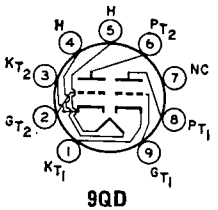
| | | |
|---|---|---|
| DC Grid-No.1 Voltage | —55 | volts |
| Peak Cathode Current | 550 | mA |
| Average Cathode Current | 175 | mA |
| Plate Dissipation† | 17.5 | watts |
| Grid-No.2 Input | 3.5 | watts |
| Bulb Temperature (At hottest point) | 200 | °C |
| **MAXIMUM CIRCUIT VALUE** | | |
| Grid-No.1 Circuit Resistance | 1 | megohm |

# Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).
† A bias resistor or other means is required to protect the tube in absence of excitation.

Refer to chart at end of section. **6GF5**

Refer to chart at end of section. **6GF7**




**9QD**

## DUAL TRIODE

# 6GF7A

**10GF7A, 13GF7A**

Novar types used as combined vertical-deflection oscillator and vertical-deflection amplifiers in color and black-and-white television receivers. **Outlines section, 30A**; requires novar 9-contact socket. For curves of average plate characteristics for Unit No.1 and Unit No.2, refer to types 6DR7 (Unit No.1) and 6EM7, respectively. Types 10GF7A and 13GF7A are identical with type 6GF7A except for heater ratings.

| | 6GF7A | 10GF7A | 13GF7A | |
|---|---|---|---|---|
| Heater Voltage (ac/dc) | 6.3 | 9.7 | 13 | volts |
| Heater Current | 0.985 | 0.6 | 0.45 | 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 (Approx.): | Unit No.1 | Unit No.2 | | |
| Grid to Plate | 4.6 | 9 | | pF |
| Grid to Cathode and Heater | 2.4 | 6.5 | | pF |
| Plate to Cathode and Heater | 0.26 | 1.4 | | pF |

### Class $A_1$ Amplifier

| **CHARACTERISTICS** | Unit No.1 | Unit No.2 | |
|---|---|---|---|
| Plate Voltage | 250 | 150 | volts |
| Grid Voltage | —3 | —20 | volts |
| Amplification Factor | 64 | 5.4 | |
| Plate Resistance (Approx.) | 40000 | 750 | ohms |
| Transconductance | 1600 | 7200 | μmhos |
| Grid Voltage (Approx.): | | | |
| For plate current of 10 μA | —5.5 | — | volts |
| For plate current of 100 μA | — | —45 | volts |
| Plate Current | 1.4 | 50 | mA |
| For plate voltage of 60 volts and zero grid voltage | — | 95 | mA |
| For grid voltage of —28 volts | — | 10 | mA |

### Vertical-Deflection Oscillator and Amplifier

**For operation in a 525-line, 30-frame system**

| **MAXIMUM RATINGS** (Design-Maximum Values) | Unit No.1 Oscillator | Unit No.2 Amplifier | |
|---|---|---|---|
| DC Plate Voltage | 330 | 330 | volts |
| Peak Positive-Pulse Plate Voltage (Absolute Maximum)# | — | 1500• | volts |
| Peak Negative-Pulse Grid Voltage | 400 | 250 | volts |
| Peak Cathode Current | 77 | 175 | mA |
| Average Cathode Current | 22 | 50 | mA |
| Plate Dissipation | 1.5 | 11 | watts |

**MAXIMUM CIRCUIT VALUES**

Grid-Circuit Resistance:

| | | | |
|---|---|---|---|
| For grid-resistor-bias or cathode-bias operation | 2.2 | 2.2 | megohms |

• Under no circumstances should this absolute value be exceeded.

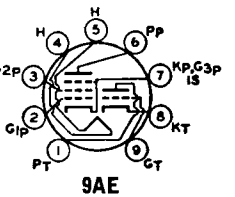
# Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

Refer to chart at end of section. **6GH8**

# 6GH8A

**5GH8A, 9GH8A**

## MEDIUM-MU TRIODE—SHARP-CUTOFF PENTODE




9AE

Miniature type used in multivibrator-type horizontal-deflection circuits and for age-amplifier or sync-separator applications in color and black-and-white television receivers. **Outlines section,** 6B; requires miniature 9-contact socket. Types 5GH8A and 9GH8A are identical with type 6GH8A except for heater ratings.

| | 5GH8A | 6GH8A | 9GH8A | |
|---|---|---|---|---|
| Heater Voltage (ac/dc) | 4.7 | 6.3 | 9.45 | volts |
| Heater Current | 0.6 | 0.45 | 0.3 | 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: | | Unshielded | Shielded | |
| Triode Unit: | | | | |
| Grid to Plate | | 1.7 | 1.7 | pF |
| Grid to Cathode, Heater, Pentode Grid No.3, Pentode Cathode, and Internal Shield | | 3 | 3.2 | pF |
| Plate to Cathode, Heater, Pentode Grid No.3, Pentode Cathode, and Internal Shield | | 1.4 | 1.9 | pF |
| Heater to Cathode | | 3 | 3 | pF |
| Pentode Unit: | | | | |
| Grid No.1 to Plate | | 0.02 max | 0.01 max | pF |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield | | 5 | 5 | pF |
| Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield | | 2.6 | 3.4 | pF |
| Heater to Cathode, Grid No.3, and Internal Shield | | 3 | 3 | pF |

### Class $A_1$ Amplifier

| CHARACTERISTICS | Triode Unit | Pentode Unit | |
|---|---|---|---|
| Plate Voltage | 125 | 125 | volts |
| Grid-No.2 Voltage | — | 125 | volts |
| Grid-No.1 Voltage | —1 | —1 | volts |
| Amplification Factor | 46 | — | |
| Plate Resistance (Approx.) | 5400 | 200000 | ohms |
| Transconductance | 8500 | 7500 | μmhos |
| Plate Current | 13.5 | 12 | mA |
| Grid-No.2 Current | — | 4 | mA |
| Grid-No.1 Voltage (Approx.) for plate current of 10 μA | —8 | —8 | volts |

### Horizontal-Deflection Oscillator

**For operation in a 525-line, 30-frame system**

| MAXIMUM RATINGS (Design-Maximum Values) | Triode Unit | Pentode Unit | |
|---|---|---|---|
| Plate Voltage | 330 | 350 | volts |
| Grid-No.2 (Screen-Grid) Voltage | — | 330 | volts |
| Grid-No.1 (Control-Grid) Voltage: | | | |
| Positive-bias value | 0 | 0 | volts |
| Peak negative value | — | 175 | volts |
| Peak Cathode Current | — | 300 | mA |
| Average Cathode Current | — | 20 | mA |
| Plate Dissipation | 2.5 | 2.5 | watts |
| Grid-No.2 Input | — | 0.55 | watt |