Sharp-Cutoff Pentode
With Two Independent Control Grids

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\textsuperscript{a} \hspace{1cm} 6.3 \pm 0.6 \text{ volts}
Current................................... 0.450 \pm 0.030 \hspace{1cm} 0.450\textsuperscript{b} \text{ amp}
Warm-up time (Average)........... 11 \hspace{1cm} \text{ sec}
Peak heater-cathode voltage:
Heater negative with respect to cathode........ 200 \text{ max.} \hspace{1cm} \text{ volts}
Heater positive with respect to cathode......... 200\textsuperscript{c} \text{ max.} \hspace{1cm} \text{ volts}

Direct Interelectrode Capacitances (Approx):
Grid No.1 to plate.......................... 0.023 \hspace{1cm} \text{ pf}
Grid No.1 to cathode & internal shield, grid No.3, grid No.2 & internal shield, and heater........ 8.2 \hspace{1cm} \text{ pf}
Grid No.1 to grid No.3.......................... 0.09 \hspace{1cm} \text{ pf}
Grid No.3 to plate.......................... 1.6 \hspace{1cm} \text{ pf}
Grid No.3 to cathode & internal shield, plate, grid No.2 & internal shield, grid No.1, and heater.................. 7.2 \hspace{1cm} \text{ pf}

Characteristics, Class A\textsubscript{1} Amplifier:
Plate Supply Voltage....................... 150 \hspace{1cm} \text{ volts}
Grid-No.3 Supply Voltage.................... 0 \hspace{1cm} \text{ volts}
Grid-No.2 Supply Voltage.................... 100 \hspace{1cm} \text{ volts}
Grid-No.1 Supply Voltage.................... 0 \hspace{1cm} \text{ volts}
Cathode Resistor.......................... 180 \hspace{1cm} \text{ ohms}
Plate Resistance (Approx.)................. 0.11 \hspace{1cm} \text{ megohm}
Transconductance, Grid No.1 to Plate........ 3400 \hspace{1cm} \mu\text{hos}
Transconductance, Grid No.3 to Plate........ 600 \hspace{1cm} \mu\text{hos}
Plate Current............................. 3.2 \hspace{1cm} \text{ ma}
Grid-No.2 Current.......................... 3.2 \hspace{1cm} \text{ ma}
Grid-No.1 Supply Voltage (Approx.)
for plate $\mu_0 = 20$...................... 4.5 \hspace{1cm} \text{ volts}
Grid-No.3 Supply Voltage (Approx.)
for plate $\mu_0 = 20$...................... 7 \hspace{1cm} \text{ 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"

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Electron Tube Division
Harrison, N. J.

DATA 1

1-63
Bulb: T5-1/2
Base: Small-Button Miniature 7-Pin (JEDEC No.E7-1)
Basing Designation For BOTTOM VIEW: 7EN

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

FM SOUND-DETECTOR SERVICE

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE: 300 max. volts
GRID-No.3 (CONTROL-GRID) VOLTAGE:
  Negative value (DC and peak): 100 max. volts
  Positive value (DC and peak): 25 max. volts
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.3 INPUT: 0.1 max. watt
GRID-No.2 INPUT:
  For grid-No.2 voltages up to 150 volts: 1 max. watt
  For grid-No.2 voltages between 150 volts and 300 volts: See Grid-No.2 Input Rating Chart at front of Receiving Tube Section
PLATE DISSIPATION: 1.7 max. watts

Maximum Circuit Values:

Grid-No.3-Circuit Resistance: 0.68 max. megohm
Grid-No.1-Circuit Resistance:
  For fixed-bias operation: 0.22 max. megohm
  For cathode-bias operation: 0.47 max. megohm

*a* At heater amperes = 0.450.
*b* At heater volts = 6.3.
*c* The dc component must not exceed 100 volts.
*d* Without external shield.
AVERAGE GRID-No.1 CHARACTERISTIC

E_t=6.3 VOLS
PLATE VOLTS=150
GRID-No.3 VOLTS=0
GRID-No.2 VOLTS=100

GRID-No.1 VOLTS

GRID-No.1 MILLIAMPERES

92CS-II004
AVERAGE CHARACTERISTICS

$E_T = 6.3$ VOLTS
PLATE VOLTS $= 150$
GRID-No. 2 VOLTS $= 100$

GRID-No. 1 VOLTS

PLATE MILLIAMPERES

92CM-11788
AVERAGE CHARACTERISTICS

$E_t = 6.3$ VOLTS
PLATE VOLTS = 150
GRID-No.2 VOLTS = 100

GRID-No.1 VOLTS

GRID-No.2 MILLIAMPERES

GRID-No.3 VOLTS $E_C = 3$

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