



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

KUTHE
4C35A
HYDROGEN
THYRATRON

DESCRIPTION:

THE 4C35A IS A UNIPOTENTIAL CATHODE, THREE ELEMENT HYDROGEN FILLED THYRATRON DESIGNED FOR NETWORK DISCHARGE SERVICE. THE SPECIAL FEATURES OF THE 4C35A ARE ITS LOW JITTER AND HIGH POWER OUTPUT. PEAK POWERS OF 350 KILOWATTS ARE REALIZED WITH THIS THYRATRON.

THE HYDROGEN RESERVOIR WITH WHICH THIS TUBE IS EQUIPPED PROVIDES A LONG STABLE OPERATING AND SHELF LIFE.

ELECTRICAL DATA, GENERAL:

	<u>NOM.</u>	<u>MIN.</u>	<u>MAX.</u>	
HEATER VOLTAGE	6.3	5.7	6.6	VOLTS A.C.
HEATER CURRENT (AT 6.3 VOLTS)		5.5	6.7	AMPERES
MINIMUM HEATING TIME			3	MINUTES

MECHANICAL DATA, GENERAL:

MOUNTING POSITION
BASE

ANY
SUPER JUMBO 4-PIN WITH BAYONET
A4-18 WITH CERAMIC INSERT
C1-43, MEDIUM, WITH CORONA SHIELD

ANODE CAP
COOLING (NOTE 1)
NET WEIGHT
DIMENSIONS

8 OUNCES
SEE OUTLINE

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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/USECOND	
PEAK TRIGGER VOLTAGE (NOTE 4)			
MAX. PEAK INVERSE TRIGGER VOLTAGE	200	VOLTS	
	<u>INITIAL</u>	<u>END OF LIFE</u>	
	<u>LIMIT</u>	<u>LIMIT</u>	
MAX. ANODE DELAY TIME (NOTE 5)	0.6	0.7	MICROSECOND
MAX. ANODE DELAY TIME DRIFT	0.1	0.1	MICROSECOND
MAX. TIME JITTER (NOTE 6)	0.01	0.02	MICROSECOND
AMBIENT TEMPERATURE		-50° TO 90°	CENT.
SHOCK RATING		24°	NAVY (FLYWEIGHT)
			SHOCK MACHINE

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	46.9	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 PERMITTED. HOWEVER, THERE SHALL BE NO AIR BLAST DIRECTLY ON THE BULB.

NOTE 2:

IN PULSED OPERATION, THE PEAK INVERSE VOLTAGE, EXCLUSIVE OF 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

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:

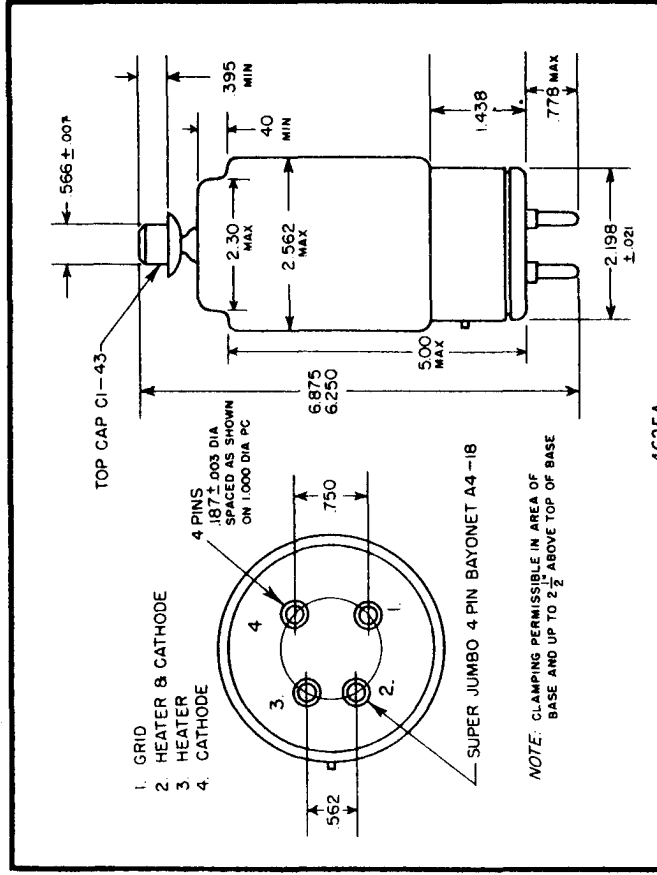
TIME JITTER IS MEASURED AT THE 50 PERCENT POINT ON THE ANODE CURRENT PULSE.

ADDITIONAL INFORMATION FOR SPECIFIC APPLICATIONS CAN BE OBTAINED FROM THE

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



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INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY



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