COMPACTRON TWIN PENTODE

DESCRIPTION AND RATING

The 6BN11 is a compactron containing two sharp-cutoff pentodes. It is intended primarily for intermediate-frequency amplifier service in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings:

Heater Voltage, AC or DC* . . . 6.3±0.6 Volts
Heater Current† . . . . . . . 0.8 Amperes
Direct Interelectrode Capacitances‡

Section 1

Grid-Number 1 to Plate: (1g1 to 1p) . 0.04 pf
Input: 1g1 to (h + 1k + 1g2 + 1g3 + 
2g3 + i.s.) . . . . . . . . 12 pf
Output: 1p to (h + 1k + 1g2 + 1g3 + 
2g3 + i.s.) . . . . . . . . 2.8 pf

Section 2

Grid-Number 1 to Plate: (2g1 to 2p) . 0.03 pf
Input: 2g1 to (h + 2k + 2g2 + 2g3 + 
lg3 + i.s.) . . . . . . . . 12 pf
Output: 2p to (h + 2k + 2g2 + 2g3 + 
lg3 + i.s.) . . . . . . . . 2.8 pf

Coupling

Cathode, Section 1 to Cathode,
Section 2: (1k to 2k), maximum 0.02 pf
Grid-Number 1, Section 1 to Plate,
Section 2: (1g1 to 2p), maximum 0.02 pf
Grid-Number 1, Section 2 to Plate,
Section 1: (2g1 to 1p), maximum 0.003 pf
Plate, Section 1 to Plate,
Section 2: (1p to 2p), maximum 0.01 pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Outline Drawing - EIA 9-58

Maximum Diameter . . . . 1.188 Inches
Minimum Diameter . . . . 1.062 Inches
Maximum Over-all Length . . 2.375 Inches
Maximum Seated Height . . . 2.000 Inches
Minimum Seated Height . . . 1.750 Inches

PHYSICAL DIMENSIONS

1.188" MAX.
1.062" MIN.

2.000" MAX.
1.750" MIN.

EIA 9-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Cathode (Section 2)
Pin 3 - Grid Number 1 (Section 2)
Pin 4 - Grid Number 2 (Screen) (Section 2)
Pin 5 - Plate (Section 2)
Pin 6 - Grid Number 3 (Suppressor) and Internal Shield (Section 2)
Pin 7 - Grid Number 1 (Section 1)
Pin 8 - Cathode (Section 1)
Pin 9 - Grid Number 2 (Screen) (Section 1)
Pin 10 - Grid Number 3 (Suppressor) and Internal Shield (Section 1)
Pin 11 - Plate (Section 1)
Pin 12 - Heater

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MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES, Each Section

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>330 Volts</td>
</tr>
<tr>
<td>Screen Supply Voltage</td>
<td>330 Volts</td>
</tr>
<tr>
<td>Screen Voltage - See Screen Rating Chart</td>
<td></td>
</tr>
<tr>
<td>Positive DC Grid-Number 1 Voltage</td>
<td>0 Volts</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>3.1 Watts</td>
</tr>
<tr>
<td>Screen Dissipation</td>
<td>0.65 Watts</td>
</tr>
<tr>
<td>Heater-Cathode Voltage</td>
<td></td>
</tr>
<tr>
<td>Heater Positive with Respect to Cathode</td>
<td></td>
</tr>
<tr>
<td>DC Component</td>
<td>100 Volts</td>
</tr>
<tr>
<td>Total DC and Peak</td>
<td>200 Volts</td>
</tr>
<tr>
<td>Heater Negative with Respect to Cathode</td>
<td></td>
</tr>
<tr>
<td>Total DC and Peak</td>
<td>200 Volts</td>
</tr>
<tr>
<td>Grid-Number 1 Circuit Resistance</td>
<td></td>
</tr>
<tr>
<td>With Cathode Bias</td>
<td>0.25 Megohms</td>
</tr>
</tbody>
</table>

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey 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 bogey 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.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS, Each Section

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>125 Volts</td>
</tr>
<tr>
<td>Suppressor, Connected to Cathode at Socket</td>
<td></td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>125 Volts</td>
</tr>
<tr>
<td>Cathode-Bias Resistor</td>
<td>56 Ohms</td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>0.2 Megohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>13000 Micromhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>11 Milliamperes</td>
</tr>
<tr>
<td>Screen Current</td>
<td>3.8 Milliamperes</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td></td>
</tr>
<tr>
<td>Tb = 20 Microamperes</td>
<td>-3 Volts</td>
</tr>
</tbody>
</table>

NOTES

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

§ With external shield (EIA 309) connected to cathode of section under test unless otherwise indicated.

¶ With external shield (EIA 309) connected to ground.
AVERAGE TRANSFER CHARACTERISTICS

E_t = RATED VALUE
E_b = 125 VOLTS
E_c3 = 0 VOLTS

Each section

TRANSDUCANCE IN MICROMHO

GRID-NUMBER 1 VOLTAGE IN VOLTS

MARCH 21, 1962