Trigger Tetrode

Designed for Dekatron coupling circuits and as a general purpose trigger tube

GTE175M

Limit Ratings

Maximum anode voltage to prevent self ignition in all tubes (trigger voltage + 173 V)	+310 V
Minimum trigger voltage necessary to cause trigger breakdown in all tubes (anode voltage 300 V)	+183 V
Maximum trigger voltage at which trigger breakdown will not occur in any tube (anode voltage 300 V)	+173 V
During the first 3,000 hours of operating life the trigger breakdown voltage will not drift outside the limit ratings specified above.	
Maximum trigger to anode voltage	+200 V
Minimum trigger to cathode current necessary to cause transfer in all tubes (anode voltage 300 V)	100 μA
Minimum trigger to cathode current necessary to cause transfer in all tubes, with 100 pF capacitor between cathode and trigger (anode voltage 300 V)	8 μA
Maximum cathode current	
Peak—maximum duration 20 μS	50 mA ←
—maximum duration 50 mS in 10 S	6 mA ←
D.C.	3·5 mA ←
Maximum speed of operation, determined by circuit conditions	Approx. 1,000 c.p.s.

Characteristics

Anode running voltage at 2·5 mA	150 ± 5 V
Trigger running voltage	135 V nom.
Auxiliary cathode current (Aux. cathode returned to a minimum of —95 V via 10 MΩ)	25 μA nom.
De-ionization time	600 μS max.
Minimum current at which all tubes will remain conducting (Ra 470 kΩ)	200 μA

Recommended Operating Conditions

Anode supply voltage	280—310 V
Anode to cathode current	2·5 mA
Trigger bias with respect to cathode	
Trigger leak less than 470 kΩ	165 V max. ←
Trigger leak greater than 470 kΩ	170 V max.
Minimum pulse required for operation (Pulse duration 100 μS)	+ 25 V

N.B. ← Indicates a change from previous data sheets.

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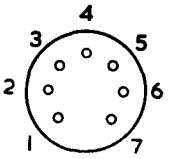
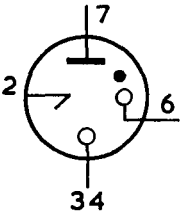
Mechanical Data

Mounting position	Any
Weight	6·5 g (nominal)
Base	B7G

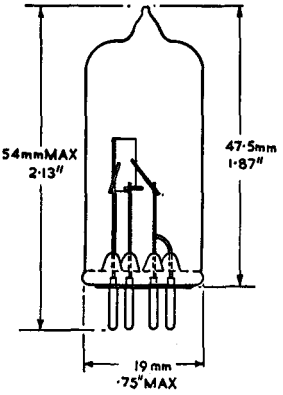
Base Connections
(underside view)



Pin	1	Trigger T
	2	
	3	Cathode K_1
	4	
	5	Do not connect
	6	Auxiliary cathode K_2
	7	Main anode A



N.B.—This tube must not be enclosed in a metal screen or can.



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Notes on Operation

Rectangular pulses of at least 100 μS duration are applied via a 1,000 pF capacitor to the trigger, which is returned through 1MΩ to +170 V bias. The tube will not fire with pulses of amplitude less than 5 V and will fire with pulses greater than 25 V.

To extinguish the main discharge, the anode-cathode potential must be reduced to below the running voltage (150 V) for a time dependent on the de-ionization characteristic.

Alternatively the tube may be extinguished by means of a capacitor in parallel with the A—K gap forming a self-quenching circuit. A typical example is the Cold Cathode coupling circuit used with the 4 kc/s Dekatron tubes.

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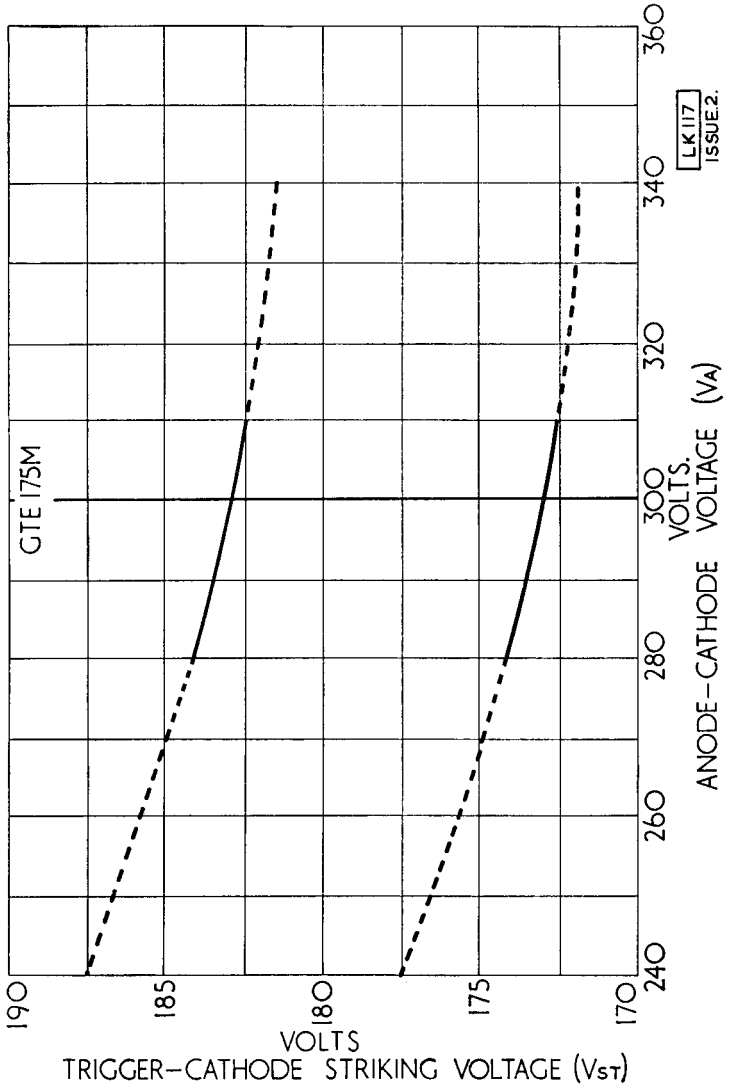

Limits of Trigger Striking Voltage

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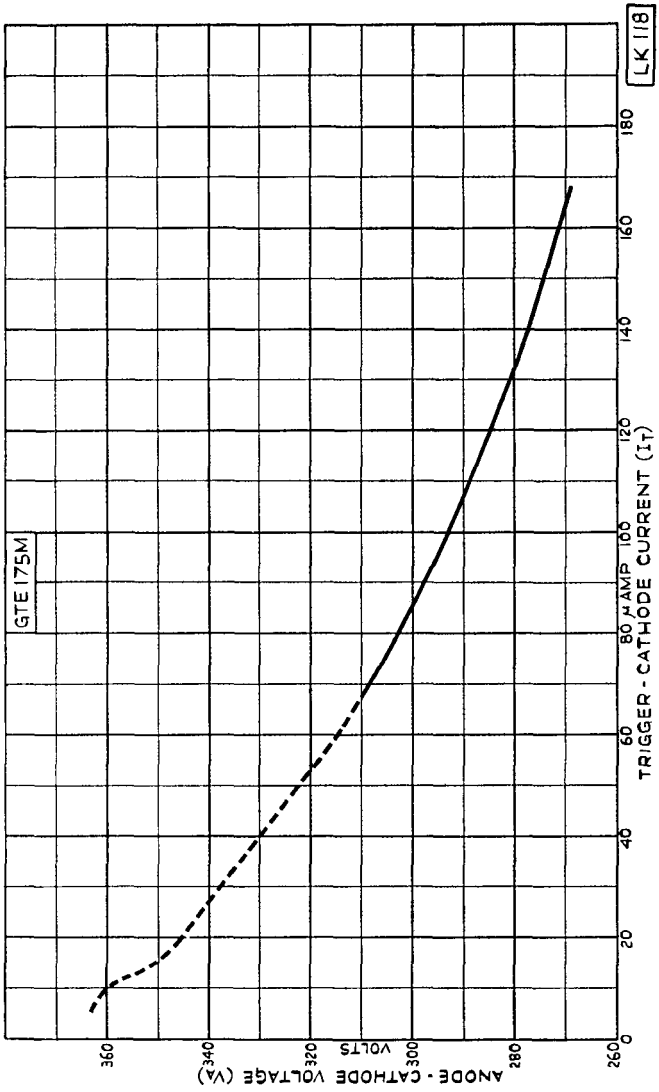

Typical Transfer Characteristic

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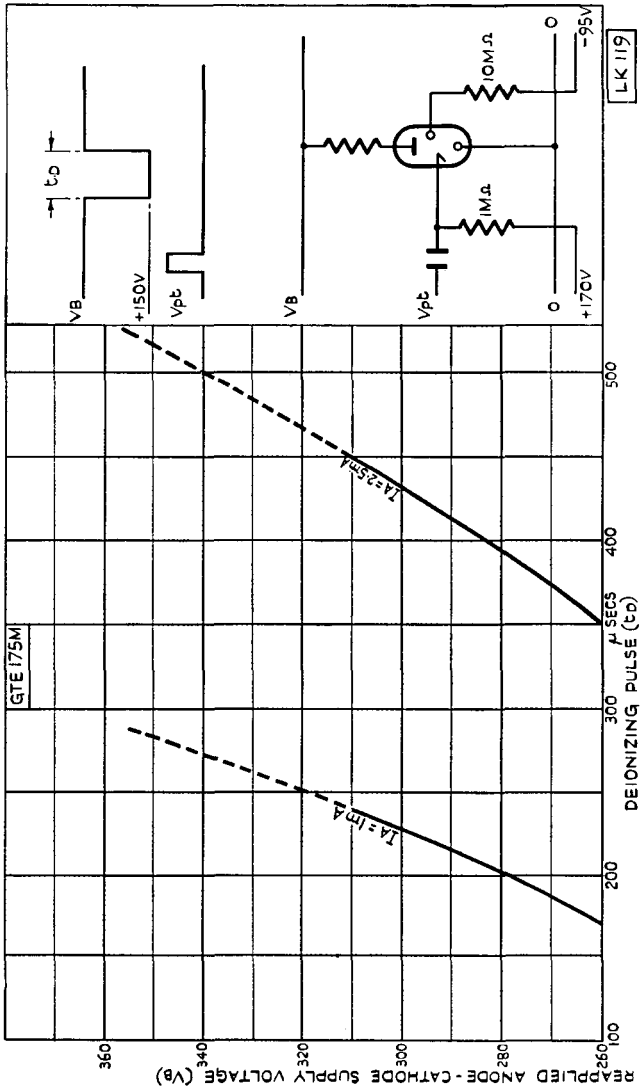

Typical De-ionization Characteristic