GENERAL

The 12E12 is a Pulse Modulator Tetrode, having a maximum anode dissipation of 60 watts, and a maximum peak anode current of 15 amps. It has an indirectly heated cathode, and is intended for use in Radar equipment.

RATING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>(volts)</td>
<td>$V_h$</td>
</tr>
<tr>
<td>Heater Current</td>
<td>(amps)</td>
<td>$I_h$</td>
</tr>
<tr>
<td>Maximum Anode Voltage</td>
<td>(kV)</td>
<td>$V_{a(max)}$</td>
</tr>
<tr>
<td>Maximum Screen Grid Operating Voltage</td>
<td>(kV)</td>
<td>$V_{g2(max)}$</td>
</tr>
<tr>
<td>Maximum Screen Grid Voltage (la = 0)</td>
<td>(kV)</td>
<td>$V_{g2(max)}$</td>
</tr>
<tr>
<td>Maximum Control Grid Voltage (Negative)</td>
<td>(volts)</td>
<td>$-V_{g1(max)}$</td>
</tr>
<tr>
<td>Maximum Control Grid Voltage (Positive Peak)</td>
<td>(volts)</td>
<td>$+V_{g1(pk)max}$</td>
</tr>
<tr>
<td>Maximum Anode Dissipation</td>
<td>(watts)</td>
<td>$P_{a(max)}$</td>
</tr>
<tr>
<td>Maximum Screen Dissipation</td>
<td>(watts)</td>
<td>$P_{g2(max)}$</td>
</tr>
<tr>
<td>Maximum Grid 1 Dissipation</td>
<td>(watts)</td>
<td>$P_{g1(max)}$</td>
</tr>
<tr>
<td>Maximum Peak Anode Current</td>
<td>(amps)</td>
<td>$I_{a(pk)max}$</td>
</tr>
<tr>
<td>Maximum Grid 1 Series Resistance</td>
<td>(kΩ)</td>
<td>$R_{g1}$</td>
</tr>
<tr>
<td>Minimum Screen Grid Series Resistance</td>
<td>(kΩ)</td>
<td>$R_{g2}$</td>
</tr>
</tbody>
</table>

* The Screen Grid should be decoupled to earth with a condenser.
† For a duty cycle not greater than 0.001. With peak currents in excess of 5 amps the product of peak current in amps and pulse duration in microseconds should not exceed 30.

Rating (Continued Overleaf)
EDISWAN
I2E12
PULSE MODULATOR TETRODE
TENTATIVE

The current-time product limit still applies for currents less than 5 amps, the maximum duty cycle then being limited by the anode dissipation.
The valve should not operate for longer than 5 \( \mu \)s in any 100 \( \mu \)s period.
A minimum cathode heating time of three minutes should elapse before any cathode current is drawn.
All Maximum Ratings are Absolute values not Design Centres.

INTER-ELECTRODE CAPACITANCES (pF)

\begin{align*}
\text{Anode/Grid 1 (max)} & : c_{a-g1} & : 2.0 \\
\text{Cathode/Grid 1} & : c_{g-k} & : 37 \\
\text{Anode/Cathode} & : c_{a-k} & : 7.5
\end{align*}

DIMENSIONS

\begin{align*}
\text{Maximum Overall Length (mm)} & : 150 \\
\text{Maximum Diameter (mm)} & : 65 \\
\text{Maximum Seated Height (mm)} & : 142 \\
\text{Approximate Nett Weight (ozs)} & : 5\frac{3}{4} \\
\text{Approximate Packed Weight(ozs)} & : 24
\end{align*}

MOUNTING POSITION—Vertical preferred, but if horizontal the grid plane should be vertical.

TYPICAL OPERATION—As Series Modulator.

\begin{align*}
\text{Anode Voltage Supply} & : (kV) \quad V_{a(b)} & : 9.5 \\
\text{Screen Voltage} & : (kV) \quad V_{g2} & : 1.2 \\
\text{Grid No. 1 Bias} & : (volts) \quad -V_{g1} & : -800 \\
\text{Grid No. 1 Pulse} & : (volts) \quad +V_{g1} & : 1,020 \\
\text{Anode Current Pulse} & : (amps) \quad I_{a(pk)} & : 10 \\
\text{Anode Load} & : (ohms) \quad R_a & : 800 \\
\text{Peak Pulse Power Input} & : (kW) \quad P_{in(pk)} & : 100 \\
\text{Peak Pulse Power Output} & : (kW) \quad P_{out(pk)} & : 80 \\
\text{Output Voltage} & : (kV) \quad V_{out} & : 8 \\
\text{Pulse Duration} & : (\mu \text{ secs}) \quad t_p & : 2 \\
\text{Pulse Repetition Frequency} & : (p/s) \quad \text{P.R.F.} & : 500
\end{align*}

April 1958

INDUSTRIAL
VALVE & CRT DIVISION

SIEMENS EDISON SWAN LIMITED
EDISWAN
I2E12
PULSE MODULATOR TETRODE
TENTATIVE

TOP CAP—CT3

BASE—B4A

Viewed from free end of pins

CONNECTIONS

<table>
<thead>
<tr>
<th>Pin</th>
<th>Connection</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heater</td>
<td>h</td>
</tr>
<tr>
<td>2</td>
<td>Screen Grid</td>
<td>g2</td>
</tr>
<tr>
<td>3</td>
<td>Control Grid</td>
<td>g1</td>
</tr>
<tr>
<td>4</td>
<td>Heater, Cathode</td>
<td>h,k</td>
</tr>
<tr>
<td>Top Cap</td>
<td>Anode</td>
<td>a</td>
</tr>
</tbody>
</table>

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All Dimensions in mm.

* Eccentricity with respect to centre line of base.
† Straight side of top cap.