TWIN TRIODE
MINIATURE TYPE

FOR MILITARY AND INDUSTRIAL
GENERAL PURPOSE APPLICATIONS

COATED UNIPOTENTIAL CATHODE
ANY MOUNTING POSITION

GLASS BULB
SMALL BUTTON
9 PIN BASE E9-1
OUTLINE DRAWING
JEDEC 6-2

THE 5814A IS A 9 PIN MINIATURE MEDIUM-MU TWIN TRIODE, WITH INDIVIDUAL CATHODE CONNEC-
TIONS. IT MAY BE USED FOR A WIDE VARIETY OF APPLICATIONS SUCH AS GENERAL PURPOSE
AMPLIFIER, OSCILLATOR OR MULTI-VIBRATOR. THE 5814A IS A SPECIAL QUALITY TUBE WHICH IS
RESISTANT TO SHOCK AND VIBRATION AND WILL TOLERATE LONG PERIODS OF OPERATIONS UN-
DER CUT-OFF CONDITIONS.

THIS TYPE IS SIMILAR TO THE ENTERTAINMENT TYPE 12AU7 EXCEPT FOR HEATER CURRENT.

DIRECT INTERELECTRODE CAPACITANCES
WITHOUT EXTERNAL SHIELD

GRID TO PLATE, EACH SECTION 1.5 pf
INPUT, EACH SECTION 1.6 pf
OUTPUT, SECTION 1 0.5 pf
OUTPUT, SECTION 2 0.4 pf

HEATER CHARACTERISTICS AND RATINGS

ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

SUPPLY CONNECTED TO PINS 4 AND 5 9 AND 4 + 5 VOLS
AVERAGE VALUES - VOLTAGE 12.6 6.3 VOLTS
- CURRENT 0.175 0.35 MA.

HEATER SUPPLY LIMITS:
VOLTAGE OPERATION 12.6±1.2 6.3±0.6 VOLTS

MAXIMUM HEATER CATHODE VOLTAGE:
HEATER POSITIVE WITH RESPECT TO CATHODE 100 VOLTS
HEATER NEGATIVE WITH RESPECT TO CATHODE 100 VOLTS

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MAXIMUM RATINGS
ABSOLUTE MAXIMUM VALUES - SEE EIA STANDARD RS-239

EACH SECTION

PLATE VOLTAGE
POSITIVE DC GRID VOLTAGE
NEGATIVE DC GRID VOLTAGE
PLATE DISSIPATION
DC GRID CURRENT
DC CATHODE CURRENT
BULB TEMPERATURE AT HOTTEST POINT
GRID CIRCUIT RESISTANCE
WITH FIXED BIAS
WITH CATHODE BIAS

330 VOLTS
0 VOLTS
55 VOLTS
3.0 WATTS
5.0 MA.
22 MA.
165 °C
0.5 MEGOHMS
1.0 MEGOHMS

CLASS A RESISTANCE-COUPLED AMPLIFIER
EACH SECTION

LOW IMPEDANCE DRIVE (APPROXIMATELY 200 OHMS)

<table>
<thead>
<tr>
<th>R_L</th>
<th>R_gf</th>
<th>E_bb = 90 Volts</th>
<th>E_bb = 180 Volts</th>
<th>E_bb = 300 Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R_k</td>
<td>E_o</td>
<td>Gain</td>
</tr>
<tr>
<td>0.10</td>
<td>0.10</td>
<td>3900</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>0.10</td>
<td>0.24</td>
<td>5000</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>0.24</td>
<td>0.24</td>
<td>9400</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>0.24</td>
<td>0.51</td>
<td>11000</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>0.51</td>
<td>0.51</td>
<td>19000</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>0.51</td>
<td>1.0</td>
<td>24000</td>
<td>19</td>
<td>11</td>
</tr>
</tbody>
</table>

HIGH IMPEDANCE DRIVE (APPROXIMATELY 100K OHMS)

<table>
<thead>
<tr>
<th>R_L</th>
<th>R_gf</th>
<th>E_bb = 90 Volts</th>
<th>E_bb = 180 Volts</th>
<th>E_bb = 300 Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R_k</td>
<td>E_o</td>
<td>Gain</td>
</tr>
<tr>
<td>0.10</td>
<td>0.10</td>
<td>2600</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>0.10</td>
<td>0.24</td>
<td>3400</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>0.24</td>
<td>0.24</td>
<td>7200</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>0.24</td>
<td>0.51</td>
<td>9400</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>0.51</td>
<td>0.51</td>
<td>17000</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>0.51</td>
<td>1.0</td>
<td>22000</td>
<td>20</td>
<td>12</td>
</tr>
</tbody>
</table>

1. E_o is maximum RMS voltage output for approximately 5% total harmonic distortion.

2. Gain is measured for an output voltage of two volts RMS.

3. R_k is in ohms; R_L and R_gf are in megohms.
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COUPLING CAPACITORS (C) SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE. R_L SHOULD BE ADEQUATELY BY-PASSED.

TYPICAL OPERATING CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>100</td>
<td>250</td>
<td>VOLTS</td>
</tr>
<tr>
<td>GRID VOLTAGE</td>
<td>0</td>
<td>-8.5</td>
<td>VOLTS</td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>11.8</td>
<td>10.5</td>
<td>MA</td>
</tr>
<tr>
<td>TRANSCONDUTANCE</td>
<td>3100</td>
<td>2200</td>
<td>μMHOs</td>
</tr>
<tr>
<td>AMPLIFICATION FACTOR</td>
<td>19.5</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>PLATE RESISTANCE, APPROXIMATE</td>
<td>6250</td>
<td>7700</td>
<td>OHMS</td>
</tr>
<tr>
<td>GRID VOLTAGE, APPROXIMATE</td>
<td>------</td>
<td>-22</td>
<td>VOLTS</td>
</tr>
<tr>
<td>( I_b = 10 \mu A M P S )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECIAL TESTS AND RATINGS

- STABILITY LIFE TEST
- SURVIVAL RATE LIFE TEST
- PULSE EMISSION RATINGS
- HEATER-CYCLING LIFE TEST
- SHOCK RATING: 40 G
- FATIGUE RATING: 2.5 G
- ALTITUDE RATING: 60,000 FEET

NOTE:

THE CONDITIONS FOR SOME OF THE INDICATED TESTS HAVE DELIBERATELY BEEN SELECTED TO AGGRAVATE TUBE FAILURES FOR TEST AND EVALUATION PURPOSES. IN NO SENSE SHOULD THESE CONDITIONS BE INTERPRETED AS SUITABLE CIRCUIT OPERATING CONDITIONS.

IN THE DESIGN OF MILITARY EQUIPMENT EMPLOYING THIS TUBE, REFERENCE SHOULD BE MADE TO THE LATEST ISSUE OF MIL-E-1.