

Class A<sub>1</sub> Amplifier

## MAXIMUM RATINGS (Design-Maximum Values)

|                                   |     |       |
|-----------------------------------|-----|-------|
| Plate Voltage                     | 200 | volts |
| Grid Voltage, Negative-bias Value | 50  | volts |
| Cathode Current                   | 22  | mA    |
| Plate Dissipation                 | 2.5 | watts |

## CHARACTERISTICS

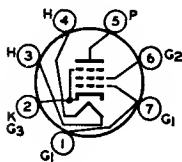
|                                                                |       |            |
|----------------------------------------------------------------|-------|------------|
| Plate Voltage                                                  | 135   | volts      |
| Grid Voltage                                                   | —1    | volt       |
| Amplification Factor                                           | 78    |            |
| Plate Resistance                                               | 5400  | ohms       |
| Transconductance                                               | 15000 | $\mu$ mhos |
| Plate Current                                                  | 11.5  | mA         |
| Input Resistance**                                             | 275   | ohms       |
| Input Capacitance**                                            | 11.2  | pF         |
| Noise Figure#                                                  | 4.7   | dB         |
| Grid Voltage (Approx.) for transconductance of 150 $\mu$ mhos  | —4.2  | volts      |
| Grid Voltage (Approx.) for transconductance of 1500 $\mu$ mhos | —2.5  | volts      |

## MAXIMUM CIRCUIT VALUE

|                                                     |   |        |
|-----------------------------------------------------|---|--------|
| Grid-Circuit Resistance, for cathode-bias operation | 1 | megohm |
|-----------------------------------------------------|---|--------|

\*\* Measured at 200 MHz with heater volts = 6.3 volts and plate effectively grounded for rf voltages.

# For a neutralized triode amplifier at a frequency of 200 MHz with signal source impedance adjusted for minimum noise output.



## BEAM POWER TUBE

6HR5

Miniature type used as vertical-deflection amplifier in television receivers. Outlines section, 5D; requires miniature 7-contact socket.

## 7BZ

|                                                        |          |         |
|--------------------------------------------------------|----------|---------|
| Heater Voltage (ac/dc)                                 | 6.3      | volts   |
| Heater Current                                         | 0.45     | ampere  |
| Heater Warm-up Time (Average)                          | 11       | seconds |
| Heater-Cathode Voltage:                                |          |         |
| Peak value                                             | ±200 max | volts   |
| Average value                                          | 100 max  | volts   |
| Direct Interelectrode Capacitances:                    |          |         |
| Grid No.1 to Plate                                     | 0.35     | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 | 8.3      | pF      |
| Plate to Cathode, Heater, Grid No.2, and Grid No.3     | 8.2      | pF      |

## Vertical-Deflection Amplifier

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

## MAXIMUM RATINGS (Design-Maximum Values)

|                                                       |      |       |
|-------------------------------------------------------|------|-------|
| Plate Voltage                                         | 260  | volts |
| Peak Positive-Pulse Plate Voltage# (Absolute Maximum) | 1500 | volts |
| Grid-No.2 (Screen-Grid) Voltage                       | 270  | volts |
| Peak Negative-Pulse Grid-No.1 Voltage                 | 150  | volts |
| Plate Dissipation                                     | 8    | watts |
| Peak Cathode Current                                  | 125  | mA    |
| Average Cathode Current                               | 35   | mA    |
| Grid-No.2 Input                                       | 2    | watts |

## CHARACTERISTICS

|                                                              |     |      |            |
|--------------------------------------------------------------|-----|------|------------|
| Plate Voltage                                                | 50  | 260  | volts      |
| Grid-No.2 Voltage                                            | 250 | 270  | volts      |
| Grid-No.1 Voltage                                            | 0   | —19  | volts      |
| Transconductance                                             | —   | 3600 | $\mu$ mhos |
| Plate Current                                                | 105 | 30   | mA         |
| Grid-No.2 Current                                            | 25  | 2.3  | mA         |
| Grid-No.1 Voltage (Approx.) for plate current of 100 $\mu$ A | —   | —43  | volts      |

## MAXIMUM CIRCUIT VALUE

|                              |     |         |
|------------------------------|-----|---------|
| Grid-No.1-Circuit Resistance | 2.2 | megohms |
|------------------------------|-----|---------|

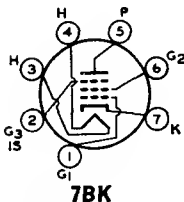
# Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

**6HR6**

19HR6

**SEMIREMOTE-CUTOFF  
PENTODE**

Miniature type used as if-amplifier tube in FM receivers. Outlines section, 5C; requires miniature 7-contact socket. Type 19HR6 is identical with type 6HR6 except for heater ratings.



|                                                                         | 6HR6     | 19HR6     |         |
|-------------------------------------------------------------------------|----------|-----------|---------|
| Heater Voltage (ac/dc)                                                  | 6.3      | 18.9      | volts   |
| Heater Current                                                          | 0.45     | 0.15      | ampere  |
| Heater Warm-up Time (Average)                                           | 11       | 17        | seconds |
| Heater-Cathode Voltage:                                                 |          |           |         |
| Peak value                                                              | ±200 max | ±200 max  | volts   |
| Average value                                                           | 100 max  | 100 max   | volts   |
| Direct Interelectrode Capacitances:                                     |          |           |         |
| Grid No.1 to Plate                                                      |          | 0.006 max | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield |          | 8.8       | pF      |
| Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield     |          | 5.2       | pF      |

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

|                                                     |                   |       |
|-----------------------------------------------------|-------------------|-------|
| Plate Supply Voltage                                | 300               | volts |
| Grid-No.3 (Suppressor-Grid) Voltage, Positive value | 0                 | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage              | 300               | volts |
| Grid-No.2 Voltage                                   | See curve page 98 |       |
| Grid-No.1 (Control-Grid) Voltage:                   |                   |       |
| Negative-bias value                                 | 50                | volts |
| Positive-bias value                                 | 0                 | volts |
| Plate Dissipation                                   | 3                 | watts |
| Grid-No.2 Input:                                    |                   |       |
| For grid-No.2 voltages up to 150 volts              | 1                 | watt  |
| For grid-No.2 voltages between 150 and 300 volts    | See curve page 98 |       |

**CHARACTERISTICS**

|                                                              |                                |        |
|--------------------------------------------------------------|--------------------------------|--------|
| Plate Supply Voltage                                         | 200                            | volts  |
| Grid No.3                                                    | Connected to cathode at socket |        |
| Grid-No.2 Supply Voltage                                     | 115                            | volts  |
| Grid-No.1 Supply Voltage                                     | 0                              | volts  |
| Cathode-Bias Resistor                                        | 68                             | ohms   |
| Plate Resistance (Approx.)                                   | 0.5                            | megohm |
| Transconductance                                             | 8500                           | μmhos  |
| Plate Current                                                | 13.2                           | mA     |
| Grid-No.2 Current                                            | 4.3                            | mA     |
| Grid-No.1 Voltage (Approx.) for transconductance of 60 μmhos | -15                            | volts  |

**MAXIMUM CIRCUIT VALUES**

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

