

**6EV5****SHARP-CUTOFF TETRODE**

Miniature type used as rf amplifier in vhf tuners of television receivers. Outlines section, 5C; requires miniature 7-contact socket.

|                                                              |           |        |
|--------------------------------------------------------------|-----------|--------|
| Heater Voltage (ac/dc)                                       | 6.3       | volts  |
| Heater Current                                               | 0.2       | ampere |
| Heater-Cathode Voltage:                                      |           |        |
| Peak value                                                   | ±100 max  | volts  |
| Average value                                                | 50 max    | volts  |
| Direct Interelectrode Capacitances:Δ                         |           |        |
| Grid No.1 to Plate                                           | 0.035 max | pF     |
| Grid No.1 to Cathode, Heater, Grid No.2, and Internal Shield | 4.5       | pF     |
| Plate to Cathode, Heater, Grid No.2, and Internal Shield     | 2.9       | pF     |

Δ With external shield connected to cathode.

**Class A<sub>1</sub> Amplifier****MAXIMUM RATINGS (Design-Maximum Values)**

|                                                       |                   |       |
|-------------------------------------------------------|-------------------|-------|
| Plate Voltage                                         | 275               | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage                | 180               | volts |
| Grid-No.2 Voltage                                     | See curve page 98 |       |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value | 0                 | volts |
| Cathode Current                                       | 20                | mA    |
| Plate Dissipation                                     | 3.25              | watts |
| Grid-No.2 Input:                                      |                   |       |
| For grid-No.2 voltages up to 90 volts                 | 0.2               | watt  |
| For grid-No.2 voltages between 90 and 180 volts       | See curve page 98 |       |

**CHARACTERISTICS**

|                                                               |      |        |
|---------------------------------------------------------------|------|--------|
| Plate Voltage                                                 | 250  | volts  |
| Grid-No.2 Voltage                                             | 80   | volts  |
| Grid-No.1 Voltage                                             | -1   | volt   |
| Plate Resistance (Approx.)                                    | 0.15 | megohm |
| Transconductance                                              | 8800 | μmhos  |
| Plate Current                                                 | 11.5 | mA     |
| Grid-No.2 Current                                             | 0.9  | mA     |
| Grid-No.1 Voltage (Approx.) for transconductance of 100 μmhos | -4.5 | volts  |

**MAXIMUM CIRCUIT VALUE**

|                              |     |        |
|------------------------------|-----|--------|
| Grid-No.1-Circuit Resistance | 0.5 | megohm |
|------------------------------|-----|--------|

**6EV7**

Refer to chart at end of section.

**6EW6**

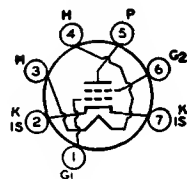
4EW6, 5EW6

**SHARP-CUTOFF PENTODE**

Miniature type used in the gain-controlled picture-if stages of vhf color and black-and-white television receivers operating at an intermediate frequency in the order of 40 MHz. Outlines section, 5C; requires miniature 7-contact socket. Types 4EW6 and 5EW6 are identical with type 6EW6 except for heater ratings.

|                                          | 4EW6       | 5EW6     | 6EW6      |         |
|------------------------------------------|------------|----------|-----------|---------|
| Heater Voltage (ac/dc)                   | 4.2        | 5.6      | 6.3       | volts   |
| Heater Current                           | 0.6        | 0.45     | 0.4       | ampere  |
| Heater Warm-up Time (Average)            | 11         | 11       | —         | seconds |
| Heater-Cathode Voltage:                  |            |          |           |         |
| Peak value                               | ±200 max   | ±200 max | ±200 max  | volts   |
| Average value                            | 100 max    | 100 max  | 100 max   | volts   |
| Direct Interelectrode Capacitances:      |            |          |           |         |
| Grid No.1 to Plate                       | Unshielded |          | Shielded* |         |
| Grid No.1 to Cathode, Heater, Grid No.2, | 0.04 max   |          | 0.03 max  | pF      |
| Grid No.3, and Internal Shield           | 10         |          | 10        | pF      |
| Plate to Cathode, Heater, Grid No.2,     | 2.4        |          | 3.4       | pF      |
| Grid No.3, and Internal Shield           |            |          |           |         |

\* With external shield connected to cathode.

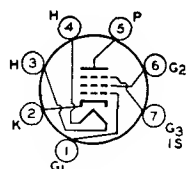
**7EW**

|                                                              |           |        |
|--------------------------------------------------------------|-----------|--------|
| Heater Voltage (ac/dc)                                       | 6.3       | volts  |
| Heater Current                                               | 0.2       | ampere |
| Heater-Cathode Voltage:                                      |           |        |
| Peak value                                                   | ±100 max  | volts  |
| Average value                                                | 50 max    | volts  |
| Direct Interelectrode Capacitances:Δ                         |           |        |
| Grid No.1 to Plate                                           | 0.035 max | pF     |
| Grid No.1 to Cathode, Heater, Grid No.2, and Internal Shield | 4.5       | pF     |
| Plate to Cathode, Heater, Grid No.2, and Internal Shield     | 2.9       | pF     |

|                                                              |           |        |
|--------------------------------------------------------------|-----------|--------|
| Heater Voltage (ac/dc)                                       | 6.3       | volts  |
| Heater Current                                               | 0.2       | ampere |
| Heater-Cathode Voltage:                                      |           |        |
| Peak value                                                   | ±100 max  | volts  |
| Average value                                                | 50 max    | volts  |
| Direct Interelectrode Capacitances:Δ                         |           |        |
| Grid No.1 to Plate                                           | 0.035 max | pF     |
| Grid No.1 to Cathode, Heater, Grid No.2, and Internal Shield | 4.5       | pF     |
| Plate to Cathode, Heater, Grid No.2, and Internal Shield     | 2.9       | pF     |

|                                                              |           |        |
|--------------------------------------------------------------|-----------|--------|
| Heater Voltage (ac/dc)                                       | 6.3       | volts  |
| Heater Current                                               | 0.2       | ampere |
| Heater-Cathode Voltage:                                      |           |        |
| Peak value                                                   | ±100 max  | volts  |
| Average value                                                | 50 max    | volts  |
| Direct Interelectrode Capacitances:Δ                         |           |        |
| Grid No.1 to Plate                                           | 0.035 max | pF     |
| Grid No.1 to Cathode, Heater, Grid No.2, and Internal Shield | 4.5       | pF     |
| Plate to Cathode, Heater, Grid No.2, and Internal Shield     | 2.9       | pF     |

|                              |     |        |
|------------------------------|-----|--------|
| Grid-No.1-Circuit Resistance | 0.5 | megohm |
|------------------------------|-----|--------|

**7CM**

|                                          | 4EW6       | 5EW6     | 6EW6      |         |
|------------------------------------------|------------|----------|-----------|---------|
| Heater Voltage (ac/dc)                   | 4.2        | 5.6      | 6.3       | volts   |
| Heater Current                           | 0.6        | 0.45     | 0.4       | ampere  |
| Heater Warm-up Time (Average)            | 11         | 11       | —         | seconds |
| Heater-Cathode Voltage:                  |            |          |           |         |
| Peak value                               | ±200 max   | ±200 max | ±200 max  | volts   |
| Average value                            | 100 max    | 100 max  | 100 max   | volts   |
| Direct Interelectrode Capacitances:      |            |          |           |         |
| Grid No.1 to Plate                       | Unshielded |          | Shielded* |         |
| Grid No.1 to Cathode, Heater, Grid No.2, | 0.04 max   |          | 0.03 max  | pF      |
| Grid No.3, and Internal Shield           | 10         |          | 10        | pF      |
| Plate to Cathode, Heater, Grid No.2,     | 2.4        |          | 3.4       | pF      |
| Grid No.3, and Internal Shield           |            |          |           |         |

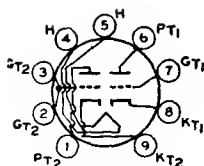
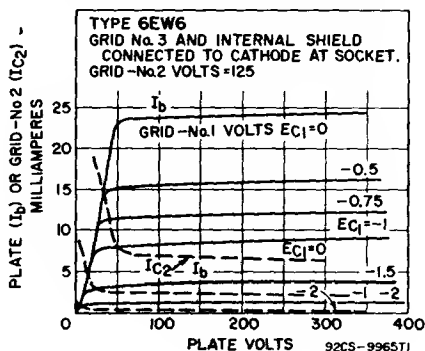
Class A<sub>1</sub> Amplifier

## MAXIMUM RATINGS (Design-Maximum Values)

|                                                       |                   |       |
|-------------------------------------------------------|-------------------|-------|
| Plate Voltage                                         | 330               | volts |
| Grid-No.3 (Suppressor-Grid) Voltage, Positive value   | 0                 | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage                | 330               | volts |
| Grid-No.2 Voltage                                     | See curve page 98 |       |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value | 0                 | volts |
| Plate Dissipation                                     | 3.1               | watts |
| Grid-No.2 Input:                                      |                   |       |
| For grid-No.2 voltages up to 165 volts                | 0.65              | watt  |
| For grid-No.2 voltages between 165 and 330 volts      | See curve page 98 |       |

## CHARACTERISTICS

|                                                        |                                |        |
|--------------------------------------------------------|--------------------------------|--------|
| Plate Supply Voltage                                   | 125                            | volts  |
| Grid-No.3                                              | Connected to cathode at socket |        |
| Grid-No.2 Supply Voltage                               | 125                            | volts  |
| Cathode-Bias Resistor                                  | 56                             | ohms   |
| Plate Resistance (Approx.)                             | 0.2                            | megohm |
| Transconductance                                       | 14000                          | μmhos  |
| Plate Current                                          | 11                             | mA     |
| Grid-No.2 Current                                      | 3.2                            | mA     |
| Grid-No.1 Voltage (Approx.) for plate current of 20 μA | -3.5                           | volts  |



9HF

## DUAL TRIODE

## 6EW7

10EW7, 15EW7

Neonode type used as combined vertical-deflection oscillator and vertical-deflector amplifier in television receivers. Outlines section, 10C; requires neonode 9-contact socket. For curve of average plate characteristics, Unit No.1, refer to type 6DE7 (Unit No.1). Types 10EW7 and 15EW7 are identical with type 6EW7 except for heater ratings.

|                                               | 6EW7      | 10EW7     | 15EW7    |         |
|-----------------------------------------------|-----------|-----------|----------|---------|
| Heater Voltage (ac/dc)                        | 6.3       | 9.7       | 14.8     | volts   |
| Heater Current                                | 0.9       | 0.6       | 0.45     | ampere  |
| Heater Warm-up Time                           | —         | 11        | 11       | seconds |
| Heater-Cathode Voltage:                       |           |           |          |         |
| Peak value                                    | ±200 max  | ±200 max  | ±200 max | volts   |
| Average value                                 | 100 max   | 100 max   | 100 max  | volts   |
| Direct Interelectrode Capacitances (Approx.): | Unit No.1 | Unit No.2 |          |         |
| Grid to Plate                                 | 4.2       | 9         |          | pF      |
| Grid to Cathode and Heater                    | 2.2       | 7         |          | pF      |
| Plate to Cathode and Heater                   | 0.4       | 1.2       |          | pF      |

Class A<sub>1</sub> Amplifier

## CHARACTERISTICS

|                            | Unit No.1 | Unit No.2 |       |
|----------------------------|-----------|-----------|-------|
| Plate Voltage              | 250       | 150       | volts |
| Grid Voltage               | -11       | -17.5     | volts |
| Amplification Factor       | 17.5      | 6         |       |
| Plate Resistance (Approx.) | 8750      | 800       | ohms  |
| Transconductance           | 2000      | 7500      | μmhos |
| Plate Current              | 6.5       | 45        | mA    |