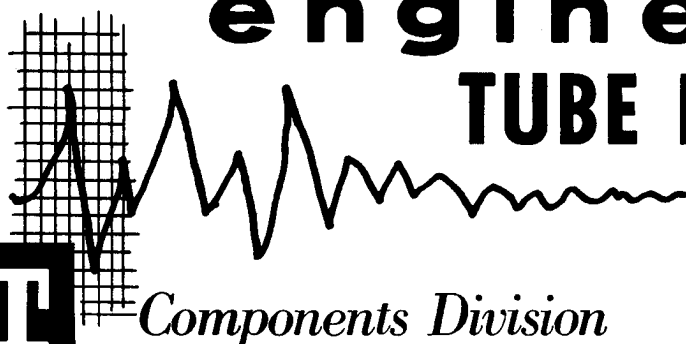




engineering TUBE DATA

Kuthe

Components Division

TYPE 6587 HYDROGEN THYRATRON

GENERAL DATA

DESCRIPTION:

The 6587 is a unipotential cathode, three element hydrogen filled thyatron designed for network discharge service. In such service it is suitable for producing pulse outputs of more than 2 megawatts at an average power level of more than 1.6 KW.

The special features of the 6587 include an internal hydrogen reservoir connected across the filament and capable of producing and maintaining the hydrogen pressure throughout the useful life of the tube. Further features are the high peak voltage and current ratings and the ruggedized construction.

Electrical Data, General	Nom.	Min.	Max.
Heater voltage.....	6.3	5.9	6.7 Volts a.c.
Heater current, $E_h=6.3$ volts.....		9.6	11.6 Amperes
Minimum heating time.....	3 Minutes		

Mechanical Data, General

Mounting position.....	Any
Base.....	Super Jumbo 4-pin with Bayonet A4-18 with ceramic insert
Anode Cap.....	Medium Metal, C1-5 with corona flare
Cooling.....	Note 1
Net Weight.....	10 Ounces

Dimensions

See outline drawing

Ratings

Max. peak anode voltage, forward...	16.0 Kilovolts
Max. peak anode voltage, inverse (Note 2).....	16.0 Kilovolts
Min. anode supply voltage.....	3.5 Kilovolts d.c.
Max. peak average anode current.....	325 Amperes
Max. average anode current.....	225 Milliampere
Max. RMS anode current (Note 3).....	6.3 Amperes a.c.
Max. epy x ib x prr.....	3.9×10^9
Max. anode current rate of rise.....	1500 Amperes/ μ second

Peak trigger voltage.....	Note 4
Max. peak inverse trigger voltage....	200 Volts

	Initial Limit	End of Life Limit
Max. anode delay time (Note 5).....	0.6	0.6 Microsecond
Max. anode delay time drift.....	0.1	0.1 Microsecond
Max. time jitter (Note 6).....	0.005	0.01 Microsecond

Ambient temperature.....	-50° to $+90^\circ$ Cent.
Shock rating.....	24° Navy (Flyweight) Shock machine

Typical Operation as Pulse Modulator,

DC Resonant Charging

Peak network voltage.....	16.0	12.0 Kilovolts
Pulse repetition rate.....	1000	2500 Pulses/second
Pulse length.....	1.0	0.4 Microsecond
Pulse forming network impedance....	48	48 Ohms
Trigger voltage.....	200	200 Volts
Peak power output (Resistive load 92% Zn).....	1.31	.736 Megawatt
Peak anode current.....	175	130 Amperes
Average anode current.....	0.175	0.13 Amperes d.c.

Note 1

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

Note 2

The peak inverse anode voltage shall not exceed 5.0 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 Driver pulse, measured at the tube socket with the thyatron grid disconnected, shall have the following characteristics:

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

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.

