**GENERAL DESCRIPTION**

Principal Application: The 19T8 is a miniature tube containing three high-pervenance diodes and a high-mu triode in the same envelope. One of the diodes has a separate cathode connection.

- Cathode: Coated Unipotential
- Heater Voltage (L-C or D-C): 10.9 Volts
- Heater Current: 0.15 Ampere
- Envelope: T-6½ Glass
- Base: 2D-1 Small Glass Suction 9-Pin Mounting Position: Any

The tube is designed for use as a combined AM and FM detector and audio-frequency amplifier. Except for heater rating, the 19T8 and the 6T8 are identical.

Direct interelectrode Capacitances:
- Triode Grid to Plate: 2.4 μF
- Triode Input: 1.5 μF
- Triode Output: 1.1 μF
- Grid to Each Diode Plate (Max): 0.03 μF
- Number 1 and Number 3 Diode Input (Each): 3.8 μF
- Number 2 Diode Input: 2.2 μF

**PHYSICAL DIMENSIONS**

![Physical Dimensions Diagram]

**TERMINAL CONNECTIONS**

Pin 1 - Number 3 Diode Plate
Pin 2 - Number 2 Diode Plate
Pin 3 - Number 2 Diode Cathode and Shield
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Number 1 Diode Plate
Pin 7 - Triode Cathode and Shield
Pin 8 - Triode Grid
Pin 9 - Triode Plate

**BASING DIAGRAM**

![Basing Diagram]

**MAXIMUM RATINGS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Design Center</th>
<th>Absolute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Diode Operation Current per Plate</td>
<td>5.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Peak heater-Cathode Voltage</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS AND TYPICAL OPERATION**

**CLASS A AMPLIFIER: TRIODE UNIT**

- Plate Voltage: 100 Volts
- Grid Bias Voltage: -1.0 Volts
- Plate Current: 0.8 Ampere
- Amplification Factor: 70
- Transconductance: 1300 Micromhos

**DIODE UNIT: EACH UNIT**

- Average Diode Current with 5 Volts D-C Applied: 20 Milliamperes

**Note:** In a ratio-detector circuit for FM, it is recommended that diodes number 2 and number 3 be used.

* Approximate values without external shield.
### Class A Resistance Coupled Amplifier

<table>
<thead>
<tr>
<th>Rp (Meg.)</th>
<th>Req (Meg.)</th>
<th>Rs (Meg.)</th>
<th>Eb (90 Volts)</th>
<th>Gm (in Ohms)</th>
<th>Rs (in Ohms)</th>
<th>Gain (in Volts)</th>
<th>Rp (in Ohms)</th>
<th>Gain (in Volts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>5700</td>
<td>21</td>
<td>7.0</td>
<td>2400</td>
<td>53</td>
<td>18</td>
</tr>
<tr>
<td>0.10</td>
<td>0.24</td>
<td>0.24</td>
<td>6000</td>
<td>26</td>
<td>9.0</td>
<td>2700</td>
<td>34</td>
<td>23</td>
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<tr>
<td>0.24</td>
<td>0.24</td>
<td>0.51</td>
<td>3100</td>
<td>10</td>
<td>4.0</td>
<td>4300</td>
<td>40</td>
<td>24</td>
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<tr>
<td>0.51</td>
<td>0.51</td>
<td>0.51</td>
<td>5000</td>
<td>14</td>
<td>5.0</td>
<td>7500</td>
<td>45</td>
<td>31</td>
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<tr>
<td>0.51</td>
<td>1.0</td>
<td>1.0</td>
<td>6000</td>
<td>16</td>
<td>7.0</td>
<td>9000</td>
<td>47</td>
<td>35</td>
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<tr>
<td>0.24</td>
<td>0.24</td>
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<td>7.0</td>
<td>9000</td>
<td>47</td>
<td>35</td>
</tr>
</tbody>
</table>

Notes: 1. Et is maximum RMS voltage output for five percent THD total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data generator impedance is negligible. *Value of Rp is non-critical.

### Average Plate Characteristics

![Graph showing plate characteristics](image-url)

**Electronics Department**

**General Electric**

Schenectady, N.Y.

ET-T472

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