I2E1

BEAM TETRODE

Indirectly heated—for parallel operation

GENERAL

The I2E1 is intended for use as a series or shunt control valve in stabilised power packs.

RATING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage (volts)</td>
<td>$V_h$</td>
<td>6.3</td>
</tr>
<tr>
<td>Heater Current (amps)</td>
<td>$I_h$</td>
<td>1.6</td>
</tr>
<tr>
<td>Maximum Anode Voltage (volts)</td>
<td>$V_{a(max)}$</td>
<td>800</td>
</tr>
<tr>
<td>Maximum Screen Voltage (volts)</td>
<td>$V_{gs(max)}$</td>
<td>300</td>
</tr>
<tr>
<td>Maximum Control Grid Voltage (volts)</td>
<td>$V_{g1(max)}$</td>
<td>-100</td>
</tr>
<tr>
<td>Maximum Voltage between $g_1$ and $g_2$ (volts)</td>
<td>$V_{g1-g2(max)}$</td>
<td>400</td>
</tr>
<tr>
<td>Mutual Conductance (mA/V)</td>
<td>$g_m$</td>
<td>14*</td>
</tr>
<tr>
<td>Inner $\mu$</td>
<td>$\mu_{g1,g2}$</td>
<td>5.3*</td>
</tr>
<tr>
<td>Maximum Anode Dissipation (watts)</td>
<td>$P_{a(max)}$</td>
<td>35</td>
</tr>
<tr>
<td>Maximum Screen Dissipation (watts)</td>
<td>$P_{gs(max)}$</td>
<td>5.0</td>
</tr>
<tr>
<td>Maximum Cathode Current (mA)</td>
<td>$I_k(max)$</td>
<td>300</td>
</tr>
<tr>
<td>Maximum Potential Heater/Cathode (volts D.C.)</td>
<td>$V_{h-k(max)}$</td>
<td>300†</td>
</tr>
</tbody>
</table>

* Taken at $V_a = V_{gs} = 150V$ $I_a = 200mA$.

† Provided the cathode is positive.

All maximum ratings are Absolute values not Design Centres.

INTER-ELECTRODE CAPACITANCES (pF)

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid/Earth</td>
<td>$c_{in}$</td>
<td>23.0</td>
</tr>
<tr>
<td>Anode/Earth</td>
<td>$c_{out}$</td>
<td>8.0</td>
</tr>
<tr>
<td>Anode/Grid</td>
<td>$c_{a,g1}$</td>
<td>0.85</td>
</tr>
</tbody>
</table>

"Earth" denotes the remaining earthy potential electrodes and heater joined to cathode.
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DIMENSIONS
Maximum Overall Length (mm) 146
Maximum Diameter (mm) 54
Maximum Seated Height (mm) 133
Approximate Nett Weight (ozs) 2½
Approximate Packed Weight (ozs) 7

MOUNTING POSITION—Vertical
If run horizontally then the axis AB must be on a horizontal plane.

BULB—Clear

TOP CAP—American miniature (CT 1)

BASE—International Octal (10B)

CONNECTIONS
Pin 1     No connection     NC
Pin 2     Heater            h
Pin 3     No connection     NC
Pin 4     Screen Grid      g₂
Pin 5     Control Grid     g₁
Pin 6     No connection     NC
Pin 7     Heater            h
Pin 8     Cathode           k
Top Cap   Anode            a
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AVERAGE CHARACTERISTIC CURVES
These curves were taken with a short duration
pulse of 12 μ sec. Pulse ratio 400:1. V(4)=150

--- Anode Current
--- Screen Current

ANODE & SCREEN CURRENT IN mA

December, 1961

Associated Electrical Industries Limited
Electronic Components Division
Tel.: GERRARD 9797
12E1

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[Diagram showing characteristics of a beam tetrode, with labels and curves indicating operational parameters such as 'Triode Connected', 'Curves taken with short duration pulse (1μsec pulse, pulse ratio 400:1)', and grid current starts at V_G ≈ -10 V approx.]
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