ELECTRON TUBE DEPARTMENT ■ COMPONENTS DIVISION
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY

KUTHE
3C45
HYDROGEN
THYRATRON

DESCRIPTION:

THE 3C45 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 SPECIAL FEATURES OF THE 3C45 INCLUDE THE HIGH PEAK VOLTAGE AND CURRENT RATINGS.

ELECTRICAL DATA, GENERAL:

	Nom.	Min.	Max.	
Heater Voltage	6.3	5.7	6.6	Volts a.c.
Heater Current (at 6.3 Volts)		2.0	2.5	Amperes
Minimum Heating Time			2	Minutes

MECHANICAL DATA, GENERAL:

Mounting Position		Any
Base	Medium 4 Pin Phenolic	Low-Loss A4-9
Anode Cap	Small Metal	C1-1
Cooling (Note 1)		
Net Weight	2.5	Ounces
Dimensions		See Outline

RATINGS:

Max. Peak Anode Voltage, Forward	3.0	Kilovolts
Max. Peak Anode Voltage, Inverse (Note 2)	3.0	Kilovolts
Min. Anode Supply Voltage	800	Volts d.c.
Max. Peak Anode Current	35	Amperes
Max. Average Anode Current	45	Milliamperes
Max. RMS Anode Current (Note 3)	1.25	Amperes a.c.
Max. epy X ib X prr	0.3×10^9	
Max. Anode Current Rate of Rise	750	Amperes/usecond
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	uSecond (end of life)
Ambient Temperature	-50° to +90°	Cent.

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 of the anode lead is permissible, but 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 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.

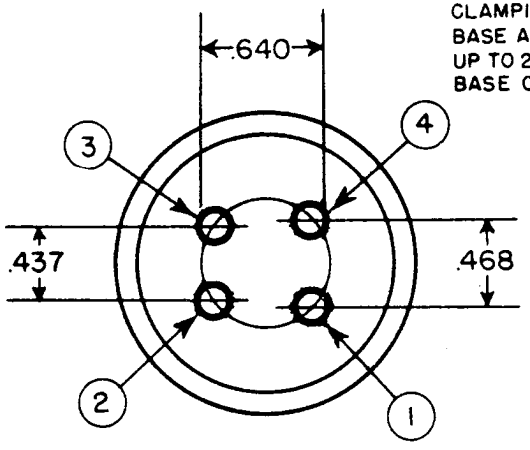
NOTE 6:

TIME JITTER IS MEASURED AT THE 50 PERCENT POINT ON THE ANODE CURRENT PULSE.

ADDITIONAL INFORMATION FOR SPECIFIC APPLICATIONS CAN BE OBTAINED FROM THE

ELECTRON TUBE APPLICATIONS SECTION
ITT COMPONENTS DIVISION
POST OFFICE BOX 412
CLIFTON, NEW JERSEY

1. HEATER
2. CATHODE
3. GRID
4. HEATER & CATHODE



MEDIUM 4-PIN A4-9
LOW LOSS PHENOLIC BASE

CLAMPING IS PERMITTED BY THE BASE AND/OR BULB IN THE AREA UP TO 2" ABOVE TOP OF THE BASE ONLY