HYDROGEN THYRATRON KU-27

DESCRIPTION:

The KU-27 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 more than 2 megawatts at an average power level of more than 1.6 KW.

The KU-27 features multiple cathode connections to provide minimum inductance for fast rise time applications. A separate connection is made to the reservoir heater so that the optimum hydrogen pressure can be selected for very high voltage or other special applications. (See Note 7).

Other features of the KU-27 include an internal hydrogen reservoir (not connected across the filament) 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 AC	Reservoir Current.				
Heater Current.					Eres = 6.3 Volts	0.9	0.7	1.1	Amperes
Eh = 6.3 volts		9.0	11.0	Amperes	Minimum Heating Time	3 Minutes			
Reservoir Voltage	6.3	(See Note 7)		Volts AC					

MECHANICAL DATA, GENERAL:

Mounting Position	Any	Anode Cap	C1-43
Base	A7-17 Medium Metal Shell Giant 7-Pin with Bayonet	Cooling	Note 1
		Net Weight	10 ounces

DIMENSIONS:

See Outline Drawing.

Ratings:

Max. Peak Anode Voltage, Forward (Note 7)	16.0 Kilovolts	Max. Peak Average Anode Current	325 Amperes
Max. Peak Anode Voltage, Inverse (Note 2)	16.0 Kilovolts	Max. Average Anode Current	225 Milliamperes
Min. Anode Supply Voltage	3.5 Kilovolts DC	Max. RMS Anode Current (Note 3)	6.3 Amperes AC
		Max. epy x ib x prr	3.9 X 10⁹
		Max. Anode Current Rate of Rise	1500 Amperes/u 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	Ambient Temperature	−50° to + 90° Cent.
Max. Anode Delay Time Drift	0.1	0.1	Microsecond	Shock Rating	24° Navy (Flyweight) Shock Machine
Max. Time Jitter (Note 6)	0.0005	0.01	Microsecond		

ITT Components Group Europe
Standard Telephones and Cables Limited
Valve Division, Brixham Road, Paignton, Devon
Telephone: Paignton 50762 (STD Code 0803) Telex: 42830
London Sales Office, Telephone: 01-300 3333 Telex: 21836

ITT COMPONENTS

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 thyratron 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.

Note 7:

The KU-27 is provided with a reservoir heater connection separate from the cathode heater so that the user may select the optimum hydrogen pressure for his particular application. For example, although the KU-27 is rated and tested to a peak anode voltage of 16 KV, the tube has frequently been high voltage seasoned by the user and successfully operated to a considerably higher anode voltage. This will normally require a reservoir setting 10 - 20% lower than 6.3V.