AMPEREX TUBE TYPE 6GM8/ECC86

TENTATIVE DATA

The Amperex 6GM8/ECC86 is a frame grid, twin triode designed for low supply voltage applications. It is especially suitable for instrumentation and industrial applications as a direct-coupled wide band amplifier and for automobile radio sets as an RF amplifier and self-oscillating mixer. The tube can be directly operated from a storage battery.

PIN CONNECTIONS

1 - PLATE, TRIODE NO.2
2 - GRID, TRIODE NO.2
3 - CATHODE, TRIODE NO.2
4 - HEATER
5 - HEATER
6 - PLATE, TRIODE NO.1
7 - GRID, TRIODE NO.1
8 - CATHODE, TRIODE NO.1
9 - INTERNAL SHIELD

GENERAL CHARACTERISTICS

MECHANICAL

Maximum Dimensions
Bulb
Outline
Base
Basing
Mounting position

see outline drawing
T6½
6-2
E9-1
9DE
any

ELECTRICAL

Cathode
Heater voltage
Heater current
coated, unipotential
6.3 volts
330 mA

Direct Interelectrode Capacitances (Each Section)

Output
Input
Plate to grid
1.8 \( \mu F \)
3 \( \mu F \)
1.3 \( \mu F \)

Between the 2 sections

Plate to plate
Grid to grid
Plate section 1 to grid section 2
Plate section 2 to grid section 1
max. 0.05 \( \mu F \)
max. 0.005 \( \mu F \)
max. 0.005 \( \mu F \)
max. 0.005 \( \mu F \)
### Typical Characteristics (each section)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>6.3 volts</td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>0.4 volt</td>
</tr>
<tr>
<td>Plate current</td>
<td>0.9 mA</td>
</tr>
<tr>
<td>Transconductance</td>
<td>2600 micromhos</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>14</td>
</tr>
</tbody>
</table>

### Maximum Ratings (Design Center Values)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>max. 30 volts</td>
</tr>
<tr>
<td>Plate dissipation</td>
<td>max. 0.6 watt</td>
</tr>
<tr>
<td>Cathode current</td>
<td>max. 20 mA</td>
</tr>
<tr>
<td>Grid circuit resistance</td>
<td>max. 1 megohm</td>
</tr>
<tr>
<td>Voltage between cathode and heater</td>
<td>max. 30 volts</td>
</tr>
<tr>
<td>Circuit resistance between cathode and heater</td>
<td>max. 20,000 ohms</td>
</tr>
</tbody>
</table>

### Operating Characteristics as RF Amplifier (each section)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>6.3 12.6 25 volts</td>
</tr>
<tr>
<td>Grid supply voltage</td>
<td>0 0 0 volts</td>
</tr>
<tr>
<td>Grid circuit resistance</td>
<td>0.1 0.1 0.1 megohm</td>
</tr>
<tr>
<td>Plate current</td>
<td>0.9 2.5 7.5 mA</td>
</tr>
<tr>
<td>Transconductance</td>
<td>2600 4600 7800 micromhos</td>
</tr>
<tr>
<td>Internal resistance</td>
<td>5000 3400 2100 ohms</td>
</tr>
<tr>
<td>Equivalent noise resistance</td>
<td>1000 -- -- ohms</td>
</tr>
</tbody>
</table>

### Operating Characteristics As Self-Oscillating Mixer (each section)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate supply voltage</td>
<td>6.3 12.6 25 volts</td>
</tr>
<tr>
<td>Plate circuit resistance</td>
<td>500 500 500 ohms</td>
</tr>
<tr>
<td>Grid circuit resistance</td>
<td>0.22 0.22 0.22 0.22 micromhos</td>
</tr>
<tr>
<td>Oscillator voltage</td>
<td>0.7 1.0 1.5 volts (r.m.s.)</td>
</tr>
<tr>
<td>Plate Current</td>
<td>0.4 1.0 2.6 mA</td>
</tr>
<tr>
<td>Conversion transconductance</td>
<td>800 1300 2000 micromhos</td>
</tr>
<tr>
<td>Internal resistance</td>
<td>11000 8000 5300 micromhos</td>
</tr>
</tbody>
</table>
PLATE CHARACTERISTICS

GRID VOLTAGE (VOLTS)

PLATE VOLTAGE = 25 VOLTS
PLATE VOLTAGE = 12.6 VOLTS
PLATE VOLTAGE = 6.3 VOLTS

PLATE CURRENT (MILLIAMPERES)
TRANSCONDUCTANCE CHARACTERISTICS

GRID VOLTAGE (VOLTS)

TRANSCONDUCTANCE (MICROMHOS)

PLATE VOLTAGE = 25 VOLTS

PLATE VOLTAGE = 12.6 VOLTS

PLATE VOLTAGE = 6.3 VOLTS