THYRATRON TYPE WL-7298

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

**ELECTRICAL:**
- Cathode: Directly Heated Coated Filament
- Filament: Min. Boge Max.
  - Voltage: 2.37, 2.50, 2.63 Volts
  - Current at Filament: 19.0, 21.0, 23.0 Amperes
- Heating Time: 60 - 100 Seconds
- Ionization Time: 10 usec
- Critical Anode Voltage: 4.0, -9.5, -15.0 Volts
- Critical Grid Voltage: 4.0, -9.5, -15.0 Volts
- Inter-electrode Capacitance (Approx.):
  - Anode to Grid: 1.0 ufd
  - Grid to Cathode: 28.0 ufd
  - Typical Arc Drop: 16 Volts
  - Control Characteristic: Negative

**MECHANICAL:**
- Mounting Position: Any
- Overall Height (Approx.): 7.3/8" 7.3/8" 7.3/8" 7.3/8" 7.3/8" 7.3/8"
- Overall Diameter (Maximum): 2.3/8" 2.3/8" 2.3/8" 2.3/8" 2.3/8" 2.3/8"
- Type of Cooling: Air, Unrestricted Convection
- Temperature Range: -55 to +70°C
- Bulb: T-18
- Anode Gap: JETEC C1-5
- Base: JETEC A4-90
- Net Weight (Approx.): 8 oz.
- Shipping Weight (Approx.): 2 lb.

**BASE CONNECTIONS**
- G: Control Grid
- F: Filament
- P: Anode
- NC: No Connection

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WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK
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### MAXIMUM RATINGS

**ABSOLUTE MAXIMUM VALUES:**

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

- **Anode Current**
  - Peak: 80 max. Amperes
  - Average (Averaging Time 15 Seconds): 6.4 max. Amperes
  - Surge (Duration 0.10 Second or Less): 1120 max. Amperes

- **Commutation Factor**
  - Current Rate of Change: 0.25 max. a/usec
  - Voltage Rate of Change: 800 max. v/usec

- **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.

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 ionization 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 driven 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 manufacturers.**
CRITICAL GRID VOLTAGE

DC Grid Blocking Volts

Peak Anode Volts

1500
1250
1000
750
500
250
0
-16
-12
-8
-4
0
4
8

CERTAIN CONDUCTION
CRITICAL RANGE
NO CONDUCTION