

|                                                      |   |    |             |
|------------------------------------------------------|---|----|-------------|
| Heater Warm-up Time .....                            | — | 11 | — Seconds   |
| Maximum Heater-Cathode Voltage .....                 |   |    | 100 Volts   |
| <b>DIRECT INTERELECTRODE CAPACITANCES (Shielded)</b> |   |    |             |
| Grid to Plate .....                                  |   |    | 0.92 Pf     |
| Input: g to (h + k + Shell) .....                    |   |    | 4.3 Pf      |
| Output: p to (h + k + Shell) .....                   |   |    | 1.8 Pf      |
| Heater to Cathode .....                              |   |    | 1.3 Pf      |
| Plate to Cathode .....                               |   |    | 0.18 Pf     |
| <b>RATINGS (Design Maximum Rating System)</b>        |   |    |             |
| Plate Supply Voltage (Max.) .....                    |   |    | 300 Volts   |
| Plate Voltage (Max.) .....                           |   |    | 135 Volts   |
| Plate Dissipation (Max.) .....                       |   |    | 1.0 Watt    |
| DC Cathode Current (Max.) .....                      |   |    | 15 Ma       |
| Negative Grid Voltage (Max.) .....                   |   |    | 55 Volts    |
| Grid Circuit Resistance                              |   |    |             |
| Self Bias (Max.) .....                               |   |    | 2.2 Megohms |
| Fixed Bias (Max.) .....                              |   |    | 0.5 Megohms |

**CHARACTERISTICS AND TYPICAL OPERATION****Class A1 Amplifier**

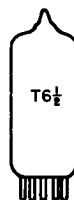
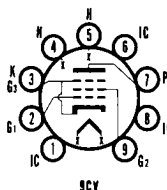
|                                        |        |                 |
|----------------------------------------|--------|-----------------|
| Plate Voltage .....                    | 70     | 110 Volts       |
| Grid Resistor .....                    | 47,000 | — Ohms          |
| Cathode Resistor .....                 | —      | 130 Ohms        |
| Plate Current .....                    | 7.2    | 7 Ma            |
| Transconductance .....                 | 12,500 | 9800 $\mu$ mhos |
| Amplification Factor .....             | 68     | 65              |
| Plate Resistance (Approx.) .....       | 5440   | 6600 Ohms       |
| Ec for Ib = 10 $\mu$ a (Approx.) ..... | —      | -4 Volts        |

**6CW5/EL86****8CW5A, 10CW5/LL86  
15CW5/PL84, 30CW5**

Color Television Type

**AUDIO POWER AMPLIFIER****Beam Pentode**

|                              |                    |
|------------------------------|--------------------|
| Construction .....           | Miniature T-6½     |
| Base .....                   | Button 9 Pin, E9-1 |
| Biasing .....                | .9CV               |
| Outline .....                | 6-4                |
| Maximum Diameter .....       | 0.875 In.          |
| Maximum Seated Height .....  | 2.813 In.          |
| Maximum Overall Height ..... | 3.063 In.          |

**ELECTRICAL DATA****HEATER OPERATION**

|                                         | 30CW5 | 15CW5/<br>PL84 | 10CW5/<br>LL86 | 8CW5A | 6CW5/EL86 |
|-----------------------------------------|-------|----------------|----------------|-------|-----------|
| Heater Voltage .....                    | 30    | 15             | 10.6           | 8.0   | 6.3 Volts |
| Heater Current .....                    | 150   | 300            | 450            | 600   | 760 Ma    |
| Heater Warm-up Time .....               | —     | —              | 11             | 11    | — Seconds |
| Maximum Heater-Cathode Voltage          |       |                |                |       |           |
| Heater Negative with Respect to Cathode |       |                |                |       |           |
| DC .....                                |       |                |                |       | 220 Volts |
| Total DC and Peak .....                 |       |                |                |       | 330 Volts |
| Heater Positive with Respect to Cathode |       |                |                |       |           |
| DC .....                                |       |                |                |       | 220 Volts |
| Total DC and Peak .....                 |       |                |                |       | 330 Volts |

**DIRECT INTERELECTRODE CAPACITANCES**

|                                                       |         |
|-------------------------------------------------------|---------|
| Grid No. 1 to All Other Electrodes Except Plate ..... | 1.3 Pf  |
| Plate to All Other Electrodes Except Grid No. 1 ..... | 6.8 Pf  |
| Plate to Grid No. 1 (Max.) .....                      | 0.6 Pf  |
| Grid No. 1 to Heater (Max.) .....                     | 0.25 Pf |

**RATINGS (Design Maximum Rating System)****Class A1 Amplifier**

|                                     |            |
|-------------------------------------|------------|
| Plate Voltage (Max.) .....          | 275 Volts  |
| Grid No. 2 Voltage (Max.) .....     | 220 Volts  |
| Plate Dissipation (Max.) .....      | 14 Watts   |
| Grid No. 2 Dissipation (Max.) ..... | 2.1 Watts  |
| Grid No. 1 Circuit Resistance       |            |
| Fixed Bias (Max.) .....             | 0.1 Megohm |

**Vertical Deflection Amplifier<sup>(1)</sup>—Triode Connected<sup>(2)</sup>**

|                                               |            |
|-----------------------------------------------|------------|
| Plate Voltage (Max.) .....                    | 275 Volts  |
| Peak Positive Plate Voltage (Abs. Max.) ..... | 2200 Volts |

|                                         |             |
|-----------------------------------------|-------------|
| Plate Dissipation (Max.) <sup>(3)</sup> | 12 Watts    |
| Peak Negative Grid No. 1 Voltage (Max.) | 250 Volts   |
| Average Cathode Current (Max.)          | 110 Ma      |
| Peak Cathode Current (Max.)             | 240 Ma      |
| Grid No. 1 Circuit Resistance           |             |
| Cathode Bias (Max.)                     | 2.2 Megohms |

CHARACTERISTICS AND TYPICAL OPERATION

|                                 |                   |
|---------------------------------|-------------------|
| Plate Voltage                   | 170 Volts         |
| Grid No. 2 Voltage              | 170 Volts         |
| Grid No. 1 Voltage              | -12.5 Volts       |
| Plate Current                   | 70 Ma             |
| Grid No. 2 Current              | 3.5 Ma            |
| Transconductance                | 11,000 $\mu$ mhos |
| Amplification Factor (g1 to g2) | 8                 |
| Plate Resistance                | 26,000 Ohms       |

NOTES:

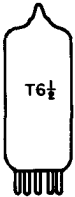
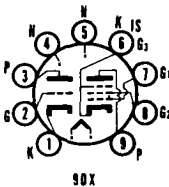
- (1) For operation in a 525 line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission," the duty cycle of the voltage pulse must not exceed 15% of one horizontal scanning cycle.
- (2) Grid No. 2 connected to plate.
- (3) In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

LOW FREQUENCY OSC. or AMP. (T)  
VIDEO AMPLIFIER (P)

6CX8  
8CX8

Medium Mu Triode and  
Sharp Cutoff Pentode

|                        |                    |
|------------------------|--------------------|
| Construction           | Miniature T-6½     |
| Base                   | Button 9 Pin, E9-1 |
| Basing                 | .9DX               |
| Outline                | 6-3                |
| Maximum Diameter       | .0.875 In.         |
| Maximum Seated Height  | .2.375 In.         |
| Maximum Overall Height | .2.625 In.         |



ELECTRICAL DATA

HEATER OPERATION

|                                         | 8CX8 | 6CX8      |
|-----------------------------------------|------|-----------|
| Heater Voltage                          | 8.0  | 6.3 Volts |
| Heater Current                          | 600  | 750 Ma    |
| Heater Warm-up Time                     | 11   | — Seconds |
| Maximum Heater-Cathode Voltage          |      |           |
| Heater Negative with Respect to Cathode |      |           |
| Total DC and Peak                       |      | 200 Volts |
| Heater Positive with Respect to Cathode |      |           |
| DC                                      |      | 100 Volts |
| Total DC and Peak                       |      | 200 Volts |

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Triode Section

|               |         |
|---------------|---------|
| Grid to Plate | 4.4 Pf  |
| Input         | 2.2 Pf  |
| Output        | 0.38 Pf |

Pentode Section

|                     |         |
|---------------------|---------|
| Grid No. 1 to Plate | 0.06 Pf |
| Input               | 9.0 Pf  |
| Output              | 4.4 Pf  |

Coupling

|                                           |          |
|-------------------------------------------|----------|
| Pentode Grid No. 1 to Triode Plate (Max.) | 0.005 Pf |
| Pentode Plate to Triode Grid (Max.)       | 0.018 Pf |
| Pentode Plate to Triode Plate (Max.)      | 0.17 Pf  |

RATINGS (Design Maximum Rating System)

|                                  | Triode<br>Section | Pentode<br>Section |
|----------------------------------|-------------------|--------------------|
| Plate Voltage (Max.)             | 330               | 330 Volts          |
| Grid No. 2 Supply Voltage (Max.) | —                 | 330 Volts          |