COMPACTRON
Dissimilar Double Pentode

The 6T10 is a compactron containing a sharp-cutoff, dual-control pentode (Section 2) and a power pentode (Section 1). The dual-control pentode is designed for use as an FM detector and the power pentode as an audio-frequency output amplifier in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings
Heater Voltage, AC or DC* . . . . . . . 6.3±0.6 Volts
Heater Current . . . . . . . . . . . . 0.95 Amperes
Direct Interelectrode Capacitances±

Section 1
Grid-Number 1 to Plate: (1g1 to 1p) . . 0.22 pf
Input: 1g1 to (h + 1k + 1g2 + b.p. + 2k + i.s.) . . . . . . . 11 pf
Output: 1p to (h + 1k + 1g2 + b.p. + 2k + i.s.) . . . . . . . 10 pf

Section 2
Grid-Number 1 to Plate: (2g1 to 2p) 0.032 pf
Grid-Number 3 to Plate: (2g3 to 2p) . . 3.0 pf
Grid-Number 1 to All Except Plate:
2g1 to (h + 2k + 2g2 + 2g3 + i.s.) . . 6.5 pf
Grid-Number 3 to All: 2g3 to (h + 2k + 2g1 + 2g2 + 2p + i.s.) . . 7.5 pf
Grid-Number 1 to Grid-Number 3:
(2g1 to 2g3) . . . . . . . . . . 0.12 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.

2.375" Max.

2.000" Max.
1.750" Min.

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Cathode and Internal Shield (Section 2)
Pin 3 - Grid Number 1 (Section 2)
Pin 4 - No Connection
Pin 5 - Grid Number 3 (Suppressor) (Section 2)
Pin 6 - Grid Number 2 (Screen) (Section 2)
Pin 7 - Plate (Section 2)
Pin 8 - Grid Number 1 (Section 1)
Pin 9 - Cathode and Beam Plates (Section 1)
Pin 10 - Grid Number 2 (Screen) (Section 1)
Pin 11 - Plate (Section 1)
Pin 12 - Heater

BASING DIAGRAM

EIA 12EZ

GENERAL ELECTRIC
Supersedes Pages 1 and 2 of 6T10 D and R Sheet dated 12-63
MAXIMUM RATING

DESIGN-MAXIMUM VALUES

Section 1
Plate Voltage: 275 Volts
Screen Voltage: 275 Volts
Plate Dissipation: 10 Watts
Screen Dissipation: 2.0 Watts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode
    DC Component: 100 Volts
    Total DC and Peak: 200 Volts
  Heater Negative with Respect to Cathode
    Total DC and Peak: 200 Volts
Grid-Number 1 Circuit Resistance
  With Fixed Bias: 0.25 Megohms
  With Cathode Bias: 0.5 Megohms

Section 2
Plate Voltage: 330 Volts
Suppressor Voltage: 28 Volts
Screen Supply Voltage: 330 Volts
Screen Voltage - See Screen Rating Chart
Positive DC Grid-Number 1 Voltage: 0 Volts
Plate Dissipation: 1.7 Watts
Screen Dissipation: 1.1 Watts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode
    DC Component: 100 Volts
    Total DC and Peak: 200 Volts
  Heater Negative with Respect to Cathode
    Total DC and Peak: 200 Volts

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 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

CLASS A1, AMPLIFIER

Section 1
Plate Voltage: 250 Volts
Screen Voltage: 250 Volts
Grid-Number 1 Voltage: -8.0 Volts
Peak AF Grid-Number 1 Voltage: 8.0 Volts
Plate Resistance, approximate: 10,000 Ohms
Transconductance: 0.6500 Micromhos
Zero-Signal Plate Current: 35 Milliamperes
Maximum-Signal Plate Current: 39 Milliamperes
Zero-Signal Screen Current: 2.5 Milliamperes
Maximum-Signal Screen Current: 7.0 Milliamperes
Load Resistance: 0.5000 Ohms
Total Harmonic Distortion, approximate: 10 Percent
Maximum-Signal Power Output: 4.2 Watts
CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

AVerAGE CHARACTERISTICS

Section 2

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>150 Volts</td>
<td></td>
</tr>
<tr>
<td>Suppressor Voltage</td>
<td>0 Volts</td>
<td></td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>100 Volts</td>
<td></td>
</tr>
<tr>
<td>Cathode-Bias Resistor</td>
<td>560 Ohms</td>
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</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>0.15 Megohms</td>
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<tr>
<td>Grid-Number 1 Transconductance</td>
<td>1000 Micromhos</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 3 Transconductance</td>
<td>400 Micromhos</td>
<td></td>
</tr>
<tr>
<td>Plate Current</td>
<td>1.3 Milliamperes</td>
<td></td>
</tr>
<tr>
<td>Screen Current</td>
<td>2.1 Milliamperes</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td>-4.5 Volts</td>
<td></td>
</tr>
<tr>
<td>Ib = 30 Microamperes</td>
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<td></td>
</tr>
<tr>
<td>Grid-Number 3 Voltage, approximate</td>
<td>-4.5 Volts</td>
<td></td>
</tr>
<tr>
<td>Ib = 50 Microamperes</td>
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</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.

‡ Without external shield.

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AVERAGE TRANSFER CHARACTERISTICS

SECTION 2

$E_I = \text{RATED VALUE}$
$E_B = 150 \text{ VOLTS}$
$E_{C3} = 0 \text{ VOLTS}$

SCREEN CURRENT IN MILLIAMPERES

GRID-NUMBER 1 VOLTAGE IN VOLTS

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky