MAZDA

30F5

HIGH SLOPE SCREENED H.F. PENTODE
Indirectly heated—for series operation

GENERAL

The 30F5 is intended for use as a straight television pentode and is suitable for AC/DC series operation.

RATING

Heater Current (amps) \( I_h \) 0.3
Heater Voltage (volts) \( V_h \) 7.3
Maximum Anode Voltage (volts) \( V_a(\text{max}) \) 250
Maximum Screen Voltage (volts) \( V_{g_2}(\text{max}) \) 250
Maximum Anode Dissipation (watts) \( P_a(\text{max}) \) 3§
Maximum Screen Dissipation (watts) \( P_{g_2}(\text{max}) \) 1§
Maximum Heater to Cathode Voltage (volts) (r.m.s.) \( V_{h-k}(\text{max}) \) 200†
Maximum Resistance Control Grid to Cathode (kΩ) \( R_{g-k}(\text{max}) \) 600‡
Mutual Conductance (mA/V) \( g_m \) 8.8*
Inner Amplification Factor \( V_{g_1,g_2} \) 55*

* At \( V_a = V_{g_2} = 170 \) volts. \( V_{g_1} = -1.85 \)
§ With a grid cathode resistance not exceeding 10,000 ohms
† From Cathode to higher potential heater pin
‡ With maximum anode dissipation 2 watts, maximum screen dissipation 0.5 watts and assuming a common anode and screen decoupling resistance of not less than 2,200 ohms ±10%

INTER-ELECTRODE CAPACITANCES (pF)

\[`
\begin{array}{lcc}
\text{Grid/Earth} & c_{in} & 9.0 & 10.3 \\
\text{Anode/Earth} & c_{out} & 4.4 & 5.7 \\
\text{Anode/Grid} & c_{g_1-a} & 0.0073 & 0.0077 \\
\end{array}`
\]

Inter-electrode Capacitances (continued overleaf)
"Earth" denotes the remaining earthy potential electrodes, shields and heater joined to cathode.

‡ Inter-electrode capacitances with holder capacitance balanced out.

§ Total inter-electrode capacity including B9A ceramic holder without skirt or radial shield (Carr Fastener holder type 77,076).

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Overall Length (mm)</td>
<td>67.5</td>
</tr>
<tr>
<td>Maximum Diameter (mm)</td>
<td>22.2</td>
</tr>
<tr>
<td>Maximum Seated Height (mm)</td>
<td>6.5</td>
</tr>
<tr>
<td>Approximate Nett Weight (ozs)</td>
<td>(\frac{1}{8})</td>
</tr>
<tr>
<td>Approximate Packed Weight (ozs)</td>
<td>1</td>
</tr>
</tbody>
</table>

**MOUNTING POSITION—Unrestricted.**

**TYPICAL OPERATION**

<table>
<thead>
<tr>
<th>Voltage/Current Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode Voltage (volts)</td>
<td>(V_a)</td>
</tr>
<tr>
<td>Screen Voltage (volts)</td>
<td>(V_{g_2})</td>
</tr>
<tr>
<td>Grid Bias Voltage (volts)</td>
<td>(V_{g_1})</td>
</tr>
<tr>
<td>Anode Current (mA)</td>
<td>(I_a)</td>
</tr>
<tr>
<td>Screen Current (mA)</td>
<td>(I_{g_2})</td>
</tr>
<tr>
<td>Mutual Conductance (mA/V)</td>
<td>(g_m)</td>
</tr>
<tr>
<td>Input Loss at 45 Mc/s (ohms)</td>
<td>(r_{g1-k(w)})</td>
</tr>
<tr>
<td>Equivalent grid noise resistance</td>
<td>(R_{eq})</td>
</tr>
</tbody>
</table>

* With grid circuit ONLY returned to pin 3
BULB—Clear

BASE—Noval (B9A)

Viewed from Free End of Pins

CONNECTIONS

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cathode</td>
<td>k</td>
</tr>
<tr>
<td>2</td>
<td>Control Grid</td>
<td>g1</td>
</tr>
<tr>
<td>3</td>
<td>Cathode</td>
<td>k</td>
</tr>
<tr>
<td>4</td>
<td>Heater</td>
<td>h</td>
</tr>
<tr>
<td>5</td>
<td>Heater</td>
<td>h</td>
</tr>
<tr>
<td>6</td>
<td>Shield</td>
<td>s</td>
</tr>
<tr>
<td>7</td>
<td>Anode</td>
<td>a</td>
</tr>
<tr>
<td>8</td>
<td>Screen Grid</td>
<td>g2</td>
</tr>
<tr>
<td>9</td>
<td>Suppressor Grid</td>
<td>g3</td>
</tr>
</tbody>
</table>
AVG CHARACTERISTIC CURVES: $I_a, I_{g2}/V_g$

$V_a = 250V.$
HIGH SLOPE SCREENED H.F. PENTODE
Indirectly heated—for series operation

AVERAGE CHARACTERISTIC CURVES: \( I_k/V_g \)
\( V_a = 250V \).
Screen to Anode Current Ratio = 26% (approx.)
EDISWAN
MAZDA
30F5
HIGH SLOPE SCREENED H.F. PENTODE
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AVERAGE CHARACTERISTIC CURVES: \( I_a, I_{g2}/V_g \)

[Graph showing anode and screen current characteristics for different grid voltages.]

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SIEMENS EDISON SWAN LIMITED
EDISWAN
MAZDA
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AVERAGE CHARACTERISTIC CURVES: \( g_m/V_g \)
\[ V_a = 250V. \]
EDISWAN
MAZDA
30F5
HIGH SLOPE SCREENED H.F. PENTODE
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AVERAGE CHARACTERISTIC CURVES: Ia, Ig2, Ig1/Vg

Used as a limiter in a synchronising separator circuit.
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MAZDA
30F5
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AVERAGE CHARACTERISTIC CURVES: \( I_a, I_{g2/V_a} \)
\( V_{g2} = 170V \).

[Graph showing anode and screen current at various anode voltages.]
HIGH SLOPE SCREENED H.F. PENTODE
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AVERAGE CHARACTERISTIC CURVES: $i_a, i_{g2}/v_a$
$V_{g1} = -1.0V.$
EDISWAN MAZDA 30F5
HIGH SLOPE SCREENED H.F. PENTODE
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Average Characteristic Curves: \( r_{in}, \gamma_m \delta c/Vg \)
\( f = 38 \) Mc/s
See also "Test Circuit" overleaf.
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MAZDA
30F5
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TEST CIRCUIT
for
Average Characteristics $r_{in}$, $g_m$ $\delta c/V_g$
$f = 38$ Mc/s.

+ $V_a (b)$
+ $V_{q2}(b)$

1KΩ
1.5KΩ

1000 pF

INPUT 1 MΩ

BIAS

1000 pF 1000 pF

October 1958
VALVE & CRT DIVISION
Issue 1/2

SIEMENS EDISON SWAN LIMITED