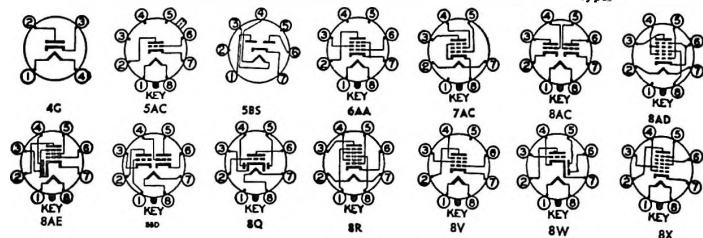


| Tube Type         | Classification by Construction     | Base Connections | Outline Dwg        | Type Cathode | Filament Volts | Filament Amp | Max Plate Volts                           | Max Screen Volts | Capacitance in Micromicrofarads                                                                    |             |            |
|-------------------|------------------------------------|------------------|--------------------|--------------|----------------|--------------|-------------------------------------------|------------------|----------------------------------------------------------------------------------------------------|-------------|------------|
|                   |                                    |                  |                    |              |                |              |                                           |                  | Input                                                                                              | Output      | Grid-plate |
| 13SW7             | Duplex-Diode Medium-Mu Triode      | 8Q               | 8-1                | Htr          | 12.6           | 0.15         | 250                                       | —                | 3.0                                                                                                | 2.8         | 2.4        |
| 12SX7-GT          | Medium-Mu Twin Triode              | 8BD              | 9-11               | Htr          | 12.6           | 0.3          | 300                                       | —                | 3.0;<br>2.8                                                                                        | 0.8;<br>1.2 | 3.6        |
| 12SY7<br>12SY7-GT | Pentagrid Converter                | 8R ♥<br>8AD ♠    | 8-1<br>9-12        | Htr          | 12.6           | 0.15         | 300                                       | 100              | Osc $I_{a1} = 0.5$ ma<br>$R_{a1} = 20,000$ ohms<br>Osc $I_{a2} = 0.1$ ma<br>$R_{a2} = 20,000$ ohms |             |            |
| 12V6-GT           | Beam Power Amplifier               | 7AC              | 9-11<br>or<br>9-41 | Htr          | 12.6           | 0.225        | 315                                       | 285              | Single Tube<br><br>2 Tubes, Push-Pull                                                              |             |            |
| 12W6-GT           | Beam Power Amplifier               | 7AC              | 9-11<br>or<br>9-41 | Htr          | 12.6           | 0.6          | 300                                       | 150              | Pentode Connection<br><br>Triode Connection (G <sub>1</sub> & P tied)                              |             |            |
| 12X4              | Full-Wave High-Vacuum Rectifier    | 5BS              | 5-3                | Htr          | 12.6           | 0.3          | Tube Voltage Drop: ♠<br>22 v at 70 ma d-c |                  |                                                                                                    |             |            |
| 12Z3              | Half-Wave High-Vacuum Rectifier    | 4G               | 12-5               | Htr          | 12.6           | 0.3          | Tube Voltage Drop:<br>17 v at 110 ma d-c  |                  |                                                                                                    |             |            |
| 14A4              | Medium-Mu Triode                   | 5AC              | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | —                | 3.4                                                                                                | 3.0         | 4.0        |
| 14A5              | Beam Power Amplifier               | 6AA              | 9-30               | Htr          | 12.6           | 0.15         | 250                                       | 250              | —                                                                                                  | —           | —          |
| 14A7/12B7         | Remote-Cutoff Pentode              | 8V               | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | 125              | 6.0                                                                                                | 7.0         | 0.005 ♠    |
| 14AF7             | Medium-Mu Twin Triode              | 8AC              | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | —                | 2.2                                                                                                | 1.6         | 2.3        |
| 14B6              | Duplex-Diode High-Mu Triode        | 8W               | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | —                | —                                                                                                  | —           | —          |
| 14B8              | Pentagrid Converter                | 8X               | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | 100              | Osc $I_{a1} = 0.4$ ma<br>$R_{a1} = 50,000$ ohms                                                    |             |            |
| 14C5              | Beam Power Amplifier               | 6AA              | 9-31               | Htr          | 12.6           | 0.225        | 315                                       | 285              | —                                                                                                  | —           | —          |
| 14C7              | Sharp-Cutoff Pentode               | 8V               | 9-30               | Htr          | 12.6           | 0.15         | 300                                       | 100              | 6.0                                                                                                | 6.5         | 0.007 ♠    |
| 14E6              | Duplex-Diode High-Mu Triode        | 8W               | 9-30               | Htr          | 12.6           | 0.15         | 250                                       | —                | —                                                                                                  | —           | —          |
| 14E7              | Duplex-Diode Remote-Cutoff Pentode | 8AE              | 9-30               | Htr          | 12.6           | 0.15         | 250                                       | 100              | 4.6                                                                                                | 5.3         | 0.005 ♠    |
| 14F7              | High-Mu Twin Triode                | 8AC              | 9-30               | Htr          | 12.6           | 0.15         | 250                                       | —                | —                                                                                                  | —           | —          |

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 <sub>p</sub> , Ohms                               | G <sub>m</sub> , $\mu$ hos                | # Factor                         | Load for Rated Out-put, Ohms                                     | Power Out-put, Watts          | Tube Type                       |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------|---------------------------------|--------------------------------------|-----------------------------------------------------|-------------------------------------------|----------------------------------|------------------------------------------------------------------|-------------------------------|---------------------------------|
| <b>Class A Amplifier</b>                   | 250<br>26.5                                                                                                                                           | —                               | 9.0<br>$R_g = 2$ meg          | 9.5<br>1.1                      | —                                    | 8,500<br>15,500                                     | 1,900<br>1,100                            | 16<br>17                         | —                                                                | —                             | <b>13SW7</b>                    |
| <b>Class A Amplifier <math>\Phi</math></b> | 250<br>26.5                                                                                                                                           | —                               | 8.0<br>$R_g = 0.5$ meg        | 9.0<br>1.8                      | —                                    | 7,700<br>11,500                                     | 2,600<br>1,800                            | 20<br>21                         | —                                                                | —                             | <b>12SX7-GT</b>                 |
| <b>Converter Converter</b>                 | 250<br>28                                                                                                                                             | 100<br>28                       | 2.0<br>1.0                    | 3.5<br>0.5                      | 8.5<br>1.8                           | 1,000,000<br>—                                      | 450 #<br>250 #                            | —                                | —                                                                | —                             | <b>12SY7</b><br><b>12SY7-GT</b> |
| <b>Class A Amplifier</b>                   | 315<br>250<br>180<br>285<br>250                                                                                                                       | 225<br>250<br>180<br>285<br>250 | 13<br>12.5<br>8.5<br>19<br>15 | 34†<br>45†<br>29†<br>70†<br>70† | 2.2†<br>4.5†<br>3.0†<br>4.0†<br>5.0† | 80,000‡<br>50,000‡<br>50,000‡<br>70,000‡<br>60,000‡ | 3,750<br>4,100<br>3,700<br>3,600<br>3,750 | —<br>—<br>—<br>8,000‡<br>10,000‡ | 8,500<br>5,000<br>5,500<br>8,000‡<br>10,000‡                     | 5.5<br>4.5<br>4.0<br>14<br>10 | <b>12V6-GT</b>                  |
| <b>Class A Amplifier</b>                   | 200<br>110<br>225                                                                                                                                     | 125<br>110<br>225               | $R_g = 180$<br>7.5<br>30      | 46†<br>49†<br>22                | 2.2†<br>4.0†<br>2.2                  | 28,000‡<br>13,000‡<br>1,600‡                        | 8,000<br>8,000<br>3,800                   | —<br>—<br>6.2                    | 4,000<br>2,000<br>—                                              | 3.8<br>2.1<br>—               | <b>12W6-GT</b>                  |
| <b>Vertical Deflection Amplifier</b>       | Max positive pulse plate voltage: $\Phi = 1,200$ volts; max plate dissipation = 7.5 watts; max d-c cathode current = 40 ma                            |                                 |                               |                                 |                                      |                                                     |                                           |                                  |                                                                  |                               |                                 |
| <b>Full-Wave Rectifier</b>                 | Max d-c output current = 70 ma; max peak inverse voltage = 1,250 volts; rms supply voltage per plate = 325 volts; max peak current per plate = 210 ma |                                 |                               |                                 |                                      |                                                     |                                           |                                  |                                                                  |                               |                                 |
| <b>Half-Wave Rectifier</b>                 | Max d-c output current = 55 ma; max peak inverse voltage = 700 volts; max rms supply voltage = 235 volts; max peak current = 330 ma                   |                                 |                               |                                 |                                      |                                                     |                                           |                                  |                                                                  |                               |                                 |
| <b>Class A Amplifier</b>                   | 250<br>90                                                                                                                                             | —                               | 8.0<br>0                      | 9.0<br>10                       | —                                    | 7,700‡<br>6,700‡                                    | 2,600<br>3,000                            | 20<br>20                         | —                                                                | —                             | <b>14A4</b>                     |
| <b>Class A Amplifier</b>                   | 250                                                                                                                                                   | 250                             | 12.5                          | 30†                             | 3.5†                                 | 70,000‡                                             | 3,000                                     | —                                | 7,500                                                            | 2.8                           | <b>14A5</b>                     |
| <b>Class A Amplifier</b>                   | 250                                                                                                                                                   | 100                             | 3.0                           | 9.2                             | 2.6                                  | 800,000‡                                            | 2,000                                     | —                                | —                                                                | —                             | <b>14A7/12B7</b>                |
| <b>Class A Amplifier <math>\Phi</math></b> | 250                                                                                                                                                   | —                               | 10                            | 9.0                             | —                                    | 7,600                                               | 2,100                                     | 16                               | —                                                                | —                             | <b>14AF7</b>                    |
| <b>Class A Amplifier</b>                   | 250<br>100                                                                                                                                            | —                               | 2.0<br>1.0                    | 0.9<br>0.4                      | —                                    | 91,000‡<br>110,000‡                                 | 1,100<br>900                              | 100<br>100                       | —                                                                | —                             | <b>14B6</b>                     |
| <b>Converter</b>                           | 250                                                                                                                                                   | 100                             | 3.0                           | 3.5                             | 2.7                                  | 360,000‡                                            | 560 #                                     | —                                | $E_{c2}$ (Osc Plate) = 250 thru 20,000 ohms<br>$I_{c2} = 4.0$ ma |                               | <b>14B8</b>                     |
| <b>Class A Amplifier</b>                   | 315                                                                                                                                                   | 225                             | 13                            | 34†                             | 2.2†                                 | 77,000‡                                             | 3,750                                     | —                                | 8,500                                                            | 5.5                           | <b>14C5</b>                     |
| <b>Class A Amplifier</b>                   | 250                                                                                                                                                   | 100                             | 3.0                           | 2.2                             | 0.7                                  | 1,000,000‡                                          | 1,675                                     | —                                | —                                                                | —                             | <b>14C7</b>                     |
| <b>Class A Amplifier</b>                   | 250                                                                                                                                                   | —                               | 9.0                           | 9.5                             | —                                    | 8,600                                               | 1,900                                     | 16                               | —                                                                | —                             | <b>14E6</b>                     |
| <b>Class A Amplifier</b>                   | 250                                                                                                                                                   | 100                             | 3.0                           | 7.5                             | 1.6                                  | 700,000‡                                            | 1,300                                     | —                                | —                                                                | —                             | <b>14E7</b>                     |
| <b>Class A Amplifier <math>\Phi</math></b> | 250                                                                                                                                                   | —                               | 2.0                           | 2.3                             | —                                    | 44,000‡                                             | 1,600                                     | 70                               | —                                                                | —                             | <b>14F7</b>                     |

‡ 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.

③ For both sections.

\* Minimum.

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

‡ Plate supply voltage.

‡ 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.