

KUTHE LABORATORIES, INC.

5959 (E-41) HYDROGEN THYRATRON

The 5959/E-41 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 120 KW at an average power level of more than 150 watts. It is especially suitable for compact, airborne radar systems.

The special features of the 5959/E-41 include the high peak voltage and current rating and the very compact size.

The 5959/E-41 has a companion type, the 5958/E-40, which bears identical electrical characteristics but includes a conventional 4 prong base.

ELECTRICAL DATA, GENERAL

Heater voltage	6.3 \pm 7.5%
Heater current	2.5 amps
Minimum heating	2 minutes

MECHANICAL DATA, GENERAL

Mounting position	Any
Overall length	4" max
Greatest diameter	1 $\frac{1}{2}$ \pm 1/16"
Base	None, 4 pins .060" tungsten per drawing
Anode connector	.080" tungsten wire per outline

RATINGS

Anode supply voltage	2.5 KV (min)
Peak anode voltage forward	8 KV (max)
Peak anode voltage inverse (Note 1)	8 KV (max)
Peak anode current	35 amperes (max)
Average anode current	45 ma (max)
Anode current rate of rise	1200 amp/microsecond
Grid drive voltage (Note 2)	175 volts (min)

TYPICAL OPERATION AS PULSE MODULATOR, DC RESONANCE CHARGING

Anode supply voltage	4 KV-DC
Pulse repetition rate	2800 pulses/sec
Pulse length	.25 microsecond
Pulse forming network impedance, Z _n	115 ohms
Trigger voltage	175 volts
Peak power output	130 KW
Average power output	90 watts
Anode current	25 Ma. DC

NOTE 1

The peak inverse voltage should not exceed 2.5 KV during the first 25 microseconds after conduction.

NOTE 2

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 usec min. (at 70% points) |
| c. source impedance | 500 ohms (max) |
| d. rate of rise | 1000 volts/microsecond |