SUBMINIATURE TETRODE THYRATRON

Subminiature tetrode inert gas-filled thyatron with negative control characteristic.

LIMITING VALUES (absolute ratings, not design centre)

It is important that these limits are never exceeded and such variations as mains fluctuations, component tolerances and switching surges must be taken into consideration in arriving at actual valve operating conditions.

Max. peak anode voltage
  Inverse 500 V
  Forward 500 V

Max. cathode current
  Peak 100 mA
  Average (max. averaging time 15s) 20 mA

Max. negative control-grid voltage
  Before conduction 200 V
  During conduction 10 V

Max. average positive control-grid current for anode voltage more positive than +10V (averaging time 1 cycle) 700 µA

Max. peak positive control-grid current during the time that the anode voltage is more positive than −10V 2.0 mA

Max. peak positive control-grid current during the time that the anode voltage is more negative than −10V 30 µA

Max. control-grid resistor
  *(Recommended min. control-grid resistor 100 kΩ) 10 MΩ

Max. negative shield-grid voltage
  Before conduction 100 V
  During conduction 5.0 V

Max. average positive shield-grid current for anode voltage more positive than −10V (averaging time 1 cycle) 700 µA

**Max. shield-grid resistor 1.0 MΩ

Max. peak heater to cathode voltage
  Cathode negative 25 V
  Cathode positive 100 V

Heater voltage limits 5.7 to 6.9 V

Min. valve heating time 10 s

Max. operating frequency 100 c/s

Ambient temperature limits −55 to +70 °C

*It is not desirable that the control-grid should be positive when the anode is more negative than −10V, but where this condition is unavoidable the control-grid resistor may need to be greater than the recommended minimum value.

**Where circuit conditions permit, the shield-grid should be connected directly to the cathode.
CHARACTERISTICS

**Electrical**

- Heater voltage: 6.3 V
- Heater current at 6.3V:
  - Average: 150 mA
  - Maximum: 165 mA
- Anode to control-grid capacitance: 0.08 pF
- Input capacitance: 1.1 pF
- Output capacitance: 1.2 pF
- Ionisation time (approx.): 0.5 µs
- Anode voltage drop: 11 V
- Critical control-grid current at $V_a = 350V_{r.m.s.}$: 0.2 µA

**Mechanical**

- Type of cooling: Convection
- Mounting position: Any

**Note**—Direct soldered connections to the leads of this valve must be at least 5mm from the seal and any bending of the valve leads must be at least 1.5mm from the seal.

- Max. net weight: \[
\begin{align*}
&0.1 \text{ oz} \\
&3.0 \text{ g}
\end{align*}
\]

**TYPICAL OPERATING CONDITIONS**

- Heater voltage: 6.3 V
- R.M.S. anode voltage: 150 V
- Shield-grid voltage: 0 V
- R.M.S. control-grid voltage: 5.0 V
  - (180° out of phase with anode voltage)
- *Peak control-grid signal voltage*: 5.0 V
- Control-grid circuit resistance: 1.0 MΩ
- Anode circuit resistance: 3.75 kΩ

*The frequency of the signal is high compared with 50c/s*
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CONTROL CHARACTERISTIC
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SPREAD OF CONTROL CHARACTERISTIC
SUBMINIATURE TETRODE
THYRATRON

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GRID ION CURRENT CHARACTERISTIC