FERRANTI

VOLTAGE REFERENCE TUBE

A subminiature neon filled Cold-cathode Diode. The running voltage is of a high order of stability and the valve is suitable for use as a Voltage Reference Tube. It is of rugged design suitable for use under conditions where shock or vibration is encountered.

PHYSICAL DETAILS.

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Base	B3B/A—Flexible Leads.
Max. Overall Length (excluding leads)	45 mm. (1¾ in.).
Max. Length of glass bulb ...	38 mm. (1½ in.).
Max. Diam. of glass envelope	10·16 mm. (½ in.).

The anode lead is indicated by a red spot.

RATINGS.

Max. Operating Current	...	2·5 mA.
*Min. Operating Current	...	200 μA.

CHARACTERISTICS.

Min. Voltage to ensure ignition	105 volts.
Max. Voltage Drop across tube over operating range ...	64 volts.
Min. Voltage Drop across tube over operating range	60 volts.
†Regulation 1·0 mA to 1·2 mA ±	0·1 volts.
0·5 mA to 2·2 mA ±	0·4 volts.
200 μA to 2·5 mA ±	0·75 volts.
*Min. current to maintain ionisation	20 μA.
Preferred operating current range	1·0 to 1·2 volts.

TYPICAL OPERATION.
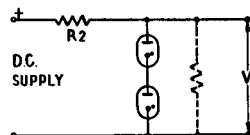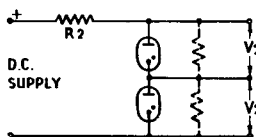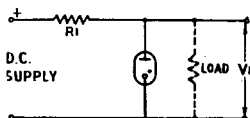
|		
DC. Supply ...	}	See graph overleaf
IL		
V1		62 B.
V2		62 V.
V3		124 V.
R1	}	See graph overleaf.
R2		

Because of the constancy of ignition voltage this valve can readily be employed in voltage overload protection devices for instruments, etc.

*At current below 200 μA the potential drop across the tube rises and performance may be erratic.

†This stabiliser will operate immediately an adequate ignition voltage is applied but for maximum stability the valve should be given a preliminary run of 15 minutes. The initial drift of Type KD63 is very small.

‡Regulation approximating to that quoted for the range 1·0–1·2 mA. can be obtained by limiting the operation to any similar narrow current range within the limits 0·5–2·2 mA.
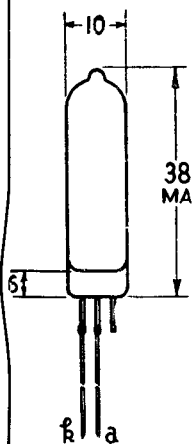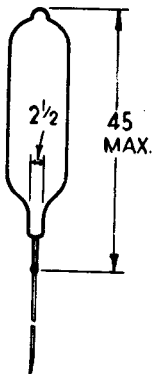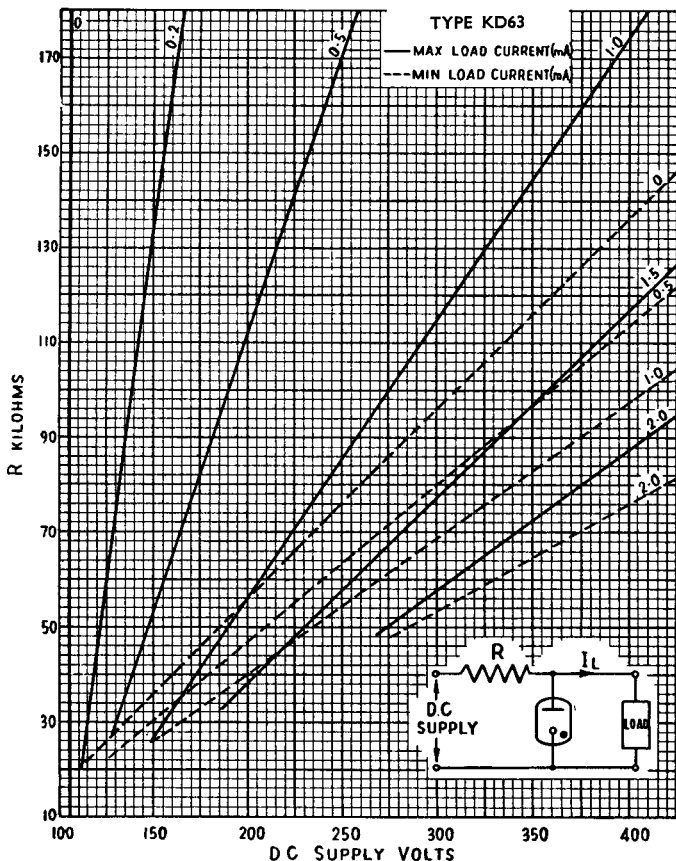
Dimensions shown are in millimetres (nominal) unless otherwise stated.

TYPE KD63
— MAX LOAD CURRENT(mA)
--- MIN LOAD CURRENT(mA)

R KILOHMS

D C SUPPLY VOLTS

This graph facilitates the determination of the permissible values of supply voltage and series resistance for operation with various loads permanently connected in parallel with the KD63.

On this graph Load current (I_L) refers to the DC. current flowing through the load at 62v.

The operating point of the KD63 must lie:—

(a) below and to the right of the full line corresponding to the maximum load current.

(b) above and to the left of the dotted line corresponding to the minimum load current.

In applications which employ several valves in series in order to get a higher stabilised voltage, the method to determine the value of series resistor required (i.e., R_2 overleaf), is as follows :—

For a circuit employing n valves in series the value of Series Resistor (R_s) is determined from the formula

$$R_s = R \times n$$

R is the value of resistor on the graph appropriate to a supply Voltage $\frac{V}{n}$ when V is the actual supply Voltage.

The largest convenient value of Resistor should be employed to obtain the best stability and longest life.

Due allowance should be made for the tolerance of the resistor and variation of the DC. supply voltage.

If the load is removed, or its resistance increased at the instant of switching on the supply voltage, much lower supply voltages and higher load currents may be employed.