MECHANICAL DATA

Bulb: T-9
Base: E9-68
Outline: 9-69
Basing: 9LT
Cathode: Coated Unipotential
Mounting Position: Any

HEATER CHARACTERISTICS AND RATINGS

<table>
<thead>
<tr>
<th>Average Characteristics</th>
<th>10KU8 Series</th>
<th>6KU8 Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater Voltage</td>
<td>10.2 Volts</td>
<td>6.31 Volts</td>
</tr>
<tr>
<td>Heater Current</td>
<td>450 Ma</td>
<td>725 Ma</td>
</tr>
<tr>
<td>Heater Warm-up Time</td>
<td>11 Seconds</td>
<td>-</td>
</tr>
</tbody>
</table>

Ratings (Design Maximum Values)\textsuperscript{1}

<table>
<thead>
<tr>
<th>Min-Max</th>
<th>Min-Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage\textsuperscript{3}</td>
<td>5.7-6.9 Volts</td>
</tr>
<tr>
<td>Heater Current</td>
<td>420-480 Ma</td>
</tr>
<tr>
<td>Maximum Heater-Cathode Voltage</td>
<td>- - Ma</td>
</tr>
</tbody>
</table>

DIRECT INTERELECTRODE CAPACITANCES (Approximate)

- Pentode: Without Shield
  - Grid No. 1 to Plate: g1 to pp (Max.) 0.10 pf
  - Input: g1 to (h+pk, g3, is+g2*di k, is) 12.0 pf
  - Output: pp to (h+pk, g3, is+g2*di k, is) 3.0 pf

- Diodes
  - No. 1 Plate to all: #1 di p to (h+di k, is+pk, g3, is) 1.1 pf
  - No. 2 Plate to all: #2 di p to (h+di k, is+pk, g3, is) 1.1 pf

*From JEDEC release #4229, April 22, 1963*
DIRECT INTERELECTRODE CAPACITANCES (Approx.)

Diodes (Cont.)

Without Shield

Cathode to No. 1 Plate: di k, is to (h+/#/1 di p+pk, g3, is) 5.5 \(\mu\)F pf
Cathode to No. 2 Plate: di k, is to (h+/#2 di p+pk, g3, is) 5.5 \(\mu\)F pf

Coupling

Without Shield

Pentode Grid No. 1 to No. 1 Diode Plate (Max.) 0.003 pf
Pentode Grid No. 1 to No. 2 Diode Plate (Max.) 0.003 pf
Pentode Plate to No. 1 Diode Plate (Max.) 0.008 pf
Pentode Plate to No. 2 Diode Plate (Max.) 0.008 pf

RATINGS (Design-Maximum System)\(^4\)

Pentode Section

Plate Voltage 330 Volts
Grid No. 2 Supply Voltage 330 Volts Max.
Grid No. 2 Voltage See J5/Ch-2 Rating Chart
Positive Grid No. 1 Voltage 0 Volts Max.
Plate Dissipation 4.0 Watts Max.
Grid No. 2 Dissipation 1.1 Watts Max.
Grid No. 1 Circuit Resistance
  Fixed Bias 0.25 Megohm Max.
  Cathode Bias 1.0 Megohm Max.

Control grid to cathode spacing of the pentode section of this type is of such low order of magnitude as to preclude the use of voltage between these elements of more than 50 volts dc or peak ac in commercial tube checkers and shorts indicating devices, particularly where mechanical excitation of the tube is employed.

CHARACTERISTICS AND TYPICAL OPERATION

Pentode Section

Plate Voltage 200 Volts
Grid No. 2 Voltage 100 Volts
Grid No. 1 Voltage 0 Volts
Cathode Bias Resistor 82 Ohms
Plate Current 17 Ma
Grid No. 2 Current 3.5 Ma
Transconductance 20,000 \(\mu\)hos
Amplification Factor
Plate Resistance (Approx.) 50,000 Ohms
Ecl for Ib = 100 \(\mu\)A (Approx.) -5 Volts

INSTANTANEOUS PLATE KNEE CHARACTERISTICS\(^5\) (Pentode Section)

\(E_b = 50 \text{ Volts, } E_c^2 = 100 \text{ Volts and } E_{cl} = 0 \text{ Volts}\)
\(I_b = 55 \text{ Ma and } I_c^2 = 18 \text{ Ma}\)
DIODE CHARACTERISTICS (Each Diode)

Average Current with 10 Vdc Applied: 2.0 mA

NOTES:

1. For series/parallel operation of heaters, equipment should be designed that at normal supply voltage bogy tubes will operate at this value of heater current/voltage.

2. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

3. Heater voltage supply variations shall be restricted to maintain heater voltage/current within the specified values.

4. Design Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogy electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design maximum value for the intended service is exceeded with a bogy tube under the worst probable operating conditions with respect to supply voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

5. Applied for short interval (2 sec. max.) so as not to damage tube.
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

CURRENTS IN MA

PLATE VOLTAGE

EC2 = 125 VOLTS

Ef = RATED VALUE
EC1 = 0 VOLTS

100

75

20

10

0
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

J5/C4-2 RATING CHART

GRID NO. 2 DISSIPATION EXPRESSED AS PERCENT OF MAX GRID NO. 2 DISSIPATION RATING

GRID NO. 2 VOLTAGE EXPRESSED AS PERCENT OF MAX GRID NO. 2 SUPPLY VOLTAGE RATING