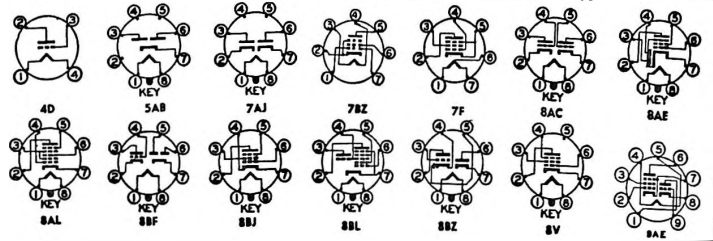
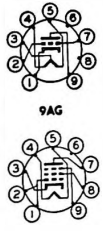
| Tube Type | Classification by Construction | Base Connections | Outline Dwg | Type Cathode | Filament Volts | Filament Amp | Max Plate Volts | Max Screen Volts | Capacitance in Micromicrofarads: Input | Output | Grid-plate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7K7 | Duplex-Diode High-Mu Triode | 8BF | 9-30 | Htr | 6.3 | 0.3 | 250 | — | — | — | — |
| 7L7 | Sharp-Cutoff Pentode | 8V | 9-30 | Htr | 6.3 | 0.3 | 300 | 125 | 8.0 | 6.5 | 0.01 ♣ |
| 7N7 | Medium-Mu Twin Triode | 8AC | 9-31 | Htr | 6.3 | 0.6 | 300 | — | — | — | — |
| 7Q7 | Pentagrid Converter | 8AL ♥ | 9-30 | Htr | 6.3 | 0.3 | 300 | 100 | Osc $I_{g1}$ = 0.5 ma, $R_{g1}$ = 20,000 ohms | | |
| 7R7 | Duplex-Diode Remote-Cutoff Pentode | 8AE | 9-30 | Htr | 6.3 | 0.3 | 250 | 125 | 5.6 | 5.3 | 0.004 ♣ |
| 7S7 | Triode-Heptode Converter | 8BL | 9-30 | Htr | 6.3 | 0.3 | 300 | 100 | Osc $I_{g1}$ = 0.4 ma, $R_{g1}$ = 50,000 ohms | | |
| 7T7 | Sharp-Cutoff RF Pentode | 8V | 9-30 | Htr | 6.3 | 0.3 | 300 | 150 | 7.5 | 5.5 | 0.005 |
| 7V7 | Sharp-Cutoff RF Pentode | 8V | 9-30 | Htr | 6.3 | 0.45 | 300 | 150 | — | — | — |
| 7W7 | Sharp-Cutoff RF Pentode | 8BJ | 9-30 | Htr | 6.3 | 0.45 | 300 | 150 | — | — | — |
| 7X6 | High-Vacuum Rectifier-Doubler | 7AJ | 9-31 | Htr | 6.3 | 1.2 | Tube Voltage Drop: ♣ 22 v at 150 ma d-c | | | | |
| 7X7 | Duplex-Diode High-Mu Triode | 8BZ | 9-31 | Htr | 6.3 | 0.3 | 300 | — | — | — | — |
| 7Y4 | Full-Wave High-Vacuum Rectifier | 5AB | 9-30 | Htr | 6.3 | 0.5 | Tube Voltage Drop: ♣ 22 v at 70 ma d-c | | | | |
| 7Z4 | Full-Wave High-Vacuum Rectifier | 5AB | 9-31 | Htr | 6.3 | 0.9 | Tube Voltage Drop: ♣ 40 v at 100 ma | | | | |
| *9BM6* | Power Amplifier Pentode | 7BZ | 5-3 | Htr | 9.5 | 0.3 | 250 | 250 | 8.0 ▲ | 5.5 ▲ | 0.5 ▲♣ |
| *9BW6* | Beam Power Amplifier | 9AM | 6-3 | Htr | 9.45 | 0.3 | 315 | 285 | — | — | — |
| *9U8* | Triode-Pentode | 9AE | 6-2 | Htr | 9.45 | 0.3 | 300 | 150 | Pentode Section | | |
| | | | | | | | 300 | — | Triode Section | | |
| 10 | Power Amplifier Triode | 4D | T-X | Fil | 7.5 | 1.25 | 425 | — | 4.0 | 3.0 | 7.0 |
| 12A | Detector Amplifier Triode | 4D | 14-1 | Fil | 5.0 DC | 0.25 | 180 | — | 4.0 ▲ | 2.0 ▲ | 8.5 ▲ |
| *12A4* | Medium-Mu Triode | 9AG | 6-3 | Htr | 12.6 / 6.3 | 0.3 / 0.6 | 450 | — | 4.9 ▲ | 0.9 ▲ | 5.6 ▲ |
| 12A5 | Power Amplifier Pentode | 7F | 12-5 | Htr | 12.6 / 6.3 | 0.3 / 0.6 | 180 | 180 | — | — | — |

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 | — | 2.0 | 2.3 | — | 44,000 | 1,600 | 70 | — | — | 7K7 |
| Class A Amplifier | 250 | 100 | 1.5 | 4.5 | 1.5 | 1,000,000§ | 3,100 | — | — | — | 7L7 |
| Class A Amplifier ♣ | 250 | — | 8.0 | 9.0 | — | 7,700 | 2,600 | 20 | — | — | 7N7 |
| Converter | 250 | 100 | 2.0 | 3.5 | 8.5 | 1,000,000§ | 550 # | — | — | — | 7Q7 |
| Class A Amplifier | 250<br>100 | 100<br>100 | 1.0<br>1.0 | 5.7<br>5.5 | 2.1<br>2.2 | 1,000,000§<br>350,000§ | 3,200<br>3,000 | — | — | — | 7R7 |
| Converter | 250 | 100 | 2.0 | 1.8 | 3.0 | 1,250,000§ | 525 # | $E_b$ (Triode Osc) = 250 thru 20,000 ohms; $I_b$ (Triode) = 5.0 ma | | | 7S7 |
| Class A Amplifier | 250 | 150 | 1.0 | 10.8 | 4.1 | 900,000 | 4,900 | — | — | — | 7T7 |
| Class A Amplifier | 300 | 150 | $R_k$ = 160 | 10 | 3.9 | 300,000§ | 5,800 | — | — | — | 7V7 |
| Class A Amplifier | 300 | 150 | $R_k$ = 160 | 10 | 3.9 | 300,000 | 5,800 | — | — | — | 7W7 |
| Rectifier or Doubler | Max d-c output current per plate = 75 ma; max peak inverse voltage = 700 volts; rms supply voltage per plate = 235 volts; max peak current per plate = 450 ma | | | | | | | | | | 7X6 |
| Class A Amplifier | 250 | — | 1.0 | 1.9 | — | 67,000 | 1,500 | 100 | — | — | 7X7 |
| Full-Wave Rectifier | Max d-c output current = 70 ma; max peak inverse voltage = 1250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 210 ma | | | | | | | | | | 7Y4 |
| Full-Wave Rectifier | Max d-c output current = 100 ma; max peak inverse voltage = 1,250 volts; max rms supply voltage per plate = 325 volts; max peak current per plate = 300 ma | | | | | | | | | | 7Z4 |
| Class A Amplifier | 250 | 250 | 6.0 | 30† | 3.0† | 60,000§ | 7,000 | — | 7,000 | 3.5 | *9BM6* |
| Class A Amplifier | 250 | 250 | 12.5 | 45† | 4.5† | 52,000§ | 4,100 | — | 5,000 | 4.5 | *9BW6* |
| Class A Amplifier | 250 | 110 | $R_k$ = 68 | 10 | 3.5 | 400,000§ | 5,200 | — | — | — | *9U8* |
| Class A Amplifier | 150 | — | $R_k$ = 56 | 18 | — | 5,000§ | 8,500 | 40 | — | — | |
| Class A Amplifier | 425 | — | 40 | 18† | — | 5,000 | 1,600 | 8.0 | 10,200 | 1.6 | 10 |
| Class A Amplifier | 180 | — | 13.5 | 7.7† | — | 4,700 | 1,800 | 8.5 | 10,650 | 0.285 | 12A |
| Vertical Deflection Amplifier | 250 | — | 9.0 | 23 | — | 2,500§ | 8,000 | 20 | — | — | *12A4* |
| | Max positive pulse plate voltage‡ ▣ = 1,000 volts; max plate dissipation = 5.9 watts; max d-c cathode current = 30 ma | | | | | | | | | | |
| Class A Amplifier | 180<br>100 | 180<br>100 | 25<br>15 | 45†<br>17† | 8†<br>3† | 35,000§<br>50,000§ | 2,400<br>1,700 | —<br>— | 3,300<br>4,500 | 3.4<br>0.8 | 12A5 |




§ 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.
‖ 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.