THYRATRON TYPE WL-7297

The WL-7297 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 on a wide range of ambient temperatures. The WL-7297 is designed for operation in industrial control and ignitor firing service. The WL-7297 is electrically similar to the WL-5877 and the WL-7031.

GENERAL DATA

ELECTRICAL:
- Cathode: Directly Heated Coated Filament
- Min. Bogege Min. Voltage: 2.37, 2.50, 2.63 Volts
- Current at Filament Volts = 2.5: 9.8, 10.8, 11.8 Amperes
- Heating Time: 30 seconds
- Decoupling Time: See CE-A1247
- Ionization Time: 10 usec
- Critical Anode Voltage at Grid: 100 Volts
- Critical Grid Voltage at Anode: Voltage of 1500 Volts. See CE-A1248-4.0 (-9.5 to -15.0 Volts)
- Inter-electrode Capacitance (Approx.):
  - Anode to Grid: 0.51 µf
  - Grid to Filament: 15.6 µf
  - Anode to Filament: 3.4 µf
- Typical Arc Drop: 16 Volts
- Control Characteristic: Negative

MECHANICAL:
- Mounting Position: Any
- Overall Height (Approx.): 5-7/8".
- Overall Diameter (Maximum): 2-3/16".
- Type of Cooling: Air, Unrestricted Convection
- Temperature Range: -55 to +70°C
- Bulb: T-13
- Anode Cap: JETEC C1-5
- Base: Lug Size and Location per JETEC A4-90
- Net Weight (Approx.): 5 oz.
- Shipping Weight (Approx.): 2 lb.

Thyatron Section

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

from JEDEC release #2354A, March 23, 1959
MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES:

Peak Anode Voltage:
- Forward: 1500 max. Volts
- Inverse: 1500 max. Volts

Anode Current:
- Peak: 40 max. Amperes
- Average (Averaging Time 15 Seconds): 3.2 max. Amperes
- Surge (Duration 0.01 Second, Max.): 560 max. Amperes
- Connection A: 560 max. Amperes
- Connection B: 280 max. Amperes
- Connection C: 280 max. Amperes
- Commutation Factor: 200 max. va/sec
- Current Rate of Change: 0.25 max. o/sec
- Voltage Rate of Change: 800 max. v/sec

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

Average Positive Control Grid Current:
- Averaging Time = 1 cycle: 0.20 max. Ampere

Operating Frequency:
- 60 max. cps

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.

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 delonization 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 limits.

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.

These ratings are effective when the anode return connections are made as shown in CE-A1103.
CRITICAL GRID VOLTAGE

DC Grid Blocking Volts

Peak Anode Volts

CERTAIN CONDUCTION

CRITICAL RANGE

NO CONDUCTION