

SUBMINIATURE COLD CATHODE TRIGGER TUBE

Trigger tube with two trigger electrodes having similar characteristics. When conducting, the tube has a low impedance to speech frequencies.

Z701U

PRELIMINARY DATA

QUICK REFERENCE DATA (nominal values)

The predominant characteristics of the Z701U are a very low noise level and a speech frequency impedance of less than $1k\Omega$.

Anode supply voltage	150	V
Anode maintaining voltage	60	V
Maximum cathode current		
Continuous	7	mA
Intermittent	9	mA
Trigger ignition voltage (either trigger)	80	V
Trigger transfer current (either trigger)	40	μ A

CHARACTERISTICS AND RANGE VALUES FOR EQUIPMENT DESIGN (Note 1)

The values given state the range over which the tube will operate. No allowance has been made for supply voltage and component variations. This tube has been designed to be ignited with positive voltages on the triggers and anode.

Anode supply voltage		
Maximum	165	V
Minimum	120	V
Anode to cathode maintaining voltage (at $I_a=5mA$) see page C1		
Maximum	66	V
Minimum	54	V
Cathode current range (Note 2)		
For general operation	3 to 9	mA
For speech passing	7 to 9	mA
Trigger to cathode ignition voltage ($V_a=130V$) see page C2		
Maximum (Note 3)	90	V
Minimum	73	V
Trigger maintaining voltage ($I_{tr}=100\mu A$)	64	V
Maximum trigger series resistance	3	M Ω
Tube impedance over the frequency range 300 to 3300c/s ($I_k=8mA$)		
Typical	400	Ω
Maximum	1000	Ω
Maximum frequency of operation in a counter chain (Notes 4 & 5)	approx. 2	kc/s

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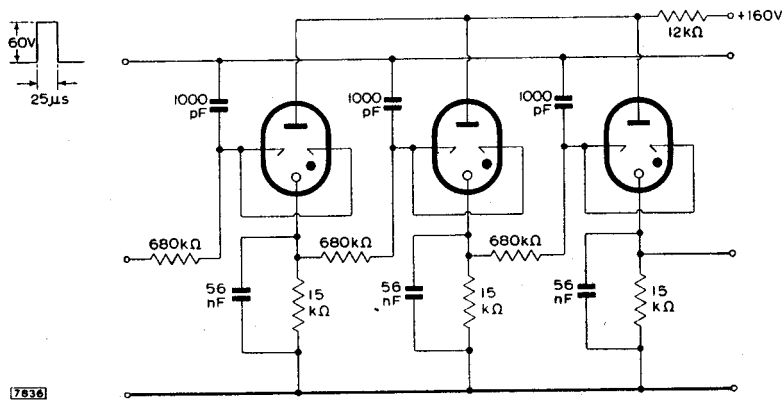


Fig. 1

Transfer requirements

Trigger current for transfer ($V_a = 130V$)	See page C3	
Typical	40	μA
Maximum	100	μA
Minimum capacitor for triggering (Note 6)		
$V_a = 150V$	1000	pF
$V_a = 120V$	10,000	pF

Typical component values for self-extinguishing circuits

R	680	k Ω
*C	10,000	pF

*In series with this capacitor there must be an effective resistance of 5.6k Ω minimum.

LIMITING VALUES (absolute ratings)

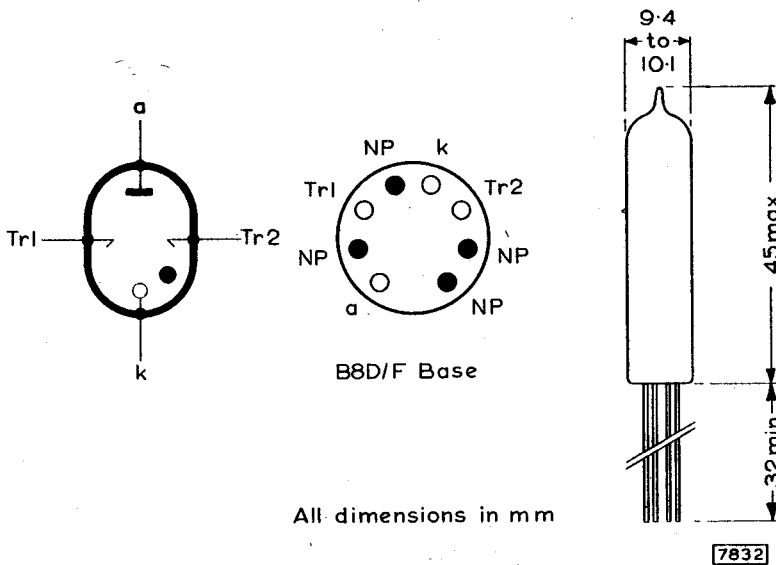
Maximum anode supply voltage	165	V
Maximum cathode current (Note 2)		
Average	9	mA
Peak	12	mA
Maximum negative trigger current (Note 7)		
Tube conducting	200	μA
Tube non-conducting	0	μA
Maximum negative trigger voltage		
At supply voltage = 160V	10	V
At supply voltage = 120V	50	V
Maximum ambient temperature	70	$^{\circ}C$

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TRIGGER TUBE**

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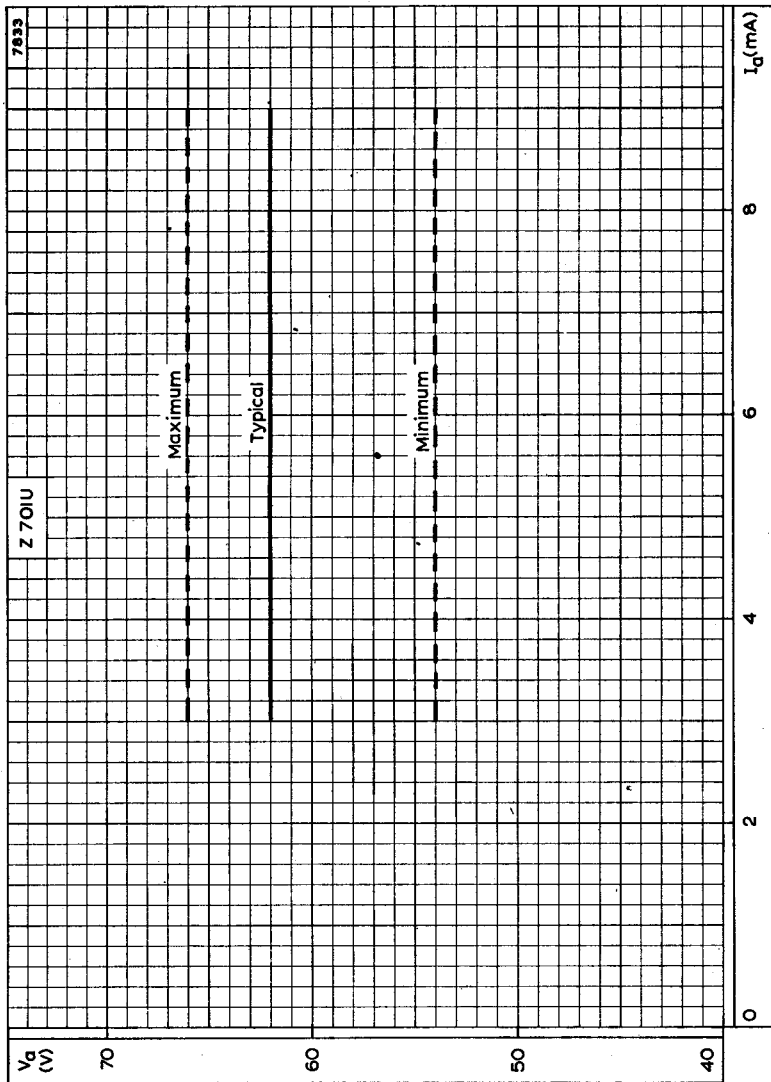
OPERATING NOTES

1. All values apply only when the tube is subjected to some ambient illumination (1 ft. cd.) (1 lm./ft.²). Strong light such as direct sunlight should not, however, be allowed to fall on the tube.
2. For cathode currents above 7mA, the tube can be used only for intermittent duty.
3. If a tube is ignited with pulses of short duration, the total trigger voltage (bias + pulse) should exceed 90V. A recommended minimum value with a 1000pF coupling capacitor and a pulse duration of 25 μ s is 120V (bias approx. 60V).
4. If the tube is used in a circuit where only one trigger is required, both triggers should be connected together.
5. The maximum frequency depends on the component tolerances and the stability of the supply voltage.
6. The trigger resistors and capacitors should be mounted close to the tube.
7. Negative trigger current is defined as conventional current flowing from the tube to the trigger circuit (viz. trigger acting as cathode). This current will flow whenever the trigger is returned via a resistor to a potential less than the trigger maintaining voltage.
8. Direct soldered connections to the leads of this tube must be at least 5mm from the seal and any bending of the tube leads must be at least 1.5mm from the seal.



**SUBMINIATURE COLD CATHODE
TRIGGER TUBE**

Z70IU

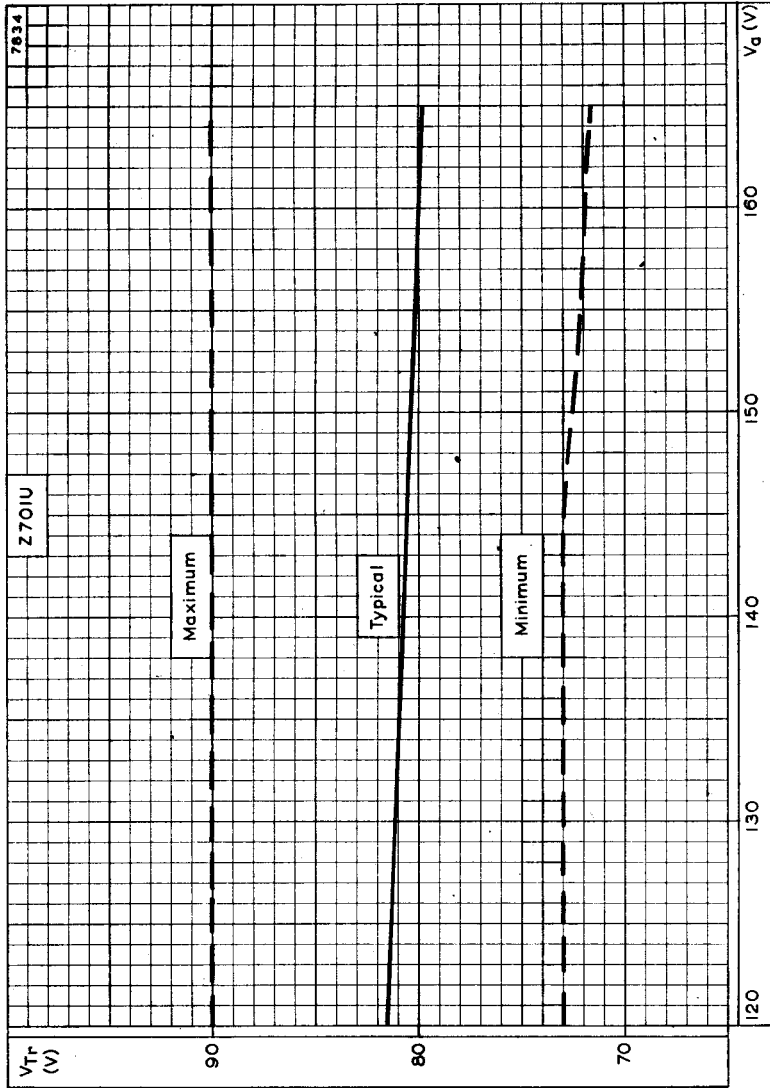


SPREAD OF ANODE MAINTAINING VOLTAGE CHARACTERISTIC



Z701U

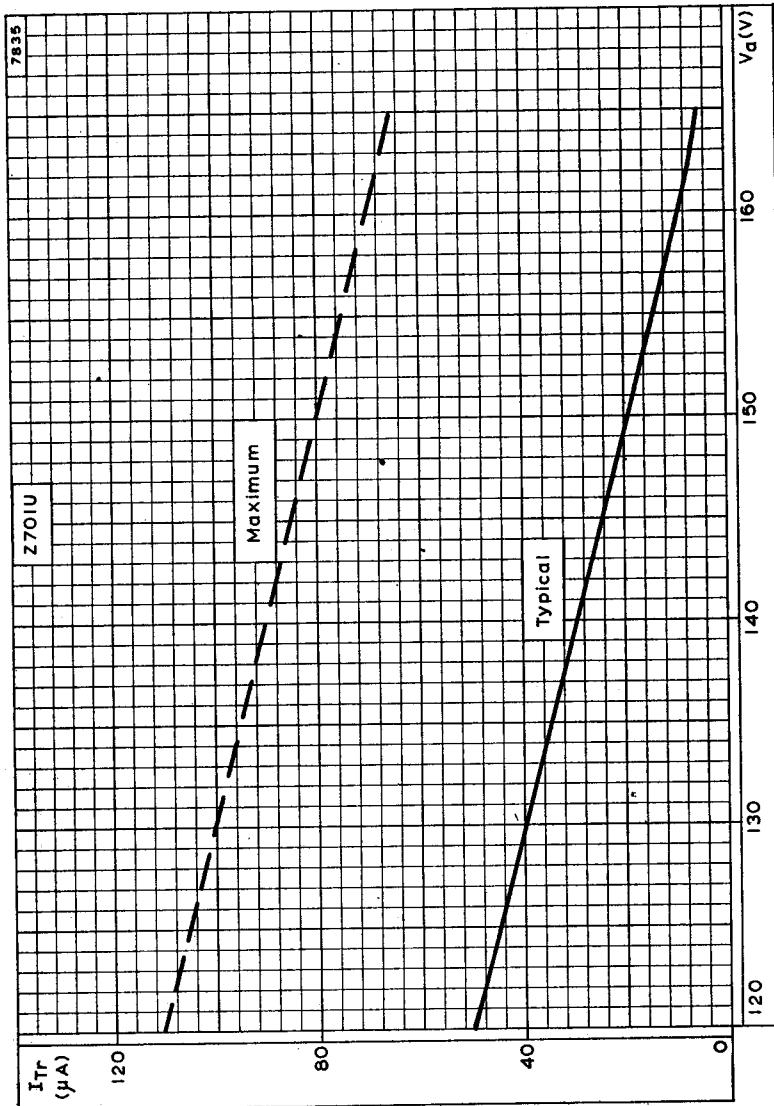
SUBMINIATURE COLD CATHODE TRIGGER TUBE



SPREAD OF TRIGGER BREAKDOWN CHARACTERISTIC

SUBMINIATURE COLD CATHODE TRIGGER TUBE

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SPREAD OF TRANSFER CHARACTERISTIC

