

KUTHE LABORATORIES, INC.

5957 (E-37B) HYDROGEN THYRATRON

The E-37B 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 350 KW at an average power level of more than 400 Watts. It is especially suitable for compact, airborne radar systems.

The special features of the E-37B include the high peak voltage and current ratings, its very compact size and an internal hydrogen reservoir capable of maintaining the hydrogen pressure throughout the useful life of the tube.

ELECTRICAL DATA

Heater voltage	6.3 $\pm$ 7.5% voltage
Heater current	6.5 amperes
Reservoir	Connected across filament
Minimum heating time	3 minutes

MECHANICAL DATA

Mounting position	Any
Overall length	4.375" max.
Greatest diameter	1.5 $\pm$ 0.06"
Base	Wafer, pin dimensions and alignment as per JAN A4-9 Base
Cap	Small Metal, C1-1
Cooling	Note 4
Clamping	Note 5

RATINGS

Anode supply voltage	2.5 KV DC (min.)
Peak anode forward voltage (Note 6)	8.0 KV (max.)
Peak anode inverse voltage (Note 1)	8.0 KV (max.)
Peak anode current	83 amperes (max.)
Average anode current	100 ma. (max.)
Anode current rate of rise	1200 amperes/microsecond
Grid drive voltage (Note 2)	175 V (min.)

TYPICAL OPERATION AS PULSE MODULATOR, DC RESONANCE CHARGING

Anode supply voltage	4.0 KV (D.C.)
Pulse repetition rate	4500 pps
Pulse length	.25 usec
Pulse forming network, impedance 2n	50 ohms
Load impedance	46 ohms
Trigger voltage	200 volts
Peak power output	310 KW
Average power output	330 Watts
Average anode current	98 ma.

NOTE 1

The peak inverse voltage should not exceed 8 KV during the first 25 microseconds after the pulse.

NOTE 2

The driver pulse, measured at the tube socket with the thyratron grid disconnected should have the following characteristics:

A. Voltage	175 volts (min.)
B. Duration	2 microseconds (min.)
C. Impedance	1500 ohms (max.)
D. Rate of rise	0.5 us (max.)

NOTE 4

Cooling of the anode lead is permissible, but there shall be no air blast directly on the bulb.

NOTE 5

Clamps used on the bulb shall be insulated from ground.

NOTE 6

For instantaneous starting application, where the plate voltage is applied instantaneously, the maximum permissible epy is 7000 volt and shall not be attained in less than 0.04 sec.