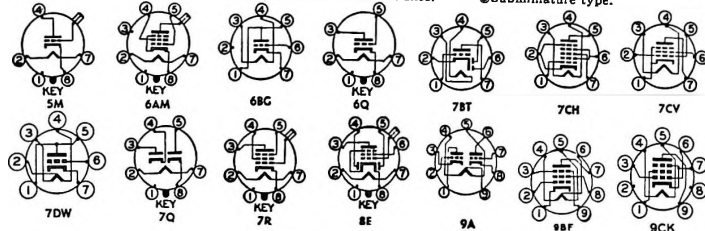


| Tube Type                                        | Classification by Construction          | Base Connections | Out-line Dwg              | Type Cathode | Filament Volts | Filament Amp | Max Plate Volts                           | Max Screen Volts | Capacitance in Micromicrofarads                                           |               |            |
|--------------------------------------------------|-----------------------------------------|------------------|---------------------------|--------------|----------------|--------------|-------------------------------------------|------------------|---------------------------------------------------------------------------|---------------|------------|
|                                                  |                                         |                  |                           |              |                |              |                                           |                  | Input                                                                     | Output        | Grid-plate |
| <b>12BT6</b>                                     | Duplex-Diode High-Mu Triode             | 7BT              | 5-3                       | Htr          | 12.6           | 0.15         | 300                                       | —                | —                                                                         | —             | —          |
| <b>12BU6</b>                                     | Duplex-Diode Medium-Mu Triode           | 7BT              | 5-3                       | Htr          | 12.6           | 0.15         | 300                                       | —                | —                                                                         | —             | —          |
| <b>12BY7</b>                                     | Sharp-Cutoff Pentode                    | 9BF              | 6-3                       | Htr          | 12.6<br>6.3    | 0.3<br>0.6   | 300                                       | 180              | 10.7▲                                                                     | 4.0▲          | 0.083▲     |
| <b>12BY7-A</b>                                   |                                         |                  |                           |              | 12.6<br>6.3    | 0.3<br>0.6   |                                           |                  |                                                                           |               |            |
| <b>12BZ7</b>                                     | High-Mu Twin Triode                     | 9A               | 6-3                       | Htr          | 12.6<br>6.3    | 0.3<br>0.6   | 300                                       | —                | 6.5▲                                                                      | 0.7▲<br>0.55▲ | 2.5▲       |
| <b>12C8</b>                                      | Duplex-Diode Semi-Remote-Cutoff Pentode | 8E               | 8-4                       | Htr          | 12.6           | 0.15         | 300                                       | 125              | 6.0                                                                       | 9.0           | 0.005      |
| <b>12CA5</b>                                     | Beam Power Amplifier                    | 7CV              | 5-3                       | Htr          | 12.6           | 0.6          | 130                                       | 130              | 15▲                                                                       | 9▲            | 0.5▲       |
| <b>12CM6</b>                                     | Beam Power Amplifier                    | 9CK              | 6-3                       | Htr          | 12.6           | 0.225        | 315                                       | 285              | Pentode Connection<br>Triode ( $G_2$ & $P$ tied)<br>or Pentode Connection |               |            |
| <b>12CS8</b>                                     | Dual-Control Heptode                    | 7CH              | 5-2                       | Htr          | 12.6           | 0.15         | 300                                       | 100              | —                                                                         | —             | —          |
| <b>12CU6</b>                                     | Beam Power Amplifier                    | 6AM              | T-X                       | Htr          | 12.6           | 0.6          | 550                                       | 175              | 15▲                                                                       | 7.0▲          | 0.55▲      |
| <b>12E5-GT</b>                                   | Medium-Mu Triode                        | 6Q               | 9-11                      | Htr          | 12.6           | 0.15         | 250                                       | —                | 3.4                                                                       | 5.5           | 2.6        |
| <b>12F5-GT</b>                                   | High-Mu Triode                          | 5M               | 9-17                      | Htr          | 12.6           | 0.15         | 300                                       | —                | 1.9                                                                       | 3.4           | 2.4        |
| <b>12G4</b>                                      | Medium-Mu Triode                        | 6BG              | 5-3                       | Htr          | 12.6           | 0.15         | 300                                       | —                | 2.6                                                                       | 3.2           | 3.4        |
| <b>12H4</b>                                      | Medium-Mu Triode                        | 7DW              | 5-3                       | Htr          | 12.6<br>6.3    | 0.15<br>0.3  | 300                                       | —                | 2.6                                                                       | 3.2           | 3.4        |
| <b>12H6</b>                                      | Twin Diode                              | 7Q               | 8-5                       | Htr          | 12.6           | 0.15         | Tube Voltage Drop: ▲<br>11 v at 16 ma d-c |                  |                                                                           |               |            |
| <b>12J5</b><br><b>12J5-GT</b><br><b>12J5-WGT</b> | Medium-Mu Triode                        | 6Q               | 8-1<br>9-11<br>or<br>9-41 | Htr          | 12.6           | 0.15         | 300                                       | —                | 3.4<br>4.2                                                                | 3.6<br>5.0    | 3.4<br>3.8 |
| <b>12J7-GT</b>                                   | Sharp-Cutoff Pentode                    | 7R               | 9-18                      | Htr          | 12.6           | 0.15         | 300                                       | 125              | Pentode Connected<br>Triode Connected ( $G_2$ , $G_3$ & $P$ Tied)         |               |            |
| <b>12K7-GT</b>                                   | Remote-Cutoff RF Pentode                | 7R               | 9-18                      | Htr          | 12.6           | 0.15         | 300                                       | 150              | 4.6                                                                       | 12.0          | 0.005      |

Metal tubes are shown in bold-face type, miniature tubes in *italics*.

③ Subminiature type.



| Service                                                                                                                                                                          | Plate Volts                                                                                                                                                     | Screen Volts   | Neg Grid Volts | Plate Milli-amperes | Screen Milli-amperes | $R_p$ Ohms           | $G_m$ $\mu$ mhos | # Factor                                                         | Load for Rated Output, Ohms | Power Output, Watts | Tube Type                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------------------|----------------------|----------------------|------------------|------------------------------------------------------------------|-----------------------------|---------------------|--------------------------------------------------|
| Class A Amplifier                                                                                                                                                                | 250<br>100                                                                                                                                                      | —<br>—         | 3.0<br>1.0     | 1.0<br>0.8          | —<br>—               | 58,000<br>54,000     | 1,200<br>1,300   | 70<br>70                                                         | —<br>—                      | —<br>—              | <b>12BT6</b>                                     |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | —              | 9.0            | 9.5                 | —                    | 8,500                | 1,900            | 16                                                               | 10,000                      | 0.30                | <b>12BU6</b>                                     |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | 180            | $R_k = 100$    | 24                  | 5.0                  | 110,000              | 12,000           | —                                                                | —                           | —                   | <b>12BY7</b><br><b>12BY7-A</b>                   |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | —              | 2              | 2.5                 | —                    | 31,800               | 3,200            | 100                                                              | —                           | —                   | <b>12BZ7</b>                                     |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | 125            | 3.0            | 10                  | 2.3                  | 600,000              | 1,325            | —                                                                | —                           | —                   | <b>12C8</b>                                      |
| Class A Amplifier                                                                                                                                                                | 125<br>110                                                                                                                                                      | 125<br>110     | 4.5<br>4.0     | 37<br>32            | 4.0<br>3.5           | 15,000<br>16,000     | 9,200<br>8,100   | —<br>—                                                           | 4,500<br>3,500              | 1.5<br>1.1          | <b>12CA5</b>                                     |
| Class A Amplifier Vertical Deflection Amplifier                                                                                                                                  | 250                                                                                                                                                             | 250            | 12.5           | 45                  | 4.5                  | 50,000               | 4,100            | —                                                                | 5,000                       | 4.5                 | <b>12CM6</b>                                     |
| Max positive pulse plate voltage = 2000 volts; max plate dissipation = 8.0 watts; max screen dissipation (pentode connection only) = 1.75 watts; max d-c cathode current = 40 ma |                                                                                                                                                                 |                |                |                     |                      |                      |                  |                                                                  |                             |                     |                                                  |
| Gated Amplifier                                                                                                                                                                  | 100<br>100<br>10                                                                                                                                                | 30<br>30<br>30 | 1.0<br>0<br>0  | 1.0<br>0.8<br>2.0   | 1.3<br>5.5<br>4.5    | 1,000,000<br>700,000 | 1,100<br>—<br>—  | $E_{c1} = 0$ volts<br>$E_{c2} = -10$ volts<br>$E_{c3} = 0$ volts | —<br>—<br>—                 | —<br>—<br>—         | <b>12CS8</b>                                     |
| Horizontal Deflection Amplifier                                                                                                                                                  | 250                                                                                                                                                             | 150            | 22.5           | 55                  | 2.1                  | 20,000               | 5,500            | —                                                                | —                           | —                   | <b>12CU6</b>                                     |
| Max positive pulse plate voltage = 6000 volts; max plate dissipation = 11 watts; max screen dissipation = 2.5 watts; max d-c cathode current = 110 ma                            |                                                                                                                                                                 |                |                |                     |                      |                      |                  |                                                                  |                             |                     |                                                  |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | —              | 13             | 5.0                 | —                    | 9,500                | 1,450            | 13.8                                                             | —                           | —                   | <b>12E5-GT</b>                                   |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | —              | 2.0            | 0.9                 | —                    | 66,000               | 1,500            | 100                                                              | —                           | —                   | <b>12F5-GT</b>                                   |
| Class A Amplifier                                                                                                                                                                | 90<br>250                                                                                                                                                       | —<br>—         | 0<br>8.0       | 10<br>9.0           | —<br>—               | 6,700<br>7,700       | 3,000<br>2,600   | 20<br>20                                                         | —<br>—                      | —<br>—              | <b>12G4</b>                                      |
| Class A Amplifier                                                                                                                                                                | 90<br>250                                                                                                                                                       | —<br>—         | 0<br>8.0       | 10<br>9.0           | —<br>—               | 6,700<br>7,700       | 3,000<br>2,600   | 20<br>20                                                         | —<br>—                      | —<br>—              | <b>12H4</b>                                      |
| Half-Wave Rectifier                                                                                                                                                              | Max d-c output current per plate = 8 ma; max peak inverse voltage = 420 volts; max rms supply voltage per plate = 150 volts; max peak current per plate = 48 ma |                |                |                     |                      |                      |                  |                                                                  |                             |                     | <b>12H6</b>                                      |
| Class A Amplifier                                                                                                                                                                | 90<br>250                                                                                                                                                       | —<br>—         | 0<br>8.0       | 10<br>9.0           | —<br>—               | 6,700<br>7,700       | 3,000<br>2,600   | 20<br>20                                                         | —<br>—                      | —<br>—              | <b>12J5</b><br><b>12J5-GT</b><br><b>12J5-WGT</b> |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | 100            | 3.0            | 2.0                 | 0.5                  | 1,000,000            | 1,225            | —                                                                | —                           | —                   | <b>12J7-GT</b>                                   |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | —              | 8.0            | 6.5                 | —                    | 10,500               | 1,900            | 20                                                               | —                           | —                   |                                                  |
| Class A Amplifier                                                                                                                                                                | 250                                                                                                                                                             | 125            | 3.0            | 10.5                | 2.6                  | 600,000              | 1,650            | —                                                                | —                           | —                   | <b>12K7-GT</b>                                   |

§ Approximate.

▲ Without external shield.

† Zero signal.

④ Grids 3 and 5 are screen. Grid 4 is signal-input grid.

# Conversion transconductance.

♣ Maximum.

▼ Grids 2 and 4 are screen. Grid 3 is signal-input grid.

⑥ Screen supply voltage.

\* Absolute maximum rating.

‡ Plate-to-plate.

♠ Per section.

③ For both sections.

\* Minimum.

† Heater warm-up time controlled for series-string service.

‡ Plate supply voltage.

⑥ Input plate.

\* The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.

† Section 1.

‡ Section 2.

♠ A resistor of 3 ohms must be put in series with heater.