

9DC

## MEDIUM-MU TRIODE— SHARP-CUTOFF PENTODE

**6MG8**

Miniature type used in horizontal-deflection circuits and for age-amplifier or sync-separator applications in television receivers. Outlines section, 6B; requires miniature 9-contact socket. Heater: volts, 6.3; ampere, 0.45; maximum heater-cathode volts,  $\pm 200$  peak, 100 average.

### Class A<sub>1</sub> Amplifier

#### CHARACTERISTICS

|                                                   | Triode Unit | Pentode Unit |            |
|---------------------------------------------------|-------------|--------------|------------|
| Plate Voltage                                     | 150         | 170          | volts      |
| Grid-No.2 (Screen-Grid) Voltage                   | —           | 170          | volts      |
| Grid-No.1 (Control-Grid) Voltage                  | —           | —2           | volts      |
| Cathode-Bias Resistor                             | 56          | —            | ohms       |
| Plate Current                                     | 18          | 10           | mA         |
| Grid-No.2 Current                                 | —           | 2.8          | mA         |
| Transconductance                                  | 8500        | 6200         | $\mu$ mhos |
| Plate Resistance (Approx.)                        | 5           | 400          | kohms      |
| Amplification Factor                              | 40          | 47           |            |
| Grid-No.1 Voltage for plate current of 10 $\mu$ A | —12         | —            | volts      |

### Horizontal-Deflection Amplifier

#### MAXIMUM RATINGS (Design-Maximum Values)

|                                           |     |      |       |
|-------------------------------------------|-----|------|-------|
| Plate Voltage                             | 330 | 330  | volts |
| Grid-No.2 Supply Voltage                  | —   | 300  | volts |
| Plate Dissipation                         | 2.5 | 2    | watts |
| Cathode Current                           | 14  | 14   | mA    |
| Grid-No.2 Input:                          |     |      |       |
| For plate dissipation more than 1.2 watts | —   | 0.5  | watt  |
| For plate dissipation less than 1.2 watts | —   | 0.75 | watt  |

#### MAXIMUM CIRCUIT VALUES

|                               |     |     |        |
|-------------------------------|-----|-----|--------|
| Grid-No.1 Circuit Resistance: |     |     |        |
| For fixed-bias operation      | 0.5 | 0.5 | megohm |
| For cathode-bias operation    | 0.5 | 1   | megohm |

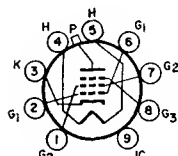
For replacement use type 6J6A.

**6MHH3****6MJ6/**

## BEAM POWER TUBE

**6LQ6/6JE6C**

24LQ6/24JE6C, 31LQ6



9QL

Novar types used as horizontal-deflection amplifier in color and black-and-white television receivers. Outlines section, 32C; requires novar 9-contact socket. Types 24LQ6/24JE6C, and 31LQ6 are identical with type 6MJ6/6LQ6/6JE6C except for heater ratings.

|                                                           | 6MJ6/<br>6LQ6/6JE6C | 24LQ6/24JE6C  | 31LQ6         |         |
|-----------------------------------------------------------|---------------------|---------------|---------------|---------|
| Heater Voltage (ac/dc)                                    | 6.3                 | 24            | 31            | volts   |
| Heater Current                                            | 2.3                 | 0.6           | 0.45          | amperes |
| Heater Warm-up Time                                       | —                   | 11            | 11            | seconds |
| Heater-Cathode Voltage:                                   |                     |               |               |         |
| Peak value                                                | $\pm 200$ max       | $\pm 200$ max | $\pm 200$ max | volts   |
| Average value                                             | 100 max             | 100 max       | 100 max       | volts   |
| Direct Interelectrode Capacitances:                       |                     |               |               |         |
| Grid No.1 to Plate                                        | —                   | —             | 0.6           | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2,<br>and Grid No.3 | —                   | —             | 22            | pF      |
| Plate to Cathode, Heater, Grid No.2,<br>and Grid No.3     | —                   | —             | 11            | pF      |

### Class A<sub>1</sub> Amplifier

#### CHARACTERISTICS

|                                        | Triode*<br>Connection | Pentode Connection |       |
|----------------------------------------|-----------------------|--------------------|-------|
| Peak Positive-Pulse Plate Voltage#     | 5000                  | —                  | volts |
| Plate Voltage                          | 145                   | 60                 | 175   |
| Grid-No.3 (Suppressor-Grid)<br>Voltage | 30                    | 30                 | 30    |
| Grid-No.2 (Screen-Grid) Voltage        | 145                   | 145                | 145   |
| Grid-No.1 (Control-Grid) Voltage       | —35                   | 0                  | —35   |
| Plate Resistance (Approx.)             | —                     | —                  | 7000  |
| Transconductance                       | —                     | —                  | 7500  |
| Plate Current                          | —                     | 710 $\frac{1}{2}$  | 95    |

|                                             |     |      |     |     |       |
|---------------------------------------------|-----|------|-----|-----|-------|
| Grid-No.2 Current                           | —   | —    | 55† | 2.4 | mA    |
| Grid-No.1 Voltage for plate current of 1 mA | —   | —125 | —   | —60 | volts |
| Amplification Factor                        | 2.8 | —    | —   | —   | —     |

\* Grid No.3 and grid No.2 connected, respectively, to cathode and plate at socket.

† This value may be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

### Horizontal-Deflection Amplifier

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

#### MAXIMUM RATINGS (Design-Maximum Values)

|                                         |      |       |
|-----------------------------------------|------|-------|
| Plate Supply Voltage                    | 990  | volts |
| Peak Positive-Pulse Plate Voltage#      | 7500 | volts |
| Peak Negative-Pulse Plate Voltage       | 1100 | volts |
| Grid-No.3 Voltage                       | 75   | volts |
| Grid-No.2 Voltage                       | 220  | volts |
| Peak Negative-Pulse Grid-No.1 Voltage   | 330  | volts |
| Peak Cathode Current                    | 1200 | mA    |
| Average Cathode Current                 | 350  | mA    |
| Plate Dissipation <sup>o</sup>          | 30   | watts |
| Plate Dissipation (Temporary overload)▲ | 200  | watts |
| Grid-No.2 Input                         | 5    | watts |
| Envelope Temperature (At hottest point) | 250  | °C    |

#### MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:

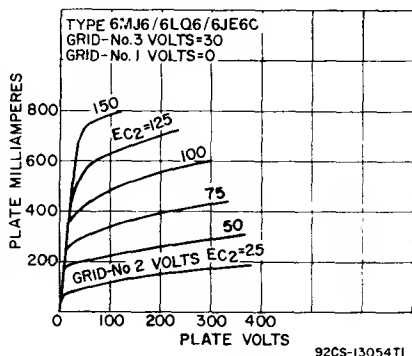
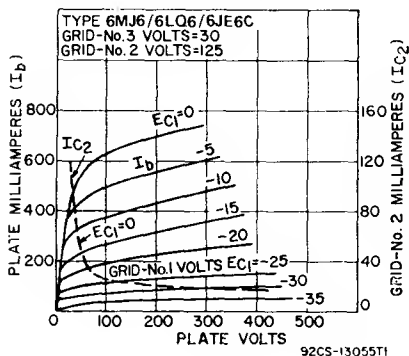
|                                                                  |      |         |
|------------------------------------------------------------------|------|---------|
| For grid-No.1-resistor-bias operation                            | 0.47 | megohm  |
| For plate-pulsed operation (horizontal-deflection circuits only) | 10   | megohms |

# Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

■ For horizontal-deflection service, a positive voltage may be applied to grid-No.3 to minimize "snivets" interference in both vhf and uhf television receivers. A typical value is 30 volts.

○ A bias resistor or other means is required to protect the tube in absence of excitation.

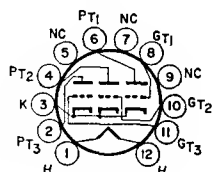
▲ Total continuous or accumulated time not to exceed 40 seconds.



## 6MJ8

### MEDIUM-MU TRIPLE TRIODE

Duodecar type used in matrixing-amplifier circuits of color and black-and-white television receivers. Outlines section, 8D; requires duodecar 12-contact socket.



#### 12HG

|                                     |          |        |      |    |
|-------------------------------------|----------|--------|------|----|
| Heater Voltage                      | 6.3      | volts  |      |    |
| Heater Current                      | 0.9      | ampere |      |    |
| Heater-Cathode Voltage:             |          |        |      |    |
| Peak value                          | ±200 max | volts  |      |    |
| Average value                       | 100 max  | volts  |      |    |
| Direct Interelectrode Capacitances: | Unit     | Unit   | Unit |    |
|                                     | No.1     | No.2   | No.3 |    |
| Grid to Plate                       | 2.8      | 2.8    | 2.8  | pF |
| Grid to Cathode and Heater          | 2.9      | 2.9    | 3    | pF |
| Plate to Cathode and Heater         | 0.36     | 0.6    | 0.7  | pF |