THYRATRON TYPE WL-7299

The WL-7299 is a three-electrode, inert-gas-filled, grid-controlled thyratron with negative control characteristics. Cooling is by unrestricted air convection and characteristics remain essentially unchanged over a wide range of ambient temperatures. The WL-7299 is designed for application in industrial control circuits requiring a quick heating cathode. The WL-7299 is electrically similar to the WL-5878 and WL-7298.

**ELECTRICAL:**
- Cathode: Directly Heated Coated Filament
- Filament: Min. Bore Max. 2.37 2.50 2.63 Volts
- Current at Filament Voltage=2.5: 19.0 21.0 23.0 Amperes
- Heating Time: 60 - 100 Seconds
- Ionization Time: 1000 Volts
- Critical Anode Voltage at Grid: -4.0 -9.5 -15.0 Volts
- Critical Grid Voltage at Anode Voltage: -1300 Volts
- Interelectrode Capacitance (Approx.):
  - Anode to Grid: 1.0 uuf
  - Grid to Cathode: 28.0 uuf
  - Typical Arc Drop: 16 Volts
  - Control Characteristic: Negative

**MECHANICAL:**
- Mounting Position: Any
- Overall Height (Approx.): 6.5/16"
- Overall Diameter (Maximum): 2-3/8"
- Type of Cooling: Air, Unrestricted Convection
- Temperature Range: -55 to +70°C
- Bulb: T-18
- Anode Cap: JETEC C1-5
- Base: See Outline
- Net Weight (Approx.): 8 oz.
- Shipping Weight (Approx.): 2 lb.

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WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK from JEDEC release #2432, April 6, 1959
### Maximum Ratings

**Absolute Maximum Values:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Anode Voltage</td>
<td>1500 max. Volts</td>
</tr>
<tr>
<td>Forward</td>
<td>1500 max. Volts</td>
</tr>
<tr>
<td>Inverse</td>
<td>80 max. Amperes</td>
</tr>
<tr>
<td>Surge (Duration 0.10 Second or Less)</td>
<td>6.4 max. Amperes</td>
</tr>
<tr>
<td>Commutation Factor</td>
<td>1120 max. Amperes</td>
</tr>
<tr>
<td>Current Rate of Change</td>
<td>200 max. A/u/sec</td>
</tr>
<tr>
<td>Voltage Rate of Change</td>
<td>0.25 max. V/u/sec</td>
</tr>
<tr>
<td>Negative Control Grid Voltage</td>
<td>800 max. V/u/sec</td>
</tr>
<tr>
<td>Before Conduction</td>
<td>250 max. Volts</td>
</tr>
<tr>
<td>During Conduction</td>
<td>10 max. Volts</td>
</tr>
<tr>
<td>Average Positive Control Grid Current</td>
<td>0.20 max. Amperes</td>
</tr>
<tr>
<td>Averaging Time = 1 cycle</td>
<td>60 max. Volts</td>
</tr>
<tr>
<td>Operating Frequency</td>
<td>60 max. cps</td>
</tr>
</tbody>
</table>

### Notes

- **General**: These ratings are important in the prevention of "clean-up" or loss of the inert gas filling. Their observance will reduce the bombardment of anode or grid by positive ions of the gas filling, which may cause the gas ions to be absorbed in the tube element concerned.

- **All anode and grid returns should be made to the center of the filament transformer.**

- **Commutation factor is the product of the rate of current decay in amperes per microsecond just prior to the end of commutation and the rate of inverse voltage rise in volts per microsecond just after the end of commutation. Its value should not exceed the value given in order to reduce ion bombardment of the anode during the deionization period. Limits are given on both components of this factor to correspond to factory test data limits. The limit on current rate of change is about at the highest value which is allowable under the fault current limit.**

- **When the tube conducts, positive ions are attracted to a grid at negative potential. This positive ion current flowing through the grid resistor will reduce the negative voltage at the grid from the higher negative grid supply voltage. To reduce ion grid bombardment, sufficient resistance must be provided to drop the negative grid supply voltage to a value not more negative than 10 volts as shown in the ratings.**

- **This rating indicates the heat emission properties of the grid. This value of current may be safely drawn to the grid if conduction occurs only while the anode is positive. However, during the period of negative anode potential, the grid potential must also be negative to prevent electrons being drawn to the grid and generating positive ions which would bombard the anode.**

- **For higher frequency ratings, consult the tube manufacturer.**
CRITICAL GRID VOLTAGE

![Diagram showing critical grid voltage with peak anode volts on the y-axis and DC grid blocking volts on the x-axis, with regions labeled as certain conduction, critical range, and no conduction.]