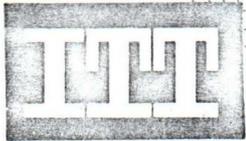


# engineering TUBE DATA

*Kuthe*



*Components Division*

## TYPE 3C45W HYDROGEN THYRATRON

### GENERAL DATA

#### DESCRIPTION:

The 3C45W 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 55 KW at an average power level of more than 65 watts.

The reduced size and ruggedized construction of the 3C45W make it ideal for applications requiring a high resistance to shock and vibration. This tube type equipped with a reservoir for long stable life has the electrical ratings of the type 3C45.

Electrical Data, General	Nom.	Min.	Max.
Heater voltage.....	6.3	5.9	6.7 Volts a.c.
Heater current, $E_h=6.3$ volts.....		2.2	2.7 Amperes
Minimum heating time.....	3 Minutes		

#### Mechanical Data, General

Mounting position.....	Any
Base.....	Per outline
Anode Cap.....	Small metal, C1-1
Cooling.....	Note 1
Net Weight.....	2.5 Ounces

#### Dimensions

See outline drawing

#### Ratings

Max. peak anode voltage, forward.....	3.0 Kilovolts
Max. peak anode voltage, inverse (Note 2).....	3.0 Kilovolts
Min. anode supply voltage.....	300 Volts d.c.
Max. peak anode current.....	35 Amperes
Max. average anode current.....	45 Milliampere
Max. RMS anode current (Note 3).....	1.25 Amperes a.c.
Max. $e_{py} \times i_b \times p_{rr}$ .....	$0.3 \times 10^9$
Max. anode current rate of rise.....	750 Amperes/ $\mu$ second
Peak trigger voltage.....	Note 4
Max. peak inverse trigger voltage.....	200 Volts
Max. anode delay time (Note 5).....	0.6 Microsecond
Max. anode delay time drift.....	0.15 Microsecond
Max. time jitter (Note 6).....	0.02 Microsecond (initial) 0.04 $\mu$ second (end of life)
Ambient temperature.....	-50° to + 90° Cent.



**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.....	3.0 Kilovolts
Pulse repetition rate.....	2500 Pulses/second
Pulse length.....	0.5 Microsecond
Pulse forming network impedance....	45.2 Ohms
Trigger voltage.....	200 Volts
Peak power output (Resistive load 92% Zn).....	47.2 Kilowatts
Peak anode current.....	35 Amperes
Average anode current.....	.044 Amperes d.c.

**Note 1**

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

**Note 2**

The peak inverse voltage should not exceed 1.5 KV during the first 25 microseconds after conduction.

**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.

