TUNG-SOL
HEPTODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
FOR USE
AS A GATED AMPLIFIER IN
TELEVISION RECEIVERS
ANY MOUNTING POSITION

GLASS BULB
SMALL-BUTTON MINIATURE
7 PIN BASE E7-1
OUTLINE DRAWING
JEDEC 5-2

BOTTOM VIEW
BASING DIAGRAM
JEDEC 7CM

THE 56Y6 IS A PENTAGRID AMPLIFIER USING THE 7 PIN MINIATURE CONSTRUCTION. IT IS DESIGNED EXCLUSIVELY FOR USE AS A GATED AMPLIFIER IN 600 MA. SERIES HEATER OPERATED TV RECEIVERS. IN SUCH SERVICE, IT MAY BE USED AS A COMBINED SYNC SEPARATOR AND SYNC CLIPPER. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED. WITH THE EXCEPTION OF HEATER RATINGS, ITS CHARACTERISTICS ARE IDENTICAL TO THE 68Y6.

DIRECT INTERELECTRODE CAPACITANCES
WITH NO EXTERNAL SHIELD

GRID #4 TO PLATE (MAX.) 0.08 pf
GRID #3 TO PLATE (MAX.) 0.35 pf
GRID #1 TO GRID #5 (MAX.) 0.22 pf
GRID #4 TO ALL OTHER ELECTRODES AND HEATER 5.4 pf
GRID #3 TO ALL OTHER ELECTRODES AND HEATER 6.9 pf
PLATE TO ALL OTHER ELECTRODES AND HEATER 7.6 pf

HEATER CHARACTERISTICS AND RATINGS
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS
5.15 VOLTS 600 MA.

HEATER SUPPLY LIMITS:
CURRENT OPERATION 600±40 MA.

MAXIMUM HEATER-CATHODE VOLTAGE:
HEATER NEGATIVE WITH RESPECT TO CATHODE 200 VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE 200B VOLTS
HEATER WARM-UP TIME 11 SECONDS

MAXIMUM RATINGS
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239
GATED AMPLIFIER SERVICE

PLATE VOLTAGE 330 VOLTS
GRID #2 & #4 VOLTAGE SEE RATING CHART
GRID #2 & #4 SUPPLY VOLTAGE 330 VOLTS
GRID #1 VOLTAGE:
NEGATIVE BIAS VALUE 55 VOLTS
POSITIVE BIAS VALUE 0 VOLTS
POSITIVE PEAK VALUE 27 VOLTS

CONTINUED ON FOLLOWING PAGE
TUNO-SOL
CONTINUED FROM PRECEDING PAGE

MAXIMUM RATINGS - CONT’D.
DESIGN MAXIMUM VALUES - SEE EIA STANDARD RS-239
GATED AMPLIFIER SERVICE

GRID #1 VOLTAGE:
  NEGATIVE BIAS VALUE → 110 VOLTS
PLATE DISSIPATION → 2.3 WATTS
GRID #3 INPUT 0.1 WATT
GRIDS #2 & #4 INPUT:
  FOR GRIDS #2 & #4 VOLTAGES UP TO 165 VOLTS 1.1 WATTS
  FOR GRIDS #2 & #4 VOLTAGES BETWEEN 165 VOLTS AND 330 VOLTS SEE RATING CHART
GRID #1 INPUT 0.1 WATT
GRID #1 OR GRID #3 CIRCUIT RESISTANCE:
  FIXED BIAS OPERATION 0.5 MEGOHM
  CATHODE BIAS OPERATION 1.0 MEGOHM

TYPICAL OPERATING CHARACTERISTICS
CLASS A1 AMP LEFER

<table>
<thead>
<tr>
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<th>VALUE</th>
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<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>250</td>
</tr>
<tr>
<td>GRIDS #2 &amp; #4 VOLTAGE</td>
<td>100</td>
</tr>
<tr>
<td>GRID #3 VOLTAGE</td>
<td>-2.5</td>
</tr>
<tr>
<td>GRID #1 VOLTAGE</td>
<td>-2.5</td>
</tr>
<tr>
<td>GRID #3 TO PLATE TRANSCONDUCTANCE</td>
<td>500</td>
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<tr>
<td>GRID #1 TO PLATE TRANSCONDUCTANCE</td>
<td>1000</td>
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<tr>
<td>PLATE CURRENT</td>
<td>6.5</td>
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<tr>
<td>GRID #2 &amp; #4 CURRENT</td>
<td>9</td>
</tr>
<tr>
<td>GRID #3 VOLTAGE (APPROX.) FOR IB = 35 MA AND GRID #1 VOLS = -4</td>
<td>-15</td>
</tr>
<tr>
<td>GRID #1 VOLTAGE (APPROX.) FOR IB = 35 MA AND GRID #3 VOLS = 0</td>
<td>-12</td>
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SYNC SEPARATOR AND SYNC CLIPPER

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<thead>
<tr>
<th></th>
<th>VALUE</th>
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<tbody>
<tr>
<td>PLATE VOLTAGE</td>
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</tr>
<tr>
<td>GRID #3 VOLTAGE</td>
<td>0</td>
</tr>
<tr>
<td>GRID #2 &amp; #4 VOLTAGE</td>
<td>25</td>
</tr>
<tr>
<td>GRID #1 VOLTAGE</td>
<td>0</td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>1.4</td>
</tr>
<tr>
<td>GRID #2 &amp; #4 CURRENT</td>
<td>3.5</td>
</tr>
<tr>
<td>GRID #3 BIAS VOLTS (APPROX.) FOR PLATE VOLTAGE OF 25 VOLTS, GRIDS #2 &amp; #4 VOLTAGE OF 25 VOLTS, GRID #1 VOLTAGE OF 0 VOLTS AND PLATE CURRENT OF 50 MA</td>
<td>-2.5</td>
</tr>
<tr>
<td>GRID #1 BIAS VOLTAGE (APPROX.) FOR PLATE VOLTAGE OF 25 VOLTS, GRIDS #2 &amp; #4 VOLTAGE OF 25 VOLTS, GRID #3 VOLTAGE OF 0 VOLTS AND PLATE CURRENT OF 50 MA</td>
<td>-2.3</td>
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</table>

HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

THE DC COMPONENT MUST NOT EXCEED 100 VOLTS.

* INDICATES A CHANGE.
3BY6

$E_F = 3.15 \text{ Volts}$

$E_{C_1} = -25 \text{ Volts}$

$E_{C_2 & 4} = 100 \text{ Volts}$

**Grids #2 & 4 ($I_{C2 & 4}$) Milliamperes**

**Plate Volts**

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3BY6

$E_F = 3.15 \text{ Volts}$

$E_{C_1} = -25 \text{ Volts}$

$E_{C_2 & 4} = 100 \text{ Volts}$

**Plate (Ib) Milliamperes**

**Plate Volts**