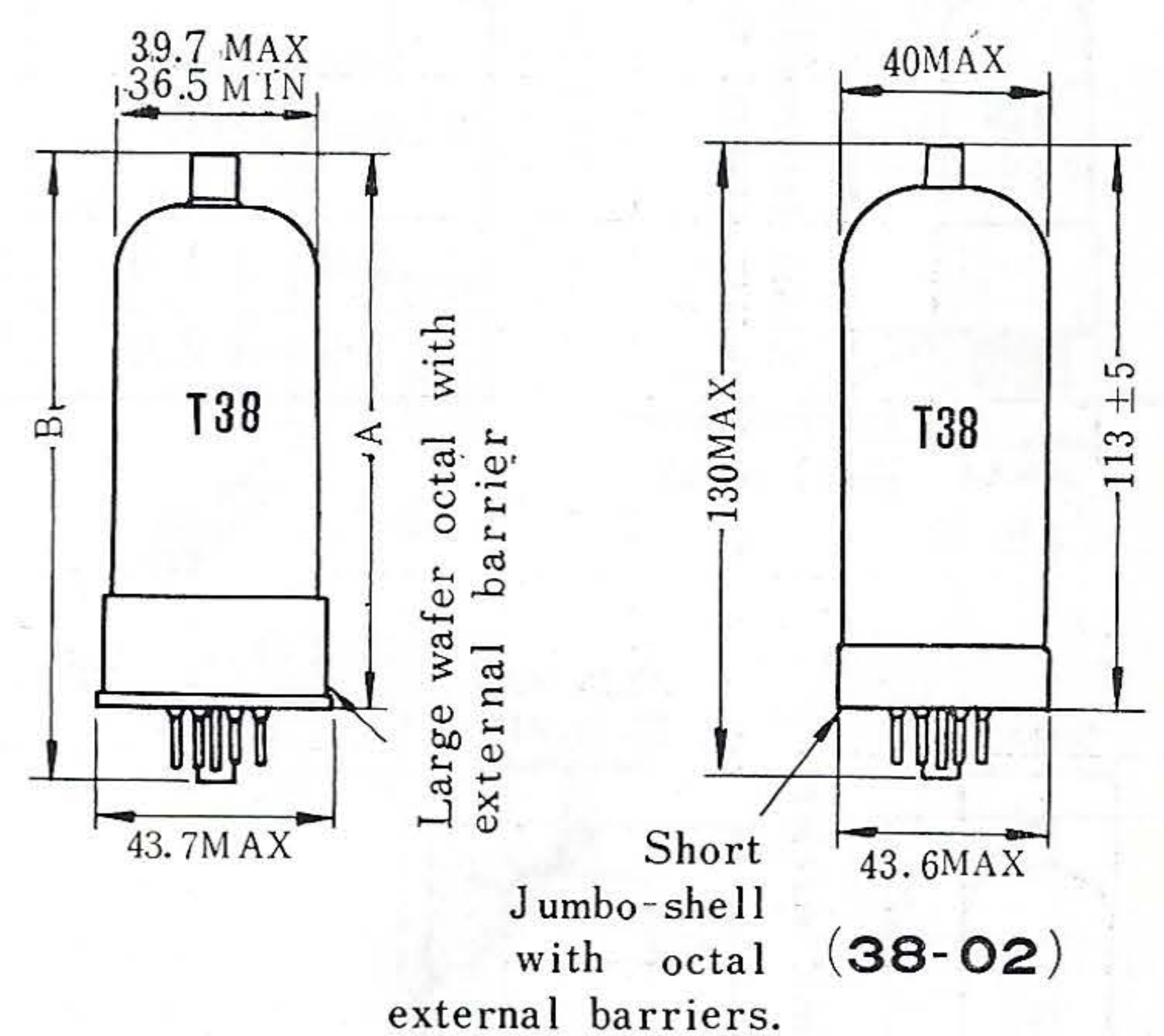
## DIMENSIONAL OUTLINE



| Short Intermediate-shell octal with external barriers | Large wafer octal with external barriers | Dimensions |       |
|-------------------------------------------------------|------------------------------------------|------------|-------|
|                                                       |                                          | A MAX      | B MAX |
| 38-21A                                                | 38-21B                                   | 74.9       | 88.9  |
| 38-22A                                                | 38-22B                                   | 84.4       | 98.4  |
| 38-23A                                                | 38-23B                                   | 94         | 108   |
| 38-24A                                                | 38-24B                                   | 103        | 117   |
| 38-25A                                                | 38-25B                                   | 113        | 127   |



| Short Jumbo-shell octal with external barriers | Large wafer octal with external barriers | Dimensions |       |
|------------------------------------------------|------------------------------------------|------------|-------|
|                                                |                                          | A $\pm 5$  | B MAX |
| 38-26A                                         | 38-26B                                   | 79.4       | 98.4  |
| 38-27A                                         | 38-27B                                   | 87         | 108   |
| 38-28A                                         | 38-28B                                   | 98         | 117   |
| 38-29A                                         | 38-29B                                   | 108        | 127   |
| 38-20A                                         | 38-30B                                   | 113        | 132   |
| 38-21A                                         | 38-31B                                   | 118        | 137   |



# TOSHIBA ELECTRON TUBES CHARACTERISTICS CHART

## TOSHIBA Picture Tubes Characteristics Charts

| Type      | Envelope             | Screen           | Face°<br>Plate | External*                       |                         | Focusing<br>Method | Deflection<br>Method | Approx.<br>Deflection<br>Angle<br>Diagonal<br>(Degree) | Maximum Dimensions Inches |                                |       |        | Minimum<br>Screen<br>Size Inches    | High<br>Voltage<br>Terminal | Maximum Ratings                           |                              |                      |                        | Typical Operating Conditions              |                              |                      |                           | Ion-trap<br>Magnet<br>Min.<br>(Gausses) | Type |
|-----------|----------------------|------------------|----------------|---------------------------------|-------------------------|--------------------|----------------------|--------------------------------------------------------|---------------------------|--------------------------------|-------|--------|-------------------------------------|-----------------------------|-------------------------------------------|------------------------------|----------------------|------------------------|-------------------------------------------|------------------------------|----------------------|---------------------------|-----------------------------------------|------|
|           |                      |                  |                | Conduc-<br>tive<br>Min.<br>(PF) | Coating<br>Max.<br>(PF) |                    |                      |                                                        | Overall<br>Length         | Enve-<br>lope<br>Dia-<br>gonal | Width | Height |                                     |                             | Final High<br>Voltage<br>Electrode<br>(V) | Focusing<br>Electrode<br>(V) | Grid<br>No. 2<br>(V) | Crit'd<br>No. 1<br>(V) | Final High<br>Voltage<br>Electrode<br>(V) | Focusing<br>Electrode<br>(V) | Grid<br>No. 2<br>(V) | Grid<br>No. 1<br>Bias (V) |                                         |      |
| ■ 14HP4   | Glass<br>Rectangular | No<br>Aluminized | Filter-glass   | 750                             | 2000                    | Electro-<br>static | Magnetic             | 70                                                     | 17½                       | 13½                            | 12½   | 9½     | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | +1000<br>— 500                            | 410                          | 125                  | 12000                  | —50~265                                   | 300                          | —33~-77              | 45                        | 14HP4                                   |      |
| 14HP4 (M) | Glass<br>Rectangular | Aluminized       | Filter-glass   | 750                             | 2000                    | Electro-<br>static | Magnetic             | 70                                                     | 17½                       | 13½                            | 12½   | 9½     | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | +1000<br>— 500                            | 410                          | 125                  | 12000                  | —50~265                                   | 300                          | —33~-77              | 45                        | 14HP4(M)                                |      |
| ■ 14RP4   | Glass<br>Rectangular | No<br>Aluminized | Filter-glass   | 800                             | 1200                    | Electro-<br>static | Magnetic             | 90                                                     | 14½                       | 14½                            | 13½   | 10½    | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | ± 500                                     | 400                          | 110                  | 10000<br>14000         | —50~350<br>—70~470                        | 300<br>300                   | —33~-77              | 40<br>45                  | 14RP4                                   |      |
| 14RP4A    | Glass<br>Rectangular | Aluminized       | Filter-glass   | 800                             | 1200                    | Electro-<br>static | Magnetic             | 90                                                     | 14½                       | 14½                            | 13½   | 10½    | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | ± 500                                     | 400                          | 110                  | 10000<br>14000         | —50~350<br>—70~470                        | 300<br>300                   | —33~-77              | 40<br>45                  | 14RP4A                                  |      |
| 14RPA (S) | Glass<br>Rectangular | Aluminized       | Filter-glass   | 800                             | 1200                    | Electro-<br>static | Magnetic             | 90                                                     | 14½                       | 14½                            | 13½   | 10½    | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | ± 500                                     | 400                          | 110                  | 11000<br>14000         | 0~400<br>0~400                            | 300<br>300                   | —33~-77              | Non                       | 14RPA(S)                                |      |
| 14WP4     | Glass<br>Rectangular | Aluminized       | Filter-glass   | 800                             | 1200                    | Electro-<br>static | Magnetic             | 90                                                     | 13½                       | 14½                            | 13½   | 10½    | Recessed<br>Small<br>Cavity<br>Cap. | 14000                       | ± 500                                     | 400                          | 110                  | 11000<br>14000         | 0~400<br>0~400                            | 300<br>300                   | —33~-77              | Non                       | 14WP4                                   |      |
| 17BZP4    | Glass<br>Rectangular | Aluminized       | Filter-glass   | 1000                            | 1500                    | Electro-<br>static | Magnetic             | 110                                                    | 12½                       | 16½                            | 15¾   | 12½    | Recessed<br>Small<br>Cavity<br>Cap. | 16000                       | +1000<br>— 500                            | 500                          | 140                  | 14000<br>16000         | 0~400<br>0~400                            | 300<br>400                   | —33~-77<br>—41~-99   | Non                       | 17BZP4                                  |      |
| 17DKP4    | Glass<br>Rectangular | Aluminized       | Filter-glass   | 1000                            | 1500                    | Electro-<br>static | Magnetic             | 110                                                    | 10½                       | 16½                            | 15¾   | 12½    | Recessed<br>Small<br>Cavity<br>Cap. | 16000                       | + 650                                     | +550max<br>+300min           | 140                  | 16000<br>16000         | 0~400<br>0~400                            | 400<br>500                   | —39~-68<br>—48~-83   | Non                       | 17DKP4                                  |      |
| ■ 17HP4   | Glass<br>Rectangular | No<br>Aluminized | Filter-glass   | 750                             | 2000                    | Electro-<br>static | Magnetic             | 70                                                     | 19½                       | 16¾                            | 15¾   | 12½    | Recessed<br>Small<br>Cavity<br>Cap. | 16000                       | +1000<br>— 500                            | 500                          | 125                  | 14000<br>16000         | —55~300<br>—65~350                        | 300<br>300                   | —33~-77              | 45<br>50                  | 17HP4                                   |      |
| 17HP4B    | Glass<br>Rectangular | Aluminized       | Filter-glass   | 750                             | 2000                    | Electro-<br>static | Magnetic             | 70                                                     | 19½                       | 16¾                            | 15¾   | 12½    | Recessed<br>Small<br>Cavity<br>Cap. | 16000                       | +1000<br>— 500                            | 500                          | 125                  | 14000<br>16000         | —55~300<br>—65~350                        | 300<br>300                   | —33~-77              | 45<br>50                  | 17HP4B                                  |      |
| 17AVP4A   | Glass<br>Rectangular | Aluminized       | Filter-glass   | 1200                            | 1500                    | Electro-<br>static | Magnetic             | 90                                                     | 16                        | 16¾                            | 15¾   | 12½    | Recessed<br>Small<br>Cavity<br>Cap. | 16000                       | +1000<br>— 500                            | 500                          | 125                  | 14000<br>16000         | —55~310<br>—65~350                        | 300<br>300                   | —33~-77              | 45<br>50                  | 17AVP4A                                 |      |
| 21DAP4    | Glass<br>Rectangular | Aluminized       | Filter-glass   | 2000                            | 2500                    | Electro-<br>static | Magnetic             | 110                                                    | 15                        | 21½                            | 20¾   | 16½    | Recessed<br>Small<br>Cavity<br>Cap. | 18000                       | +1000<br>— 500                            | 500                          | 140                  | 14000<br>16000         | 0~400<br>0~400                            | 300<br>400                   | —33~-77<br>—41~-99   | Non                       | 21DAP4                                  |      |
| ■ 21FP4C  | Glass<br>Rectangular | Aluminized       | Filter-glass   | 500                             | 750                     | Electro-<br>static | Magnetic             | 70                                                     | 23½                       | 21½                            | 20¾   | 15½    | Recessed<br>Small<br>Cavity<br>Cap. | 18000                       | +1000<br>— 500                            | 500                          | 125                  | 14000<br>16000         | —55~300<br>—65~350                        | 300<br>300                   | —33~-77              | 45<br>50                  | 21FP4C                                  |      |
| 21ALP4A   | Glass<br>Rectangular | Aluminized       | Filter-glass   | 500                             | 750                     | Electro-<br>static | Magnetic             | 90                                                     | 20¾                       | 21½                            | 20¾   | 16½    | Recessed<br>Small<br>Cavity<br>Cap. | 18000                       | +1000<br>— 500                            | 500                          | 140                  | 14000<br>16000         | —65~350<br>—75~400                        | 300<br>400                   | —33~-77<br>—41~-101  | 50<br>53                  | 21ALP4A                                 |      |
| 27SP4     | Glass<br>Rectangular | Aluminized       | Filter-glass   | 500                             | 750                     | Electro-<br>static | Magnetic             | 90                                                     | 23½                       | 26½                            | 25¾   | 20½    | Recessed<br>Small<br>Cavity<br>Cap. | 20000                       | +1000<br>— 500                            | 500                          | 125                  | 18000                  | —72~396                                   | 300                          | —33~-77              | 46                        | 27SP4                                   |      |

\* No. 1 grid to other Electrode = 6 PF  
Cathode to other Electrode = 5 PF

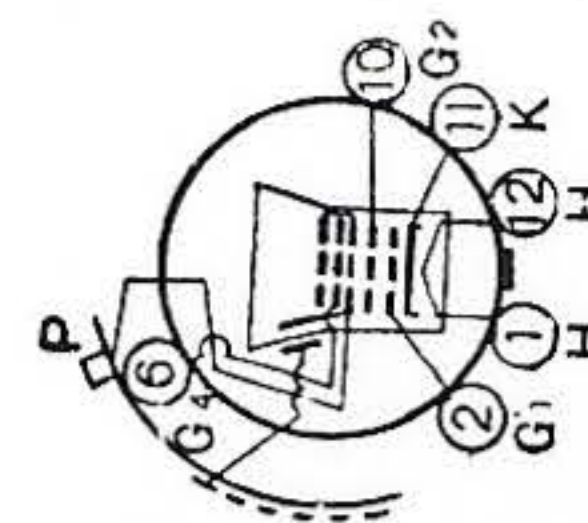
○ Spherical, unless otherwise specified.  
● Visual extinction of undeflected spot.

Note: All picture tube shown have 6.3V/0.6A heaters.  
§ Negative bias Value; Positive bias Value = 0 Volt; Positive peak Value = 2 Volts.  
▲ Cylindrical faceplate.  
■ Replace only.

## LEGEND FOR BASE AND ENVELOPE CONNECTION DIAGRAMS (Bottom Views)

### KEY TO TERMINAL DESIGNATIONS

G=Grid K=Cathode H=Heater P=Anode (ultra)



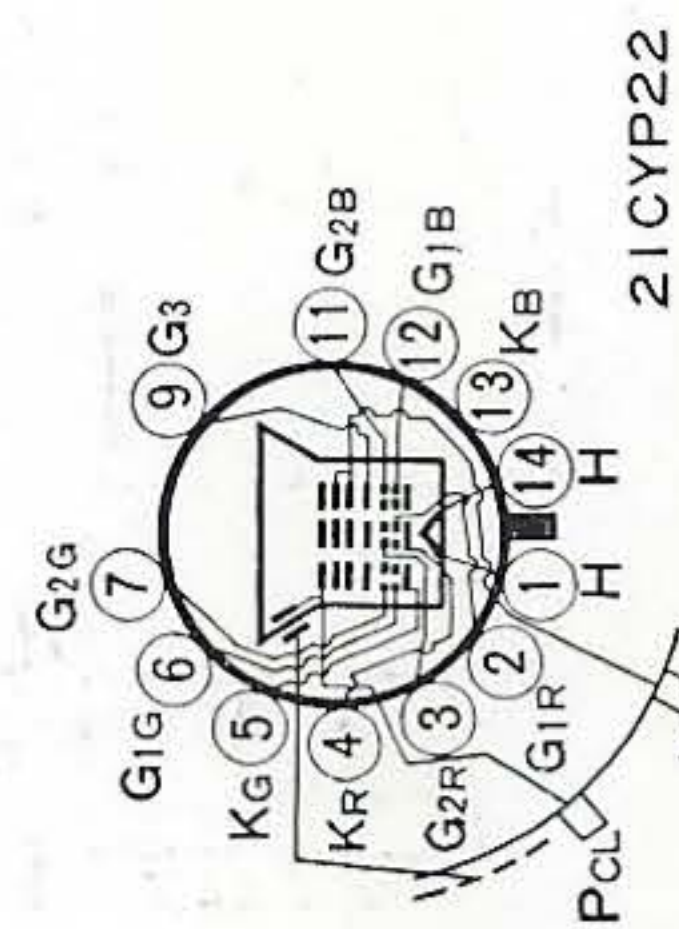
## TOSHIBA Color Picture Tube Characteristics Charts

| Type    | Const-<br>ruction         | Screen          | Face<br>Plate         | External *<br>Conductive<br>Coating |              | Focusing<br>Methode<br>(V) | Deflection<br>Methode<br>(Degree) | Maximum Dimenstions Inches |                                |        |        | Minimum<br>Screen<br>Size Inches | High<br>Voltage<br>Terminal         | Maximum Ratings                           |                              |                     |                     | Typical Operating Condition                                               |                              |                      |                      | Ion Trap<br>Magnet                       | Type    |
|---------|---------------------------|-----------------|-----------------------|-------------------------------------|--------------|----------------------------|-----------------------------------|----------------------------|--------------------------------|--------|--------|----------------------------------|-------------------------------------|-------------------------------------------|------------------------------|---------------------|---------------------|---------------------------------------------------------------------------|------------------------------|----------------------|----------------------|------------------------------------------|---------|
|         |                           |                 |                       | Min.<br>(PF)                        | Max.<br>(PF) |                            |                                   | Overall<br>Length          | Enve-<br>lope<br>Dia-<br>gonal | Wide   | Height |                                  |                                     | Final High<br>Voltage<br>Electrode<br>(V) | Focusing<br>Electrode<br>(V) | Grid<br>No.2<br>(V) | Grid<br>No.1<br>(V) | Final High<br>Voltage<br>Electrode<br>(V)                                 | Focusing<br>Electrode<br>(V) | Grid<br>No. 2<br>(V) | Grid<br>No. 1<br>(V) |                                          |         |
| 430AB22 | Glass<br>Rectangular<br>O | Aluminized<br>Δ | Filter-<br>glass<br>□ | 750                                 | 1500         | Electro-<br>static         | Magnetic                          | 70                         | 21 3/4                         | 16 3/4 | 15 3/4 | 12 3/4                           | Recessed<br>Small<br>Cavity<br>Cap. | 20000                                     | 4800                         | 600                 | 400                 | For additional data, refer to technical<br>bulletin available on request. |                              |                      |                      | Conver-<br>gence<br>Methode-<br>Magnetic | 430AB22 |
| 21CYP22 | Glass<br>Round<br>O       | Aluminized      | Filter-<br>glass<br>□ | 2000                                | 2500         | Electro-<br>static         | Magnetic                          | 70                         | 25 3/4                         | 20 3/4 | —      | —                                | Recessed<br>Small<br>Cavity<br>Cap. | 25000                                     | 6000                         | 600                 | 400                 | For additional data, refer to technical<br>bulletin available on request. |                              |                      |                      | Conver-<br>gence<br>Methode-<br>Magnetic | 21CYP22 |

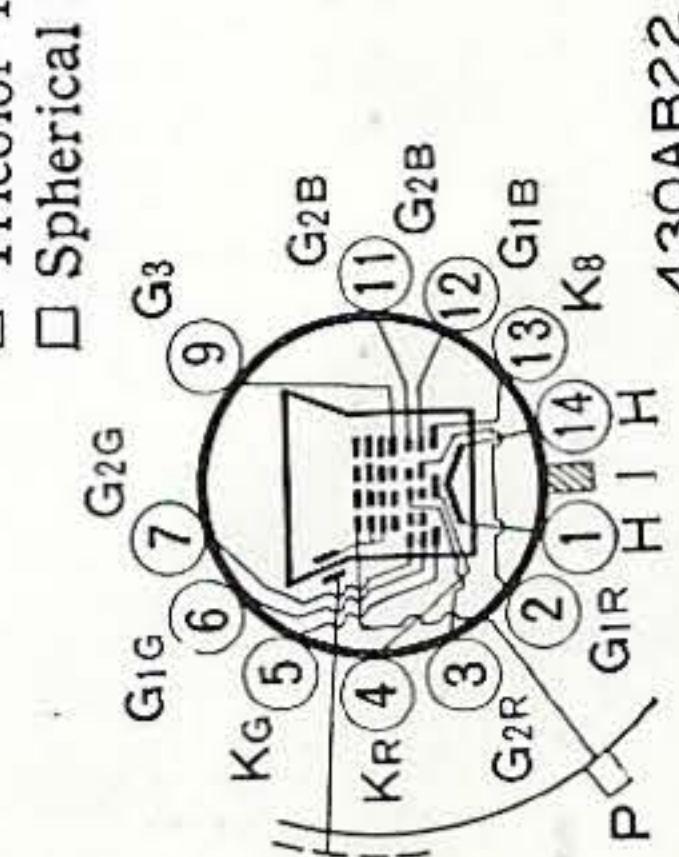
Note: All color picture tube shown have 6.3 Volt/1.8 Ampere heaters.

○ Three gun, graded-hole, shadow-mask Type  
△ Tricolor Phosphor-dot Screen  
□ Spherical face plate

① Heater  
② Grid No. 1 of Red gun  
③ Grid No. 2 of Red gun  
④ Cathode of Red gun  
⑤ Cathode of Green gun  
⑥ Grid No. 1 of Green gun  
⑦ Grid No. 2 of Green gun  
⑧ Grid No. 1 of Blue gun  
⑨ Grid No. 2 of Blue gun  
⑩ Cathode of Blue gun  
⑪ Heater  
⑫ Ulterior Terminal



① Heater  
② Grid No. 1 of Red gun  
③ Grid No. 2 of Red gun  
④ Cathode of Red gun  
⑤ Cathode of Green gun  
⑥ Grid No. 1 of Green gun  
⑦ Grid No. 2 of Green gun  
⑧ Grid No. 1 of Blue gun  
⑨ Grid No. 2 of Blue gun  
⑩ Cathode of Blue gun  
⑪ Heater  
⑫ Ulterior terminal  
PCL High Voltage Supply Terminal



*Toshiba*

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