

Trigger Tetrode

GTE175M

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

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 μ A
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 μ A
Maximum cathode current	
Peak—maximum duration 20 μ S	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 $\pm$ 5 V
Trigger running voltage	135 V nom.
Auxiliary cathode current (Aux. cathode returned to a minimum of —95 V via 10 M Ω)	25 μ A nom.
De-ionization time	600 μ S max.
Minimum current at which all tubes will remain conducting (Ra 470 k Ω)	200 μ A

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 k Ω	165 V max. ←
Trigger leak greater than 470 k Ω	170 V max.
Minimum pulse required for operation (Pulse duration 100 μ S)	+ 25 V

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



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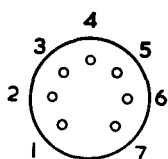
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Mechanical Data

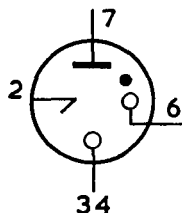
Mounting position
Weight
Base

Any
6.5 g (nominal)
B7G

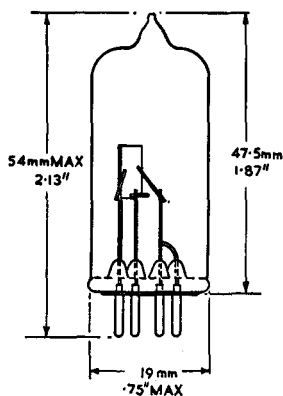
Base Connections
(underside view)



- Pin 1 } Trigger T
Pin 2 }
Pin 3 } Cathode K_1
Pin 4 }
Pin 5 } Do not connect
Pin 6 } Auxiliary cathode K_2
Pin 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 μ S duration are applied via a 1,000 pF capacitor to the trigger, which is returned through $1\text{M}\Omega$ 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.

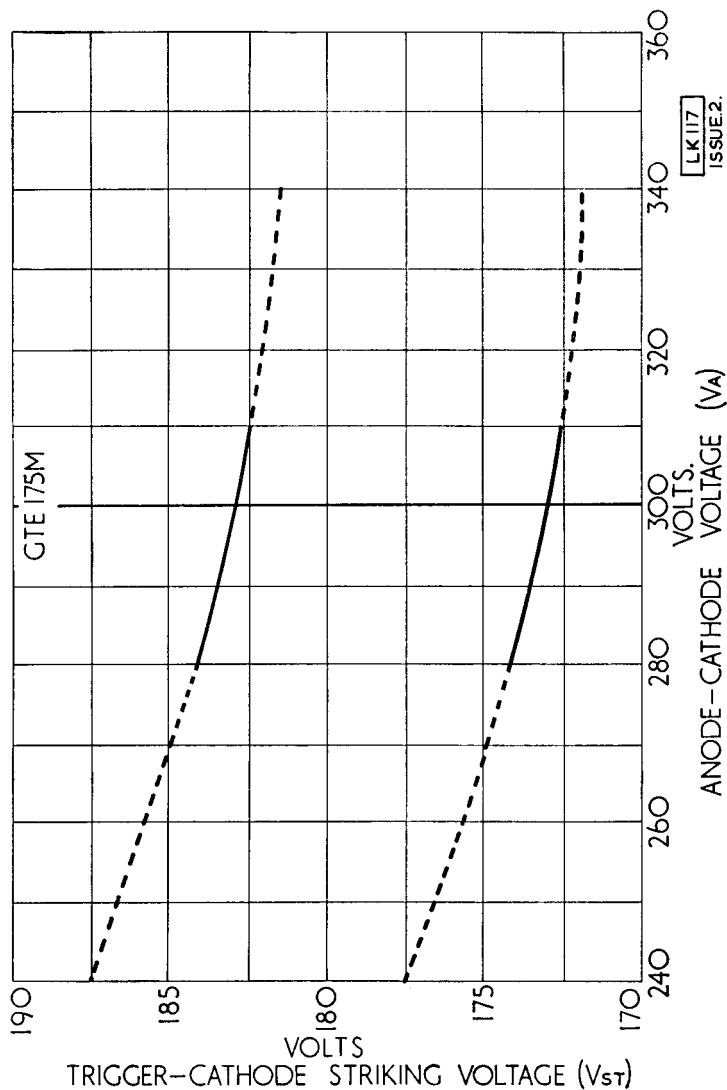
To extinguish the main discharge, the anode-cathode potential must be reduced to below the running voltage (150 V) for a time dependent on the de-ionization characteristic.

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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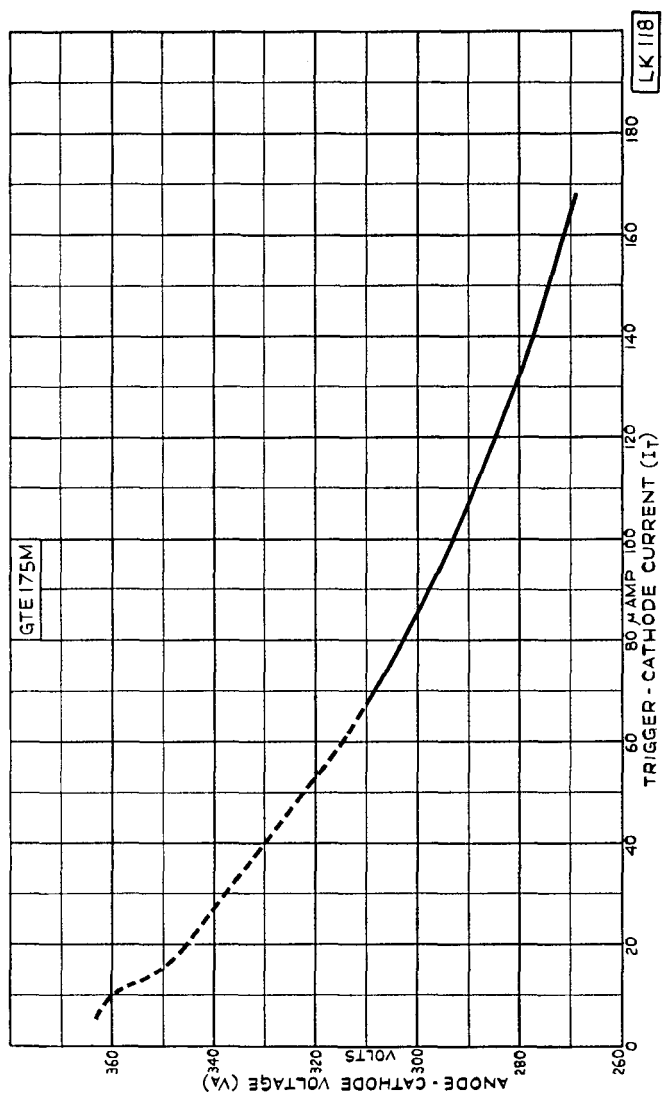
Limits of Trigger Striking Voltage



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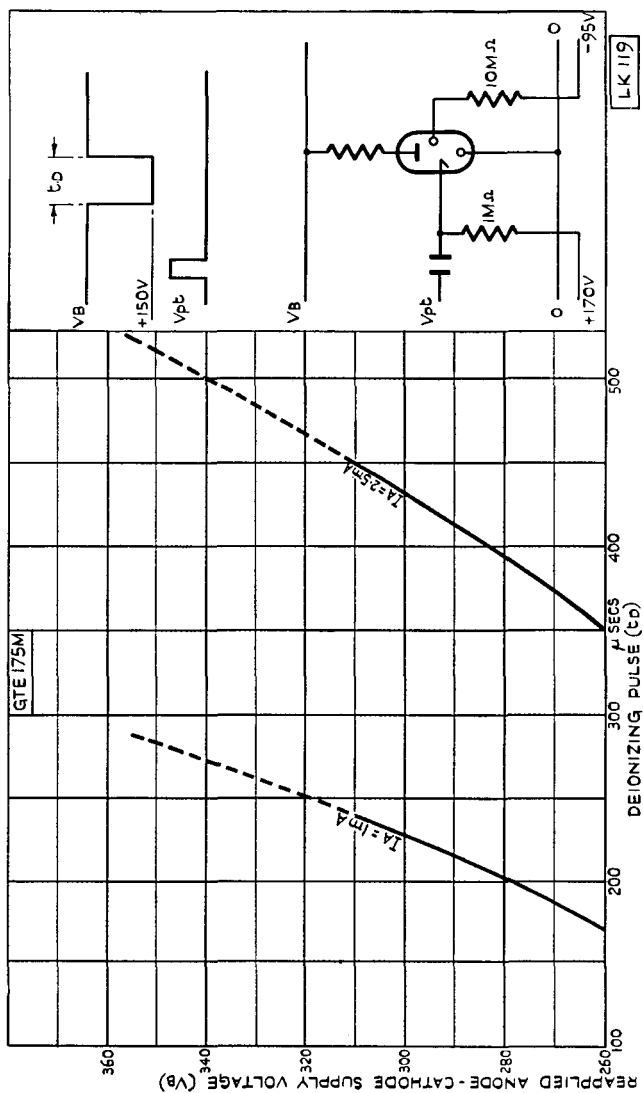
Typical Transfer Characteristic



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Typical De-ionization Characteristic