



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

KUTHE
6130
HYDROGEN
THYRATRON

DESCRIPTION:

THE 6130 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 AS AN AVERAGE POWER LEVEL OF MORE THAN 65 WATTS.

THE ELECTRICAL CHARACTERISTICS OF THE 6130 ARE IDENTICAL WITH THOSE OF THE 3045. A SPECIAL ANODE TOP CAP INSULATOR IS INSTALLED TO PERMIT OPERATION AT HIGH ALTITUDE.

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)		2.0	2.5	AMPERES
MINIMUM HEATING TIME				2 MINUTES

MECHANICAL DATA, GENERAL:

MOUNTING POSITION	ANY
BASE	MEDIUM, 4-PIN LOW-LOSS PHENOLIC, A49 SMALL METAL C1-1
ANODE CAP	
COOLING (NOTE 1)	
NET WEIGHT	2.5 OUNCES
DIMENSIONS	SEE OUTLINE

KUTHE
6130
HYDROGEN
THYRATRON

- 2 -

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	-500 TO 4900	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 IS PERMITTED. HOWEVER, THERE SHALL BE NO AIR BLAST DIRECTLY ON THE BULB.

NOTE 2:

IN PULSE OPERATION, THE PEAK INVERSE VOLTAGE, EXCLUSIVE OF A SPIKE OF 0.5 MICROSECOND MAX. DURATION, SHALL NOT EXCEED 1500 VOLTS 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 (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.



