POWER PENTODE
FOR "ON-OFF" CONTROL APPLICATIONS INVOLVING
LONG PERIODS OF OPERATION UNDER CUTOFF CONDITIONS

GENERAL DATA

Electrical:
Heater, Pure Tungsten, for Unipotential Cathode:
Voltage ................ 6.3 ± 5% ac or dc volts
Current at 6.3 volts .. 0.65 amp
Direct Interelectrode Capacitances
(Approx. with no external shield):
Grid No.1 to Plate ........ 0.125 µf
Grid No.1 to Cathode and Heater .... 11.5 µf
Plate to Cathode and Heater .... 5.0 µf
Heater to Cathode ...... 8.5 µf

Characteristics, Class A Amplifier:
Heater Voltage .............. 6.3 volts
Plate Voltage .............. 250 volts
Grid No.3 ........ Connected to Cathode at Socket
Grid-No.2 Voltage .......... 150 volts
Grid-No.1 Voltage .......... -3 volts
Mu-Factor, Grid No.2 to Grid No.1 .... 22
Plate Resistance ............ 90000 ohms
Transconductance ............ 11000 µhos
Plate Current ................ 30 ma
Grid-No.2 Current .......... 7 ma
Maximum Plate Current for grid-No.1
voltage of -12 volts .... 100 µamp

Mechanical:
Mounting Position .......... Vertical; horizontal operation permitted if
pins No.3 and No.8 are in a vertical plane
Maximum Overall Length ...... 2-5/8"
Maximum Seated Length ...... 2-3/8"
Length, Base Seat to Bulb Top (Excluding tip) .... 2" ± 3/32"
Maximum Diameter ........... 7/8"
Bulb ......................... T-6-1/2
Base .................. Small-Button Noval 9-Pin (JETEC No.E9-1)

BOTTOM VIEW

Pin 1: Cathode
Pin 2: Grid No.1
Pin 3: Grid No.2
Pin 4: Heater
Pin 5: Heater
Pin 6: Plate
Pin 7: Grid No.3, Int. Shield
Pin 8: Grid No.2
Pin 9: Grid No.1

FREQUENCY DIVIDER IN COMPUTER SERVICE
and "ON-OFF" CONTROL SERVICE

Maximum Ratings, Absolute Values:
PLATE VOLTAGE ................ 300 max. volts
GRID-No.3 (SUPPRESSOR) VOLTAGE .... 0 max. volts

MARCH 1, 1954
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA
POWER PENTODE

GRID-No.2 (SCREEN) VOLTAGE ........... 250 max. volts
GRID-No.1 (CONTROL-GRID) VOLTAGE ....... -50 max. volts
PLATE DISSIPATION ................... 7.5 max. watts
GRID-No.2 INPUT .................... 2.5 max. watts
CATHODE CURRENT .................... 50 max. mA

PEAK HEATER-CATHODE VOLTAGE:
  Heater negative with respect to cathode .......... 180 max. volts
  Heater positive with respect to cathode .......... 180 max. volts

BULB TEMPERATURE (At hottest point on bulb surface) ....... 200 max. °C

Maximum Circuit Values:
Grid-No.1-Circuit Resistance:
  For fixed-bias operation ................ 0.1 max. megohm
  For cathode-bias operation .......... 0.5 max. megohm

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
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</thead>
<tbody>
<tr>
<td>Heater Current</td>
<td>1</td>
<td>0.61</td>
<td>0.69</td>
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<tr>
<td>Mu-Factor, Grid No.2 to Grid No.1</td>
<td>1.2</td>
<td>19</td>
<td>25</td>
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<td>Plate Current (1)</td>
<td>1.3</td>
<td>26</td>
<td>46</td>
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<tr>
<td>Plate Current (2)</td>
<td>1.4</td>
<td>20</td>
<td>40</td>
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<tr>
<td>Plate Current (3)</td>
<td>1.5</td>
<td>-</td>
<td>100</td>
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<tr>
<td>Grid-No.2 Current</td>
<td>1.4</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Reverse Grid-No.1 Current</td>
<td>1.6</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Heater-Cathode Leakage Current:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>1.7</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>1.7</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>Transconductance</td>
<td>1.4</td>
<td>9000</td>
<td>13000</td>
</tr>
</tbody>
</table>

Note 1: With 6.3 volts ac or dc on heater.
Note 2: With grid No.3 tied to cathode, grid No.2 tied to plate, plate voltage of 150 volts, grid-No.2 voltage of 150 volts, and grid-No.1 voltage of -3 volts.
Note 3: With plate voltage of 50 volts, grid No.3 tied to cathode, grid-No.2 voltage of 100 volts, and grid-No.1 voltage of 0 volts.
Note 4: With plate voltage of 250 volts, grid No.3 connected to cathode, grid-No.2 voltage of 150 volts, and grid-No.1 voltage of -3 volts.
Note 5: With plate voltage of 250 volts, grid No.3 connected to cathode, grid-No.2 voltage of 150 volts, and grid-No.1 voltage of -12 volts.
Note 6: With plate voltage of 250 volts, grid No.3 connected to cathode, grid-No.2 voltage of 150 volts, grid-No.1 supply voltage of -3 volts, and grid-No.1 resistor of 0.25 megohm.
Note 7: With 90 volts dc between heater and cathode.

* DC component must not exceed 90 volts.
AVERAGE PLATE CHARACTERISTICS WITH $E_{C2}$ AS VARIABLE

$E_F = 6.3$ VOLTS
GRID N$\#3$ CONNECTED TO CATHODE
GRID-N$\#1$ VOLTS = 0

GRID-N$\#2$ ($I_{C2}$) MILLIAMPERES

PLATE MILLIAMPERES ($I_B$)

0 10 20 30 40 50

0 500 300 200 100

DEC. 8, 1953

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92CM-8150
AVERAGE PLATE CHARACTERISTICS
WITH $E_{C1}$ AS VARIABLE

$E_C = 6.3$ VOLTS
GRID NO. 3 CONNECTED TO CATHODE
GRID NO. 2 VOLTS = 150

GRID NO. 1 ($I_{C1}$) MILLIAMPERES

PLATE ($I_B$) OR GRID NO. 2 ($I_{C2}$) MILLIAMPERES

DEC. 4, 1953
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92CM - 8285
AVERAGE CHARACTERISTICS

$E_F = 8.3$ VOLTS
PLATE VOLTS = 300
GRID #3 CONNECTED TO CATHODE

DEC. 4, 1953
TUBE DEPARTMENT
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AVG RMS PLATE CHARACTERISTICS
TRIODE CONNECTION

$E_f = 6.3$ VOLTS
GRID NO. 3 CONNECTED TO CATHODE
GRID NO. 2 CONNECTED TO PLATE

PLATE MILLIAMPERES
TUBE DEPARTMENT

DEC. 4, 1953
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92CM-8286