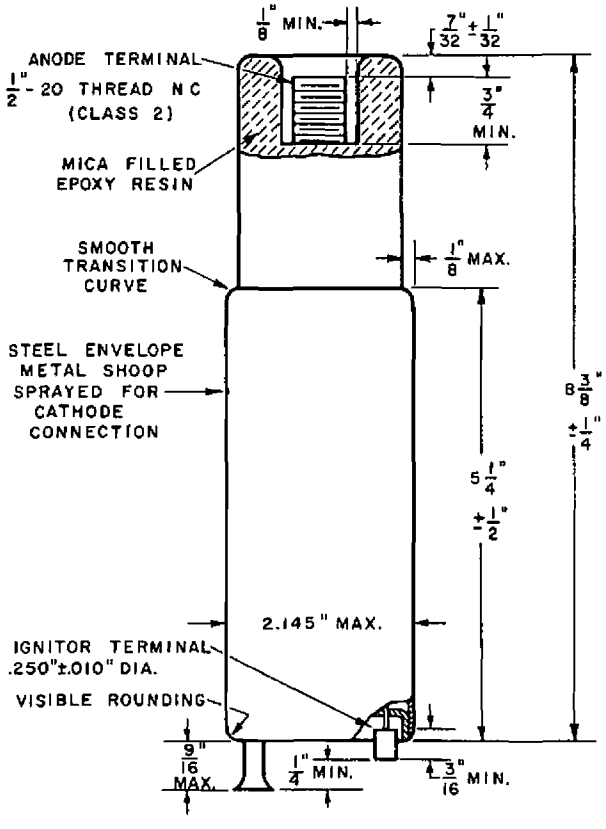
IGNITRON FOR CAPACITOR DISCHARGE SERVICE TYPE WL-8306

The WL-8306 is a sealed, steel envelope tube with Shoop sprayed area where contact is made to the cathode. The anode connection is a threaded stud. The combination is suitable for connection in low inductance, high current circuits as used in high current capacitor discharge circuits operating up to 15000 volts. In this service the tube will discharge up to 35000 amperes.

GENERAL

Number of Electrodes:

Anodes	1	
Cathodes	1	
Ignitors	1	
Ignitor Firing Circuit:		
Capacitor	0.5	μf
Capacitor Voltage	2.5	Kilovolts
Series Resistor	10	Ohms
Pulse Transformer Ratio (Note 1)	1/1	–
Firing Thyratron	Type 4C35	–



MECHANICAL

Mounting Position – Axis Vertical, Anode Lead up

Net Weight	3.7 lbs.
Shipping Weight	4.6 lbs.
Type of Cooling	Air or Liquid, By Clamp Around Tube
Clamp Temperature	10 to 30 °C
Cathode Temperature	35 max. °C
Anode Insulating Compound Temperature (Note 1)	70 max. °C

MAXIMUM RATINGS FOR CAPACITOR DISCHARGE

Peak Anode Voltage: (Note 2)		
Inverse	15000 max.	Volts
Forward (Note 3)	15000 max.	Volts
Anode Current:		
Peak	35000 max.	Ampere
Coulombs Per Discharge	18.6 max.	Amp. Sec.
Repitition Rate	2 max.	Per Minute
Rise Time		Note 4
Average Current	0.6 max.	Ampere

NOTES

1. The use of a pulse transformer in the ignitor circuit is optional. It may be used for isolation where desired. The capacitor size and voltage and other constants should be adjusted according to the transformer turns ratio. Values shown are for 1/1 ratio.

2. Before installing, mercury must be evaporated from the anode. During operation the anode must always be at higher temperature than the tube envelope. After operation the anode must cool more slowly than the envelope to insure that no mercury condenses on the anode. Initial anode heating may be done by screwing anode threaded connection into metal block heated to 140°C for six to eight hours. Lower portion of envelope must be cooled by water or other method to 25°C or less.

   The tube may be capable of conducting current in both directions until the oscillatory current becomes damped.

   The tube is unable to hold off this voltage immediately after conduction. From 1 to 10 seconds should elapse before voltage is applied again.

3. Forward voltage (Hold-off voltage) is the voltage to which the capacitors, being switched by the ignitron, are charged.

4. Rise time depends on circuit natural frequency up to about 0.5 Mc. At higher frequencies the anode voltage fall time (Figure 2) becomes a factor. The inductance of the tube is approximately 0.04 microhenry.

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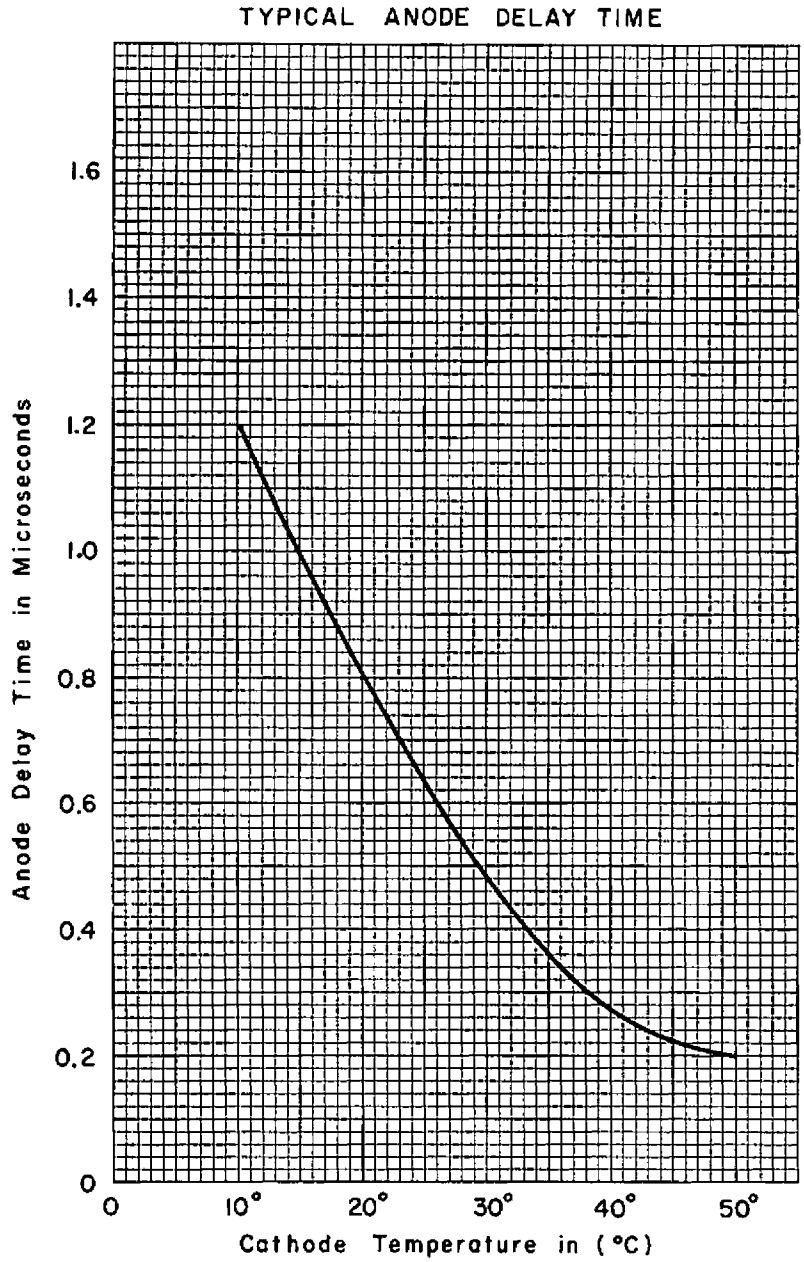

FIGURE 1

Anode Delay Time is the time from start of rise of ignitor signal voltage to reduction of anode voltage to 90% of the forward voltage.

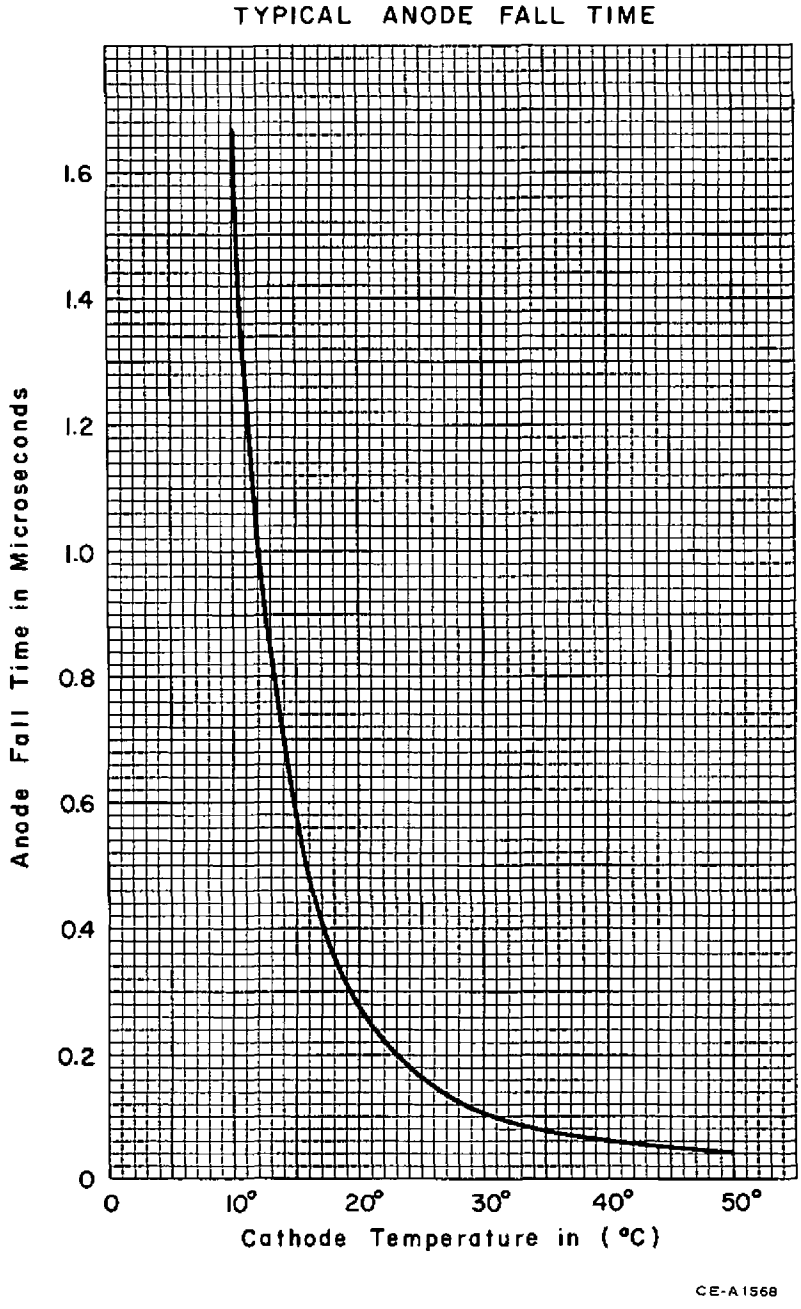

FIGURE 2

Anode Fall Time is the time for anode voltage to fall from 90% to 10% of the forward voltage.

TYPICAL JITTER

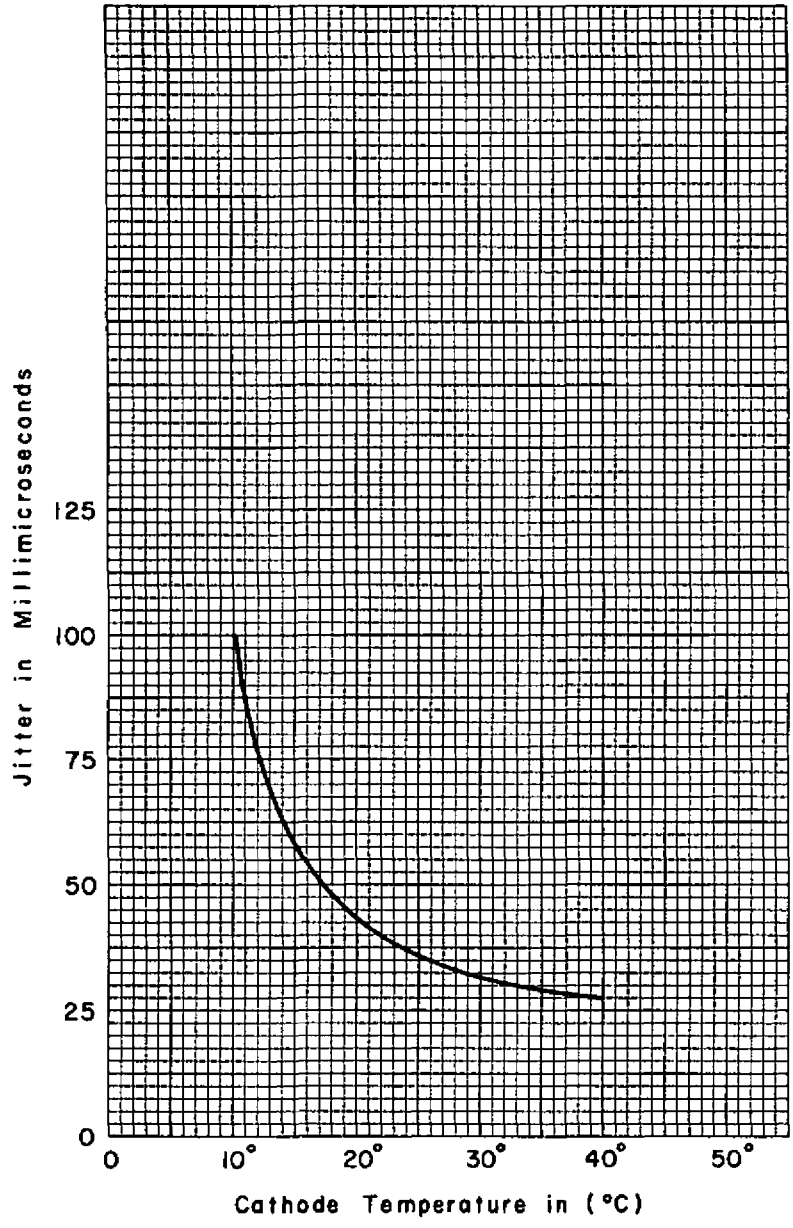

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FIGURE 3

Jitter is the variation in time for anode voltage to fall to 50% of the forward voltage, stated as a plus-minus value from the average.

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