engineering
TUBE DATA
Kuthe
ITT Components Division

TYPE 4C35 HYDROGEN THYRATRON

GENERAL DATA

DESCRIPTION:

The 4C35 is a unipotential cathode, three element hydrogen filled thyratron designed for network discharge service. In such service it is suitable for producing pulse outputs of more than 350 KW at an average power level of more than 400 watts.

The special features of the 4C35 include the high peak current and voltage ratings:

Electrical Data, General	Nom.	Min.	Max.	
Heater voltage	6.3	5.7	6.6	Volts a.c.
Heater current. E_h=6.3 volts		5.5	6.7	Amperes
Minimum heating time	3 Minutes			

Mechanical Data, General

Mounting position	Any
Base	Super Jumbo 4-pin with bayonet A4-18 with ceramic insert
Anode Cap	Medium Metal, C1-5 with corona flare
Cooling	Note 1
Net Weight	8 Ounces

Dimensions

See outline drawing

Ratings

Max. peak anode voltage, forward	8.0 Kilovolts
Max. peak anode voltage, inverse (Note 2)	8.0 Kilovolts
Min. anode supply voltage	2.5 Kilovolts d.c.
Max. peak anode current	90 Amperes
Max. average anode current	100 Milliamperes
Max. RMS anode current (Note 3)	3.0 Amperes a.c.
Max. epy x ib x prr	2.0 x 10^9
Max. anode current rate of rise	1000 Amperes/μsecond
Peak trigger voltage	Note 4
Max. peak inverse trigger voltage	200 Volts
Max. anode delay time (Note 5)	0.60 Microsecond
Max. anode delay time drift	0.10 Microsecond
Max. time jitter (Note 6)	0.01 Microsecond (initial) 0.02 μsecond (end of life)
Ambient temperature	—50° to +90° Cent.
Shock rating	24° Navy (Flyweight) shock machine

Printed in U.S.A. 1-60

(Continued)

ITT COMPONENTS DIVISION
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION
P. O. BOX 412, CLIFTON, NEW JERSEY

Typical Operation as Pulse Modulator, DC Resonant Charging

Peak network voltage	8.0 Kilovolts
Pulse repetition rate	2800 Pulses/second
Pulse length	0.40 Microsecond
Pulse forming network impedance	46.0 Ohms
Trigger voltage	200 Volts
Peak power output (Resistive load 92% Zn)	330 Kilowatts
Peak anode current	89 Amperes
Average anode current	0.10 Amperes d.c.

Note 1

Cooling is permitted. However, there shall be no air blast directly on the bulb.

Note 2

In pulsed operation, the peak inverse voltage, exclusive of a spike of 0.05 microsecond maximum duration shall not exceed 2.5 KV during the first 25 microseconds after the pulse.

Note 3

The root mean square anode current shall be computed as the square root of the product of the peak current and the average current.

Note 4

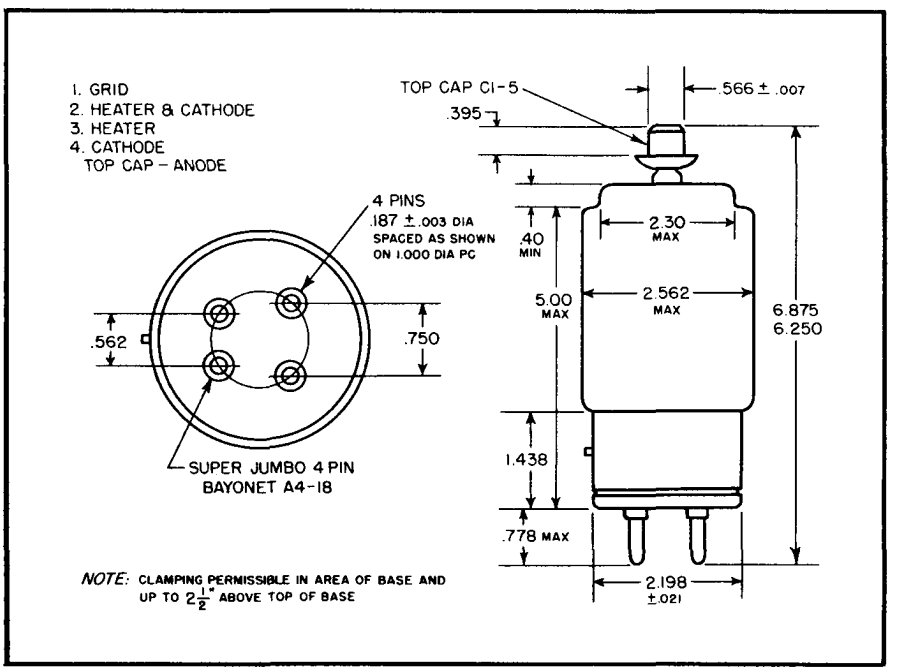
The voltage between grid and cathode terminals of the socket with the tube removed should have the following characteristics:

A. Voltage ..... 175-250 Volts
B. Duration ..... 2 Microseconds (at 70% points)
C. Source of impedance. 1500 Ohms (max.)
D. Rate of rise ..... 200 Volts/microsecond (min.)

The limits of anode time delay and anode time jitter are based on the minimum trigger. Using the highest permissible trigger voltage and lowest trigger source impedance materially reduces these values below the limits specified.

Note 5

The time of anode delay is measured between the 26 percent point on the rising portion of the unloaded grid voltage pulse and the point at which evidence of anode conduction first appears on the loaded grid pulse.

Note 6

Time jitter is measured at the 50 percent point on the anode current pulse.