THYRATRON TYPE WL-7363

The WL-7363 tube is a three-electrode, inert gas-filled thyatron with a negative control characteristic. This tube is designed primarily for inverter and industrial control applications.

**Electrical Characteristics:**
- Cathode: Directly Heated Coated Filament
- Filament Voltage: Min. 2.37, Max. 2.63 Volts
- Filament Current at Borey Voltage: 8.5 to 10 Amperes
- Filament Heating Time: 10 Seconds
- Critical Grid Voltage: See CE-A1088
- Grid Current Before Conduction: See CE-A1091
- Zero Anode Current: See CE-A1089
- Rated Anode Current: See CE-A1090
- Grid Current During Conduction: See CE-A1442
- Typical Deionization Time: 10 μsecond
- Ionization Time (approx.): 16 Volts
- Direct Inter-electrode Capacitances:
  - Anode-Grid Capacitance: 0.35 μF
  - Grid-Cathode Capacitance: 11.5 μF
  - Anode-Cathode Capacitance: 5.1 μF

**Mechanical Characteristics:**
- Type of Cooling: Air, convection
- Mounting Position: Any
- Cap, medium, ceramic insert: JEDEC C1-5
- Base: Medium 4-Pin Bayonet, Metal Shell JEDEC A4-10
- Basing: 4CF
- Bulb: T-12
- Net Weight (approx.): 3 oz
- Shipping Weight (approx.): 24 oz

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**Thyratron Section**

WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK

from JEDEC release #2432, April 6, 1959
MAXIMUM RATINGS

Absolute Maximum Values:

- **Peak Anode Voltage**
  - Forward: 1500 max. volts
  - Inverse: 1500 max. volts

- **Cathode Current**
  - Peak: 20 max. amp
  - Average: 1.6 max. amp

- **Fault (surge) maximum duration 0.1 sec:**
  - Connection (a): 240 max. amp
  - Connection (b): 120 max. amp
  - Connection (c): 120 max. amp
  - Maximum Average Time: 15 max. sec

- **Commutation Factor**: 10 max. \( \text{V} \)/\( \mu \text{sec} \)

- **Current Rate of Change**: 0.07 max. \( \text{amp} / \mu \text{sec} \)

- **Voltage Rate of Change**: 150 max. \( \sqrt{\text{V}} / \mu \text{sec} \)

- **Negative Control Grid Voltage**
  - Before Conduction: -250 max. volts
  - During Conduction: -10 max. volts

- **Average Positive Control Grid Current**
  - Averaging Time: 1 cycle: 5
  - Ambient Temperature Limits: -35 to +70 max. °C
  - Maximum Frequency: See CE-A1442

* These ratings are effective only when connections are made as shown in CE-A1103.

* 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.

- **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. The magnitude of the grid current during conduction is shown by the curves of CE-A1091.

§ 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.
CRITICAL GRID VOLTAGE

Peak Anode Voltage - Volts

D.C. Grid Voltage - Volts

Certain Conduction

No Conduction

CE-A1088
GRID CURRENT BEFORE CONDUCTION

Average Anode Current = 0 Amperes
TYPICAL RECOVERY TIME

Recovery Time - Microseconds

Peak Probe Volts

Tube Current

Tube Voltage

Re-ignition Curve

5 Amperes

Probe Pulse

-200 -100  0  100  200  300  400  500  600

-200 -100  0  100  200  300  400  500  600

10,000 ohms

50,000 ohms

500,000 ohms

CE-A1442

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