Sharp-Cutoff Pentode

7-PIN MINIATURE TYPE
With Heater Having Controlled Warm-Up Time

GENERAL DATA

**Electrical:**

Heater Characteristics and Ratings *(Design-Maximum Values):*

- **Voltage (AC or DC):** 6.3\(^a\) 6.3 ± 0.6 volts
- **Current:** 0.450 ± 0.030 0.450\(^b\) amperes
- **Warm-up time (Average):** 11 seconds
- **Peak heater-cathode voltage:**
  - Heater negative with respect to cathode: 200 max. volts
  - Heater positive with respect to cathode: 200\(^c\) max. volts
- **Direct Interelectrode Capacitances:**
  - Grid No.1 to plate: 0.006 max. \(\mu\)f
  - Grid No.1 to cathode, grid No.3 & internal shield, grid No.2, and heater: 8.8 \(\mu\)f
  - Plate to cathode, grid No.3 & internal shield, grid No.2, and heater: 5.2 \(\mu\)f

**Characteristics, Class A\(_1\) Amplifier:**

- **Plate Supply Voltage:** 75 150 volts
- **Grid No.3:** Connected to cathode at socket
- **Grid-No.2 Supply Voltage:** 75 75 volts
- **Grid-No.1 Supply Voltage:** 0 0 volts
- **Cathode Resistor:** 68 68 ohms
- **Amplification Factor:** 50
- **Plate Resistance (Approx.):** 0.5 megohm
- **Transconductance:** 9500 \(\mu\)hos
- **Plate Current:** 8.8 ma
- **Grid-No.2 Current:** 2.8 ma
- **Grid-No.1 Voltage (Approx.) for plate** 
  \(\mu\)a = 20
- **-4 volts**

**Mechanical:**

- **Operating Position:** Any
- **Type of Cathode:** Coated Unipotential
- **Maximum Overall Length:** 2-1/8"
- **Maximum Seated Length:** 1-7/8"
- **Length, Base Seat to Bulb Top (Excluding tip):** 1-1/2" ± 3/32"
- **Diameter:** 0.650" to 0.750"
- **Dimensional Outline:** See General Section
- **Bulb:** T5-1/2
- **Base:** Small-Button Miniature 7-Pin (JEDEC No.E7-1)
Basing Designation for BOTTOM VIEW. ................. 7BK

Pin 1 - Grid No. 1
Pin 2 - Grid No. 3, Internal Shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid No. 2
Pin 7 - Cathode

AMPLIFIER — Class A1

Maximum Ratings, Design-Maximum Values:

- PLATE VOLTAGE. .................. 300 max. volts
- GRID No. 3 (SUPPRESSOR GRID). Connect to cathode at socket
- GRID-No. 2 (SCREEN-GRID) SUPPLY VOLTAGE .................. 300 max. volts
- GRID-No. 2 VOLTAGE. ............. See Grid-No. 2 Input Rating Chart at front of Receiving Tube Section

GRID-No. 1 (CONTROL-GRID) VOLTAGE:
- Negative-bias value. ............... 50 max. volts
- Positive-bias value. ................ 0 max. volts

GRID-No. 2 INPUT:
- For grid-No. 2 voltages up to 150 volts . 1 max. watt
- For grid-No. 2 voltages between 150 and 300 volts. ............. See Grid-No. 2 Input Rating Chart at front of Receiving Tube Section

PLATE DISSIPATION. ................. 3 max. watts

Maximum Circuit Values:

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

- At heater amperes = 0.450.
- At heater volts = 6.3.
- The dc component must not exceed 100 volts.
- Without external shield.
- Triode connection (Grid No. 2 connected to plate).
AVERAGE CHARACTERISTICS

$E_g = 6.3$ VOLTS

GRID No. 3 CONNECTED TO
CATHODE AT SOCKET.
GRID-No.2 VOLTS = 75

PLATE (I_p) OR GRID-No.2 (I_C2) MILLIAMPERES

PLATE VOLTS

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DATA 2
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**AVERAGE CHARACTERISTICS**

$E_t = 6.3$ VOLTS

PLATE VOLTS = 150

GRID No.3 CONNECTED TO CATHODE AT SOCKET.

GRID-No.2 VOLTS = 75

<table>
<thead>
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<th>PLATE (I_p) OR GRID-No.2 (I_{C2}) MILLIAMPERES</th>
<th>TRANSCONDUCTANCE ($g_m$) — MICROHMOS</th>
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<tr>
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GRID-No.1 VOLTS

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