



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	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	8 OUNCES
DIMENSIONS	SEE OUTLINE

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
	INITIAL	END OF LIFE	
	<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 190°	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:

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|------------------------|--------------------------------|
| 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.

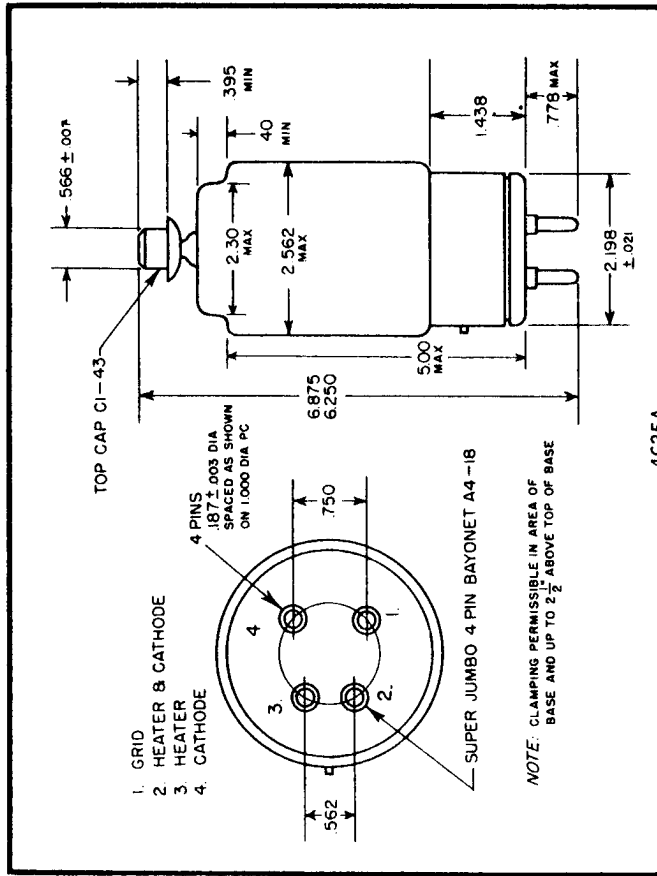
NOTE 6:

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





4C35A