SPECIAL QUALITY DOUBLE TRIODE

The 7119 is a special quality double triode with separate cathode connections especially designed for application in electronic computer circuits. The tube will maintain its emission capabilities after long periods of operation under cut-off conditions. The 7119 is not intended to be used in circuits critical as to hum, microphony and noise.

Mechanical data
Cathode coated, unipotential
Base E 9-1
Bulb T6 '1/2
Outline 6 - 3
Mounting position any
Basing designation 9H

TUBE OUTLINE

BOTTOM VIEW OF BASE

BASE PIN No.

1 Plate
2 Grid \{Triode no.2
3 Cathode
4 Heater
5 Heater
6 Cathode triode no.1
7 Grid triode no.1
8 Heater mid tap
9 Plate triode no.1

Heater data

Heater arrangement Series Parallel
Heater voltage 12.6 6.3 volts
Heater current 320 640±35 mamps

October 10th, 1958

from JEDEC release #2382, Feb. 9, 1959
### Direct interelectrode capacitances

<table>
<thead>
<tr>
<th></th>
<th>Triode no.1</th>
<th>Triode no.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate to cathode and heater</td>
<td>1.1 μF</td>
<td>1.0 μF</td>
</tr>
<tr>
<td>Grid to cathode and heater</td>
<td>5.8 μF</td>
<td>5.8 μF</td>
</tr>
<tr>
<td>Plate to grid</td>
<td>3.9 μF</td>
<td>4.0 μF</td>
</tr>
<tr>
<td>Cathode to heater</td>
<td>3.7 μF</td>
<td>3.7 μF</td>
</tr>
</tbody>
</table>

*Between the triode sections*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate to plate</td>
<td>0.6 μF</td>
</tr>
<tr>
<td>Grid to grid</td>
<td>max. 0.15 μF</td>
</tr>
</tbody>
</table>

### Maximum ratings (absolute limits; each section)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate voltage</td>
<td>300 volts max.</td>
</tr>
<tr>
<td>Plate voltage without current</td>
<td>600 volts max.</td>
</tr>
<tr>
<td>Plate dissipation</td>
<td>4.5 watts max.</td>
</tr>
<tr>
<td>Total plate dissipation of both sections</td>
<td>8 watts max.</td>
</tr>
<tr>
<td>Negative grid voltage</td>
<td>100 volts max.</td>
</tr>
<tr>
<td>Peak negative grid voltage (pulse time max. 10 μsec at a duty cycle of 1 %)</td>
<td>200 volts max.</td>
</tr>
<tr>
<td>Positive grid voltage</td>
<td>1 volt max.</td>
</tr>
<tr>
<td>Peak positive grid voltage (pulse time max. 10 μsec at a duty cycle of 1 %)</td>
<td>30 volts max.</td>
</tr>
<tr>
<td>Grid current</td>
<td>8 mamps max.</td>
</tr>
<tr>
<td>Peak grid current (pulse time max. 10 μsec at a duty cycle of 1 %)</td>
<td>200 mamps max.</td>
</tr>
<tr>
<td>Peak cathode current (pulse time max. 10 μsec at a duty cycle of 1 %)</td>
<td>400 mamps max.</td>
</tr>
<tr>
<td>Cathode current</td>
<td>60 mamps max.</td>
</tr>
<tr>
<td>Grid circuit resistance with automatic bias</td>
<td>1 megohm max.</td>
</tr>
<tr>
<td>Grid circuit resistance with fixed bias</td>
<td>0.5 megohm max.</td>
</tr>
<tr>
<td>Peak heater-to-cathode voltage (pulse time max. 10 μsec at a duty cycle of 1 %)</td>
<td>200 volts max.</td>
</tr>
<tr>
<td>D.C. component of heater-to-cathode voltage</td>
<td>120 volts max.</td>
</tr>
<tr>
<td>Bulb temperature #</td>
<td>160 centigrades max.</td>
</tr>
</tbody>
</table>

October 10th, 1958
**Typical characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Initial</th>
<th>End of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate voltage</td>
<td>120</td>
<td>150 volts</td>
</tr>
<tr>
<td>Grid voltage</td>
<td>-2</td>
<td>-14 volts</td>
</tr>
<tr>
<td>Plate current</td>
<td>36</td>
<td>max. 0.2 mamp</td>
</tr>
<tr>
<td>Transconductance</td>
<td>15000</td>
<td>micromhos</td>
</tr>
<tr>
<td>Amplification factor</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**Characteristic range values for equipment design**

- **Plate current at**
  - Plate voltage 90 volts
  - Grid current 250 µamps
  - Initial: 41, max: 62, min: 24 mamps

- **Plate current at**
  - Plate voltage 120 volts
  - Neg. grid voltage -2 volts
  - Initial: 26, max: 45 mamps

- **Plate current at**
  - Plate voltage 150 volts
  - Neg. grid voltage -14 volts
  - Initial: 0.2 mamps

- **Transconductance at**
  - Plate voltage 120 volts
  - Cathode resistor 55 Ω
  - Initial: 11200, max: 18800, min: 5600 micromhos

- **Negative grid current at**
  - Plate voltage 120 volts
  - Neg. grid voltage -2 volts
  - Grid series resistor 0.1 megohm
  - Initial: 0.2, max: 1 µamps

- **Cathode to heater leakage current at**
  - Cathode to heater voltage (cathode pos) 200 volts
  - Series resistor 1 megohm
  - Initial: 15, max: 30 µamps

- **Insulation resistance between two electrodes**
  - Initial: 100, max: 20 megohm

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*Tube life and reliability of performance will be enhanced by operation at lower temperatures*

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