

engineering TUBE DATA

Kuthe



Components Division

TYPE 6777 HYDROGEN THYRATRON

GENERAL DATA

DESCRIPTION:

The 6777 is a unipotential cathode, three element, hydrogen filled thyratron with reservoir, designed for network discharge service. In such service it is suitable for producing pulse outputs of more than 120 KW at an average power level of more than 150 watts.

The special features of the 6777 include the high peak voltage rating and the very compact size as well as the inclusion of a hydrogen reservoir for long stable tube life.

Electrical Data, General	Nom.	Min.	Max.
Heater voltage.....	6.3	5.9	6.7 Volts a.c.
Heater current. $E_H=6.3$ volts.....		2.2	2.7 Amperes
Minimum heating time.....	3 Minutes		

Mechanical Data, General

Mounting position.....	Any
Base.....	Medium, 4-pin low-loss phenolic, A4-9
Anode cap.....	Small metal, C1-1
Cooling.....	Note 1
Net weight.....	3.5 Ounces

Dimensions

See outline drawing

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.....	35 Amperes
Max. average anode current.....	45 Milliampères
Max. RMS anode current (Note 3).....	1.25 Amperes d.c.
Max. epy x ib x prr.....	0.75×10^9
Max. anode current rate of rise.....	1200 Amperes/ μ second
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).....	0.03 Microsecond (initial) 0.04 μ second (end of life)
Ambient temperature.....	-50° to $+90^\circ$ Cent.

Typical Operation as Pulse Modulator,

DC Resonant Charging

Peak network voltage.....	8.0 Kilovolts
Pulse repetition rate.....	2800 Pulses/second
Pulse length.....	0.25 Microsecond
Pulse forming network impedance....	119 Ohms
Trigger voltage.....	175 Volts
Peak power output (Resistive load	
92% Zn).....	130 Kilowatts
Peak anode current.....	35 Amperes
Average anode current.....	.025 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, exclusive of a spike of 0.05 microsecond max. duration, shall not exceed 3 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 peak current and the average current.

Note 4

The voltage between grid and cathode terminals of the tube, with the grid of the tube disconnected should have the following characteristics:

- A. Voltage..... 175-250 Volts
- B. Duration.....2.0 Microseconds (at 70% points)
- C. Time of rise..... 0.5 Microseconds (max.)
- D. Impedance..... 1500 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.

