GENERAL

The 30L15 is a miniature based RF Double Triode having separate cathodes and shielded sections for use as a Cascode RF Amplifier in television receivers with AC/DC powered series connected heater chains.

RATING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Current</td>
<td>amps</td>
<td>Ih</td>
</tr>
<tr>
<td>Heater Voltage</td>
<td>volts</td>
<td>Vh</td>
</tr>
<tr>
<td>Maximum Anode Voltage</td>
<td>volts</td>
<td>V_a(max)</td>
</tr>
<tr>
<td>Maximum Anode Dissipation (either section)</td>
<td>watts</td>
<td>Pa(max)</td>
</tr>
<tr>
<td>Maximum Cathode Current (each section)</td>
<td>mA</td>
<td>I_k(max)</td>
</tr>
<tr>
<td>Maximum Grid Voltage (negative)</td>
<td>volts</td>
<td>-V_g1(max)</td>
</tr>
<tr>
<td>Maximum Grid to Cathode Resistance (Section 1)</td>
<td>kΩ</td>
<td>R_g-'k'(max)</td>
</tr>
<tr>
<td>Maximum Grid to Cathode Resistance (Section 2)</td>
<td>kΩ</td>
<td>R_g''-'k''(max)</td>
</tr>
<tr>
<td>Maximum Effective Grid to Earth Resistance (Section 2)</td>
<td>kΩ</td>
<td>R_g''-'E(max)</td>
</tr>
<tr>
<td>Mutual Conductance</td>
<td>mA/V</td>
<td>g_m</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td></td>
<td>μ</td>
</tr>
</tbody>
</table>

* With Grid Current Bias.
† With Potentiometer Bias from the HT line.
‡ Measured at V_a=90 V; I_a = 15 mA; V_g1 = −1.2 V.
## EDISWAN
### MAZDA
### 30L15
### CASCADE RF DOUBLE TRIODE
Indirectly heated— for series operation
### TENTATIVE

### INTER-ELECTRODE CAPACITANCES (pF)

<table>
<thead>
<tr>
<th></th>
<th>§</th>
<th>§§</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid ’/Cathode’, Heater, Shield</td>
<td>cg’-k’, h,s</td>
<td>3.1</td>
</tr>
<tr>
<td>Anode’/Cathode’, Heater, Shield</td>
<td>ca’-k’, h,s</td>
<td>3.6</td>
</tr>
<tr>
<td>Anode’/Cathode’, Heater, Shield</td>
<td>ca’-k’, h,s</td>
<td>1.9</td>
</tr>
<tr>
<td>Cathode’/Cathode’, Heater, Shield</td>
<td>ck’-k’, h,s</td>
<td>5.4</td>
</tr>
<tr>
<td>Anode’/Grid’</td>
<td>ca’-g’</td>
<td>1.5</td>
</tr>
<tr>
<td>Anode’/Cathode”</td>
<td>ca’-k”</td>
<td>0.19</td>
</tr>
<tr>
<td>Anode’/Anode”</td>
<td>ca’-a”</td>
<td>0.011</td>
</tr>
<tr>
<td>Grid’/Anode”</td>
<td>cg’-a”</td>
<td>0.0058</td>
</tr>
</tbody>
</table>

§ With holder capacity balanced out but with screening can.
§§ With screening can and ceramic holder. Plessey type CP/180024/3.

### DIMENSIONS

- Maximum Overall Length (mm) 56
- Maximum Diameter (mm) 22.2
- Maximum Seated Height (mm) 49
- Approximate Nett Weight (ozs) \(\frac{1}{3}\)
- Approximate Packed Weight (ozs) \(\frac{2}{3}\)

### MOUNTING POSITION—Unrestricted

April 1960

ASSOCIATED ELECTRICAL INDUSTRIES LTD.
RADIO & ELECTRONIC COMPONENTS DIVISION
**TYPICAL OPERATION**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Circuit 1</th>
<th>Circuit 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.T. Supply Voltage (volts) V_a(b)</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Anode Decoupling Resistor, Section 2 (ohms)</td>
<td>2200</td>
<td>3300</td>
</tr>
<tr>
<td>Anode Current (mA) I_a</td>
<td>15.3</td>
<td>14.8</td>
</tr>
<tr>
<td>Grid Bias Voltage, Section 1 (volts) V_g</td>
<td>-1.53</td>
<td>-1.2</td>
</tr>
<tr>
<td>Self Bias Resistor, Section 1 (ohms) R_k</td>
<td>100</td>
<td>82</td>
</tr>
<tr>
<td>Combined Mutual Conductance (ΔI_a/ΔV_g1) (mA/V) g_m</td>
<td>8.5</td>
<td>8.6</td>
</tr>
<tr>
<td>Approx. A.G.C. Voltage to give Mutual Conductance of 100μA/V (volts)</td>
<td>-7.0</td>
<td>-12.0</td>
</tr>
<tr>
<td>Input Capacitance (working) (pF) c_in(w)</td>
<td>6.0*</td>
<td>6.0*</td>
</tr>
<tr>
<td>Change in Input Capacitance by biasing to cut-off (pF) Δc_in(w)</td>
<td>1.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

* Inter-electrode capacity with holder capacity balanced out but with cylindrical screen can.

† With Potentiometer bias from the HT line for Valve Section 2.

‡ With Grid Current bias for Valve Section 2.

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RADIO & ELECTRONIC COMPONENTS DIVISION
EDISWAN
MAZDA
30L15
CASCODE RF DOUBLE TRIODE
Indirectly heated—for series operation
TENTATIVE

BASE—Noval (B9A)

Viewed from free end of pins

CONNECTIONS

Pin 1    Cathode 2    \( k^r \)
Pin 2    Grid 2, Shield    \( g^r, s \)
Pin 3    Anode 2    \( a^r \)
Pin 4    Heater    \( h \)
Pin 5    Heater    \( h \)
Pin 6    Grid 1    \( g' \)
Pin 7    Cathode 1 Input    \( k'n \)
Pin 8    Cathode 1 Output    \( k'out \)
Pin 9    Anode 1    \( a' \)

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ASSOCIATED ELECTRICAL INDUSTRIES LTD.
RADIO & ELECTRONIC COMPONENTS DIVISION
TYPICAL 30L15 CASCODE BIAS CIRCUITS

Circuit 1
Valve section 2, Potentiometer Bias arrangement.

C - DECOUPLING CONDENSERS

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ASSOCIATED ELECTRICAL INDUSTRIES LTD.

RADIO & ELECTRONIC COMPONENTS DIVISION
Circuit 2

Valve section 2, Grid Current Bias arrangement.

NOTE: Application of bias to section 1 in the Potentiometer Bias arrangement effectively controls both triodes giving this combination a shorter grid base than the Grid Current Bias arrangement.

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RADIO & ELECTRONIC COMPONENTS DIVISION
EDISWAN
MAZDA
30L15
CASCODE RF DOUBLE TRIODE
Indirectly heated—for series operation
TENTATIVE

CHARACTERISTIC CURVES: Ia/Vg
Each Section

ANODE CURRENT (mA)
GRID VOLTAGE (V)

Va=600V
Va=500V
Va=400V
Va=300V
Va=200V
Va=100V

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ASSOCIATED ELECTRICAL INDUSTRIES LTD.
RADIO & ELECTRONIC COMPONENTS DIVISION
EDISWAN
MAZDA
30L15
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TENTATIVE

CHARACTERISTIC CURVES: $I_a/V_a$
Each Section
CHARACTERISTIC CURVES: \( g_m/V_g \)
Each Section

GRID VOLTAGE (V)

MUTUAL CONDUCTANCE (m/A/V)

Va=75V
Va=125V
Va=90V

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RADIO & ELECTRONIC COMPONENTS DIVISION