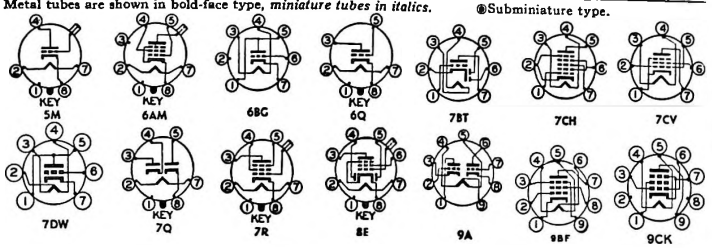
| Tube Type | Classification by Construction | Base Connections | Outline Dwg | Type Cathode | Filament Volts | Filament Amp | Max Plate Volts | Max Screen Volts | Capacitance in Micromicrofarads: Input | Output | Grid-plate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *12BT6* | Duplex-Diode High-Mu Triode | 7BT | 5-3 | Htr | 12.6 | 0.15 | 300 | — | — | — | — |
| *12BU6* | Duplex-Diode Medium-Mu Triode | 7BT | 5-3 | Htr | 12.6 | 0.15 | 300 | — | — | — | — |
| *12BY7* | Sharp-Cutoff Pentode | 9BF | 6-3 | Htr | 12.6<br>6.3 | 0.3<br>0.6 | 300 | 180 | 10.7▲ | 4.0▲ | 0.063 ▲♣ |
| *12BY7-A* | | | | | 12.6¶<br>6.3¶ | 0.3<br>0.6¶ | | | | | |
| *12BZ7* | High-Mu Twin Triode | 9A | 6-3 | Htr | 12.6<br>6.3 | 0.3<br>0.6 | 300 | — | 6.5▲ | 0.7₁▲<br>0.55₂▲ | 2.5▲ |
| **12C8** | Duplex-Diode Semi-Remote-Cutoff Pentode | 8E | 8-4 | Htr | 12.6 | 0.15 | 300 | 125 | 6.0 | 9.0 | 0.005 ♣ |
| *12CA5* | Beam Power Amplifier | 7CV | 5-3 | Htr | 12.6¶ | 0.6¶ | 130 | 130 | 15▲ | 9▲ | 0.5▲ |
| *12CM6* | Beam Power Amplifier | 9CK | 6-3 | Htr. | 12.6 | 0.225 | 315 | 285 | Pentode Connection | | |
| | | | | | | | 315<br>315 | —<br>285 | Triode ($G_2$ & P tied) or Pentode Connection | | |
| *12CS6* | Dual-Control Heptode | 7CH | 5-2 | Htr | 12.6 | 0.15 | 300 | 100 | — | — | — |
| 12CU6 | Beam Power Amplifier | 6AM | T-X | Htr | 12.6 | 0.6 | 550§ | 175 | 15▲ | 7.0▲ | 0.55▲ |
| 12E5-GT | Medium-Mu Triode | 6Q | 9-11 | Htr | 12.6 | 0.15 | 250 | — | 3.4 | 5.5 | 2.6 |
| 12F5-GT | High-Mu Triode | 5M | 9-17 | Htr | 12.6 | 0.15 | 300 | — | 1.9 | 3.4 | 2.4 |
| *12G4* | Medium-Mu Triode | 6BG | 5-3 | Htr | 12.6 | 0.15 | 300 | — | 2.6 | 3.2 | 3.4 |
| *12H4* | Medium-Mu Triode | 7DW | 5-3 | Htr | 12.6<br>6.3 | 0.15<br>0.3 | 300 | — | 2.6 | 3.2 | 3.4 |
| **12H6** | Twin Diode | 7Q | 8-5 | Htr | 12.6 | 0.15 | Tube Voltage Drop: ♣ 11 v at 16 ma d-c | | | | |
| **12J5**<br>12J5-GT<br>12J5-WGT | 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 |
| 12J7-GT | Sharp-Cutoff Pentode | 7R | 9-18 | Htr | 12.6 | 0.15 | 300 | 125 | Pentode Connected | | |
| | | | | | | | 250 | — | Triode Connected ($G_2$, $G_3$ & P Tied) | | |
| 12K7-GT | 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.* ⊛Subminiature type.






| Service | Plate Volts | Screen Volts | Neg Grid Volts | Plate Milliamperes | Screen Milliamperes | $R_p$, Ohms | $G_m$, μmhos | μ 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>— | *12BT6* |
| Class A Amplifier | 250 | — | 9.0 | 9.5 | — | 8,500 | 1,900 | 16 | 10,000 | 0.30 | *12BU6* |
| Class A Amplifier | 250 | 180 | $R_k$ = 100 | 24 | 5.0 | 110,000§ | 12,000 | — | — | — | *12BY7*<br>*12BY7-A* |
| Class A Amplifier ♣ | 250 | — | 2 | 2.5 | — | 31,800 | 3,200 | 100 | — | — | *12BZ7* |
| Class A Amplifier | 250 | 125 | 3.0 | 10 | 2.3 | 600,000§ | 1,325 | — | — | — | **12C8** |
| 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 | *12CA5* |
| Class A Amplifier<br>Vertical Deflection Amplifier | 250 | 250 | 12.5 | 45† | 4.5† | 50,000§ | 4,100 | — | 5,000 | 4.5 | *12CM6* |
| | 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§<br>— | 1,100<br>—<br>— | $E_{c3}$ = 0 volts<br>$E_{c3}$ = −1.0 volts<br>$E_{c3}$ = 0 volts | | | *12CS6* |
| Horizontal Deflection Amplifier | 250<br>60 | 150<br>150 | 22.5<br>0 | 55<br>225 | 2.1<br>25 | 20,000§<br>— | 5,500<br>— | —<br>— | —<br>— | —<br>— | 12CU6 |
| | 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 | — | — | 12E5-GT |
| Class A Amplifier | 250 | — | 2.0 | 0.9 | — | 66,000 | 1,500 | 100 | — | — | 12F5-GT |
| 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>— | *12G4* |
| 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>— | *12H4* |
| 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 | | | | | | | | | | **12H6** |
| 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>— | **12J5**<br>12J5-GT<br>12J5-WGT |
| Class A Amplifier<br>Class A Amplifier | 250<br>250 | 100<br>— | 3.0<br>8.0 | 2.0<br>6.5 | 0.5<br>— | 1,000,000⊕<br>10,500 | 1,225<br>1,900 | —<br>20 | —<br>— | —<br>— | 12J7-GT |
| Class A Amplifier | 250 | 125 | 3.0 | 10.5 | 2.6 | 600,000§ | 1,650 | — | — | — | 12K7-GT |

§ Approximate.
▲Without external shield.
† Zero signal.
♦ 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.
✱Screen supply voltage.
▣Absolute maximum rating.
‡ Plate-to-plate.
♠Per section.
⊕For both sections.
* Minimum.
¶ Heater warm-up time controlled for series-string service.
‖ Plate supply voltage.
‖ Input plate.
₂—The duration of the pulse voltage must not exceed 15 percent of one scanning cycle.
₁—Section 1.
₂—Section 2.
₄—A resistor of 3 ohms must be put in series with heater.