FERRANTI

COLD CATHODE TETRODE

GN20

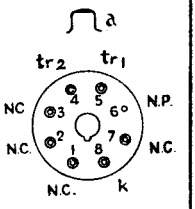
Type GN20 is a gas-filled cold cathode arc discharge valve. It is designed for pulse operation, and is particularly suitable for such applications as Electronic Relays where short duration pulses of up to 250 Amperes peak are required. The gas filling is argon.

PHYSICAL SPECIFICATION.

Base	International Octal.
Max. Seated Height	100 mm. (3 15/16 in.).
Max. Overall Length	114 mm. (4 1/2 in.).
Max. Base Diameter	33 mm. (1 5/16 in.).
Top Cap	Type CT1 (1/4 in. dia.).
Mounting Position	Any.

BASE CONNECTIONS.

Pin 1—No connection.
Pin 2—No connection.
Pin 3—No connection.
Pin 4—Trigger Electrode No. 2
Pin 5—Trigger Electrode No. 1
Pin 6—No Pin.
Pin 7—No connection.
Pin 8—Cathode.
Top Cap—Anode.



Base Connections

Underside View of Base

RATINGS.

Maximum Anode Voltage ...	420 volts DC.
Minimum Anode Voltage ...	350 volts DC.
Peak Inverse Anode Voltage ...	400 volts.
*Maximum Mean Anode Current	80 mA.
Maximum Average Trigger Current	10 mA.
Minimum Series Discharge Resistance	0·3 ohms.

CHARACTERISTICS.

†Static Trigger Voltage (tr_1 to tr_2)	75 to 125 volts.
Max. Repetition Frequency ...	250 per sec.
Min. Trigger Current :—	
Va = 420	50 μA.
Va = 350	100 μA.

TYPICAL OPERATION.

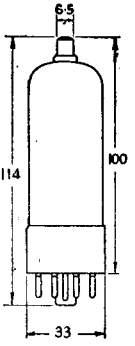
DC. Supply Voltage	360 volts.
Trigger Electrode No. 2 Voltage (V_{tr_2})	60 volts.
§Trigger Pulse Amplitude (V_{tr_1})	150 volts.
Charging Resistor	4000 ohms.
Discharge Capacitor for operation at :—	
50 c.p.s.	2 μF.
250 c.p.s.	0·5 μF.

For pulse operation to ensure interchangeability and reliable triggering it is necessary to employ a pulse of sufficient height and width. A suitable pulse may be derived by differentiating a square pulse of about 150—200 volts (e.g., from a multivibrator circuit) to produce a pulse which has a width of 30—100 microseconds at half the pulse height. The voltage on Trigger Electrode No. 2 should be approx. 60 volts at the instant of triggering.

For further information on operation please refer to data sheet for NSP2 under "Notes on Operation."

DELAY TIME.

From 50 microseconds down to a few microseconds dependent on circuit conditions. Minimum delay times can be achieved by using high values of trigger pulse energy and anode voltage.



All dimensions shown are in millimetres.

*A minimum of 5 amps. is recommended. This ensures the formation of an arc discharge with a tube drop of approx. 20 volts. If the peak current is less than 5 amps. a glow discharge is likely to form with a 75 volt drop.

†The limits quoted are to cover production variation and refer to the trigger voltage for single triggering with tr_1 negative to tr_2. For pulse operation a higher trigger voltage is generally necessary. See under "Typical Operation."

§Negative with respect to cathode.

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