ITT ELECTRON TUBE DIVISION
BOX 100 EASTON, PA. 18043
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

KUTHE
8424 *
HYDROGEN
THYRATRON

DESCRIPTION:

THE 8424 IS A UNIPOTENTIAL CATHODE, 3 ELEMENT HYDROGEN FILLED THYRATRON DESIGNED FOR NETWORK DISCHARGE SERVICE. IN SUCH SERVICE, IT IS SUITABLE FOR PRODUCING PULSE OUTPUTS OF MORE THAN 1.5 MEGAWATTS AT AN AVERAGE POWER LEVEL OF MORE THAN 1.2 KW.

THE 8424 IS EQUIPPED WITH RESERVOIR FOR LONG STABLE LIFE AND IS ESPECIALLY ADAPTED TO OPERATION AT HIGH PULSE REPETITION RATES.

ELECTRICAL DATA, GENERAL:	NOM.	MIN.	MAX.	
HEATER VOLTAGE	6.3	5.9	6.7	VOLTS A.C.
HEATER CURRENT (AT 6.3 VOLTS)		9.6	11.6	AMPERES
MINIMUM HEATING TIME			5	MINUTES

MECHANICAL DATA, GENERAL:

MOUNTING POSITION	ANY
BASE	SUPER JUMBO 4-PIN WITH BAYONET A4-18 WITH CERAMIC INSERT C1-43, MEDIUM, WITH CORONA SHIELD
ANODE CAP	
COOLING (NOTE 1)	
NET WEIGHT	12 OUNCES
DIMENSIONS	SEE OUTLINE

* FORMERLY OUR KU-25

RATINGS:

Max. Peak Anode Voltage, Forward	12.0	Kilovolts
Max. Peak Anode Voltage, Inverse (Note 2)	12.0	Kilovolts
Min. Anode Supply Voltage	3.5	Kilovolts d.c.
Max. Peak Anode Current	300	Amperes
Max. Average Anode Current	200	Milliamperes
Max. RMS Anode Current (Note 3)	7.75	Amperes a.c.
Max. epy x ib x prr	3.8×10^9	
Max. Anode Current Rate of Rise	1250	Amperes/μSecond
Peak Trigger Voltage (Note 4)		
Max. Peak Inverse Trigger Voltage	200	Volts
Max. Anode Delay Time (Note 5)	0.65	Microsecond
Max. Anode Delay Time Drift	0.10	Microsecond
Max. Time Jitter (Note 6)	0.005	Microsecond
Ambient Temperature	-50° to +90°	Cent.
Shock Rating	13°	Navy (Flyweight) Shock Machine

TYPICAL OPERATION AS PULSE MODULATOR, DC RESONANT CHARGING:

Peak Network Voltage	12.0	Kilovolts
Pulse Repetition Rate	2500	Pulses/Second
Pulse Length	0.4	Microsecond
Pulse Forming Network Impedance	48	Ohms
Trigger Voltage	200	Volts
Peak Power Output (Resistive Load 92% Zn)	736	Kilowatts
Peak Anode Current	130	Amperes
Average Anode Current	0.13	Amperes d.c.
Grid Bias	-50	Volts D.C.

Note 1:

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

Note 2:

During the first 25 microseconds after conduction, the peak inverse anode voltage shall not exceed 5.0 KV.

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 pulse produced by the driver circuit shall have the following characteristics when viewed at the 8424 socket with the grid of the tube disconnected:

A.	Voltage	200-300 Volts
B.	Duration	2 Microseconds (at 70% points min.)
C.	Rate of Rise	200 Volt/microsecond (min.)
D.	Impedance	50-500 Ohms (max.)

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:

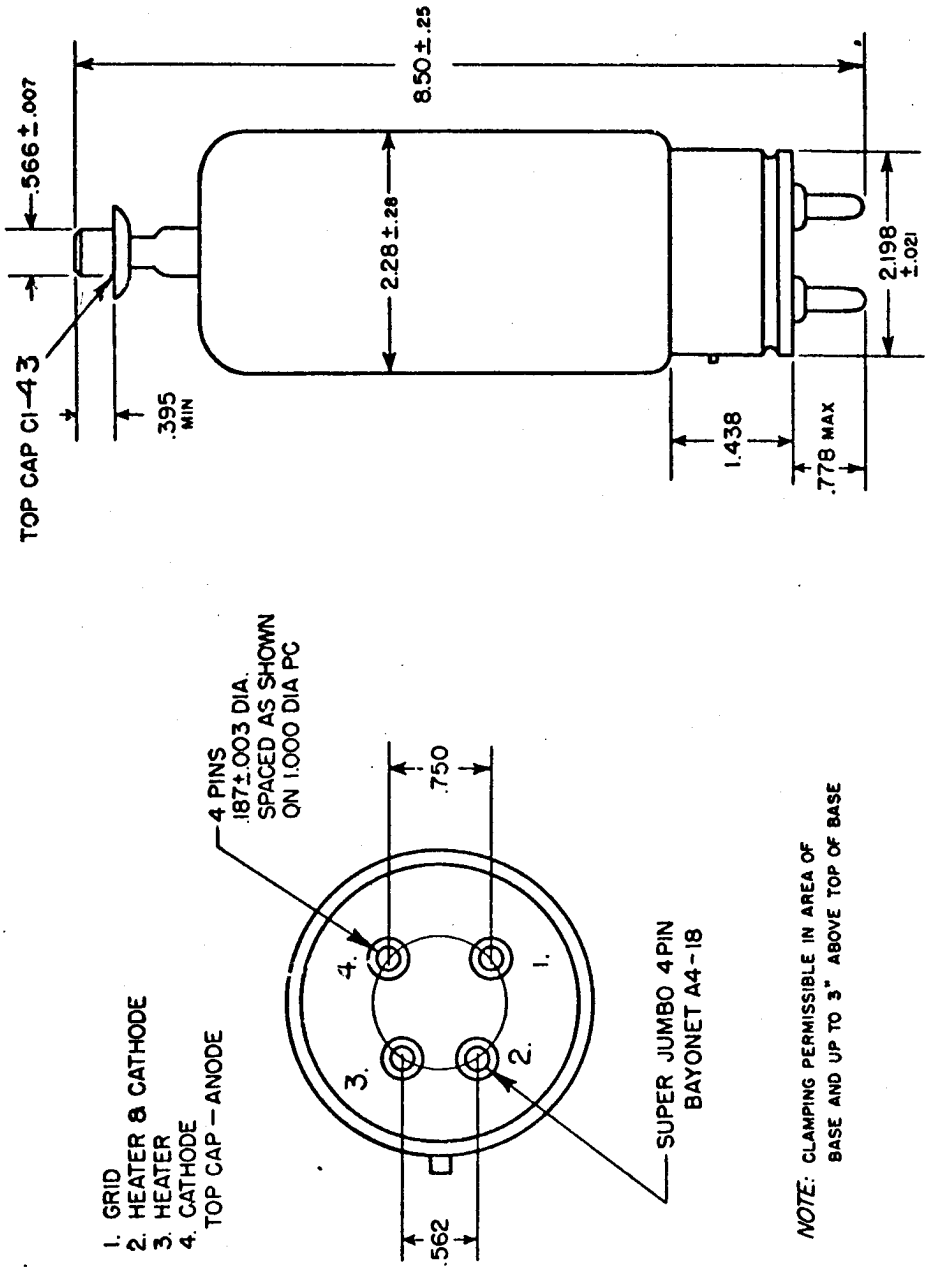
The time of anode delay is measured between the 26 percent point on the rising portion of the unloaded grid voltage pulse and the point at which evidence of anode conduction first appears on the loaded grid pulse.

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 Electron Tube Division
Post Office Box 104
Clifton, New Jersey



OUTLINE 8424