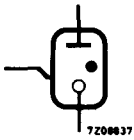
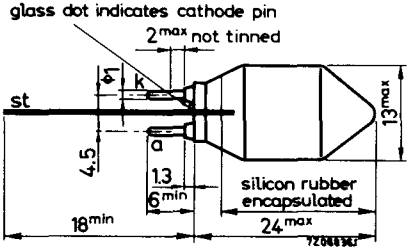
TRIGGER TUBE

Subminiature cold-cathode trigger tube for switching very high peak currents, e.g. in capacitor discharge circuits. The tube contains an internal cathode, an internal anode and an external (capacitive) starter.

QUICK REFERENCE DATA				
Anode voltage	V_a	max.	800	V
	V_a	min.	100	V
Cathode current, peak	I_{kp}	max.	5000	A
average (T_{av} = max. 60 s)	I_k	max.	20	mA
Energy per discharge	E	max.	60	J

DIMENSIONS AND CONNECTIONS Dimensions in mm





MOUNTING

1. Directly soldered connections to the pins must be at least 2 mm from the glass. The cathode and anode pins should not be bent.
2. When soldering the heat conducted to the glass should be kept at a minimum.
3. The distance between the starter electrode lead and the anode or cathode pins should be at least 5 mm. Stray capacitance and leakage current should be kept at a minimum.
4. The tube may ignite spontaneously when mounted in an electric field, the probability of igniting being dependent on the field strength (direction and magnitude) and its rate of change. Touching the envelope by live components should be avoided, and it is recommended to maintain a distance between components or electrostatic shields and any part of the envelope of at least some mm.

CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

(during life and over full temperature range)

Stand-by

Insulation resistance between electrodes	r_{ins}	min.	300	MΩ
Anode voltage	V_a	max.	800	V

Ignition

Anode voltage	V_a	min.	100	V

The tube should be triggered by an oscillatory voltage between starter and cathode (see Fig.1)
The oscillator frequency should be 400 kHz to 500 kHz.
The duration (to 10% amplitude) of the trigger pulse train should be > 30 μs.

Trigger voltage	$V_{st_{ignp}}$	min.	3.5	kV
Trigger energy	$E_{st_{ign}}$	min.	1	mJ
Ignition delay,	typical	max.		
at V_a = 100 V	20	50		μs
at V_a = 150 V	5	10		μs
at V_a = 350 to 800 V	1	2		μs

Conduction

Arc voltage	V_{arc}	see page 4		
Impedance	z		30	mΩ

LIMITING VALUES (Absolute max. rating system)

Energy per discharge	E	max.	60	J
Cathode current, peak	I_{k_p}	max.	5000	A
average (T_{av} = max. 60 s)	I_k	max.	20	mA
Envelope temperature	t_{bulb}	max.	125	°C
	t_{bulb}	min.	-55	°C

LIFE EXPECTANCY

Number of discharges with an energy of 60 J	average	10 000
	minimum	5000

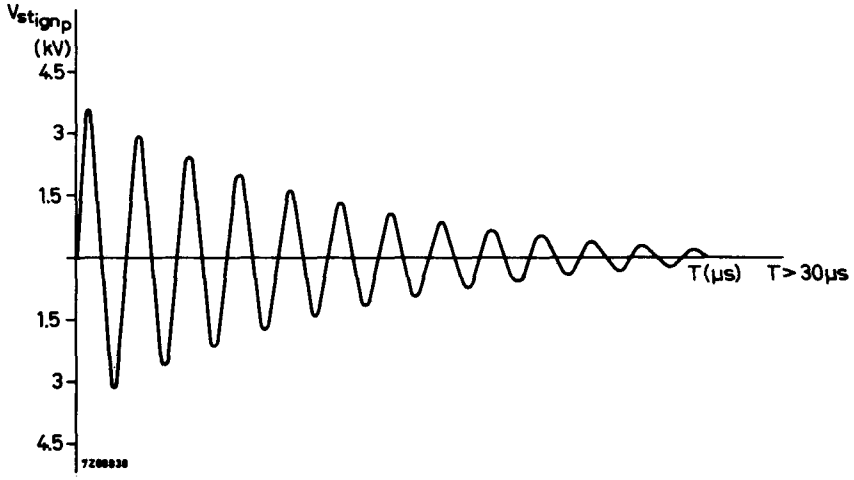
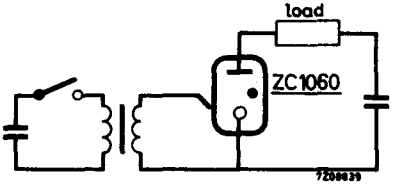
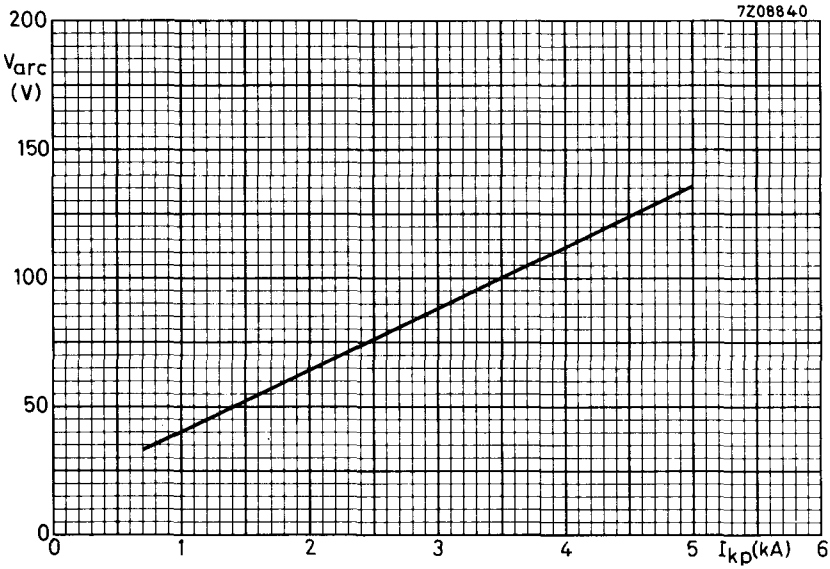


Fig.1

BASIC CIRCUIT




7Z08840
200
V_{arc}
(V)
150
100
50
0
0
1
2
3
4
5
I_{kp}(kA)
6