DIODE TETRODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
HEATER
12.6 VOLTS 0.50 AMP.
AC OR DC
ANY MOUNTING POSITION

THE 12EM6 IS A COMBINED DETECTOR DIODE AND A TETRODE WITH A COMMON UNIPOTENTIAL CATHODE IN THE 9 PIN MINIATURE CONSTRUCTION. THE TETRODE SECTION IS INTENDED FOR USE AS A POWER AMPLIFIER WHERE THE HEATER, PLATE, AND SCREEN GRID POTENTIALS ARE OBTAINED DIRECTLY FROM AN AUTOMOTIVE BATTERY.

**RATINGS**
INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

- **HEATER VOLTAGE**: 12.6 VOLTS
- **MAXIMUM PLATE VOLTAGE (TETRODE)**: 30 VOLTS
- **MAXIMUM GRID #2 VOLTAGE**: 30 VOLTS
- **MAXIMUM PLATE DISSIPATION**: 0.5 WATTS
- **MAXIMUM GRID #1 CIRCUIT RESISTANCE**: 15 MEGOHMS
- **MAXIMUM HEATER CATHODE VOLTAGE**: ±30 VOLTS
- **MAXIMUM TETRODE PLATE CURRENT**: 10 MA.

**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**

**CHARACTERISTICS - CLASS A1 AMPLIFIER**

- **HEATER VOLTAGE**: 12.6 VOLTS
- **HEATER CURRENT**: 0.50 AMP.
- **PLATE VOLTAGE (TETRODE)**: 12.6 VOLTS
- **GRID #2 VOLTAGE**: 12.6 VOLTS
- **HEATER VOLTAGE**: 12.6 VOLTS
- **GRID #1 RESISTOR (BYPASSED)**: 2.2 MEGOHMS
- **PLATE CURRENT**: 6.0 MA.
- **GRID #2 CURRENT**: 1.0 MA.
- **TRANSCONDUCTANCE**: 5,000 UMHOS
- **PLATE RESISTANCE**: 4,000 OHMS
- **DIODE CURRENT WITH 10 VOLTS APPLIED**: 1.0 MA.

THIS TUBE IS INTENDED TO BE USED IN AUTOMOTIVE SERVICE FROM A NOMINAL 12 VOLT BATTERY SOURCE. THE HEATER IS THEREFORE DESIGNED TO OPERATE OVER THE 10.0 TO 15.9 VOLTAGE RANGE ENCOUNTERED IN THIS SERVICE. THE MAXIMUM RATINGS OF THE TUBE PROVIDE FOR AN ADEQUATE SAFETY FACTOR SUCH THAT THE TUBE WILL WITHSTAND THE WIDE VARIATION IN SUPPLY VOLTAGES.

→ INDICATES A CHANGE.

CONTINUED ON FOLLOWING PAGE

TUNG-SOL ELECTRIC INC. ELECTRON TUBE DIVISION BLOOMFIELD, NEW JERSEY, U.S.A., JUNE 1, 1961 PLATE #6194
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS - CONT'D.

TYPICAL OPERATION - CLASS A₁ AMPLIFIER

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>HEATER VOLTAGE</td>
<td>12.6 V</td>
</tr>
<tr>
<td>HEATER CURRENT</td>
<td>0.50 A</td>
</tr>
<tr>
<td>PLATE VOLTAGE (TETRODE)</td>
<td>12.6 V</td>
</tr>
<tr>
<td>GRID #2 VOLTAGE</td>
<td>12.6 V</td>
</tr>
<tr>
<td>GRID #1 VOLTAGE</td>
<td>--- V</td>
</tr>
<tr>
<td>AF GRID #1 VOLTAGE</td>
<td>1.0 VRMS</td>
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<tr>
<td>AF SIGNAL SOURCE RESISTANCE</td>
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<tr>
<td>LOAD RESISTANCE</td>
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<tr>
<td>PLATE CURRENT</td>
<td>2.5 MA</td>
</tr>
<tr>
<td>POWER OUTPUT</td>
<td>10 MW</td>
</tr>
<tr>
<td>TOTAL HARMONIC DISTORTION</td>
<td>10 %</td>
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</tbody>
</table>

*Obtained by grid #1 rectification with a 15 megohm grid resistor. The zero signal plate current is approx. 0.0 MA.*