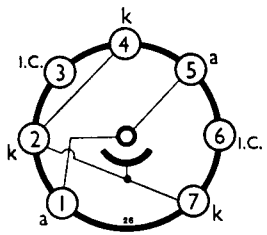
MINIATURE VOLTAGE STABILISER HIGH STABILITY · SINGLE GAP

QS83/3

APRIL, 1955

The QS83/3 is a commercial equivalent of CV449.

BASE CONNECTIONS AND TUBE DIMENSIONS



View from underside of base.

Base : B7G
Bulb : Tubular.

Max. Overall length : 54 mm.
Max. Seated length : 47·6 mm.
Max. diameter : 19 mm.

RATING

V_{ign}	125 max.	V
V_{stab} (at I_{tube} = 3 mA)	83 ± 2	V
I_{tube} (max)	5	mA
I_{tube} (min)	1	mA
z* (max)	150	Ω
Temp. coeff.	−2·7	mV/°C
Regulation (I_{tube} 2—4 mA)	0·3	V
Stability† (Initial 300 hrs.)	± 0·2	%
Stability† (Any subsequent 100 hrs.)	± 0·1	%
Stability† (Any 1000 hr. period)	± 0·5	%

* Half arithmetic sum of change in voltage 2—3 mA + change in voltage 3—4 mA.
† Maximum variation of voltage at constant current (preferably 3 mA).

TYPICAL OPERATION

In order to obtain maximum stability (less than 0·1% change in voltage over long periods), it is necessary to stabilise the input voltage. This is most easily achieved by connecting a suitable stabiliser in cascade with the QS83/3.

The circuits shown in Figs. 2 and 3 are recommended when a very stable voltage of approximately 83V is required ; the load should draw a constant current, which may have any value up to 3 mA.

The circuit parameters are tabulated in Tables A and B for load currents from zero to 3 mA, and the permissible changes in input voltage V_1 are also given, together with the consequent changes in output voltage, V_{stab}.

The figures are based on the average characteristics of the stabilisers, and some variation from tube to tube may be expected.

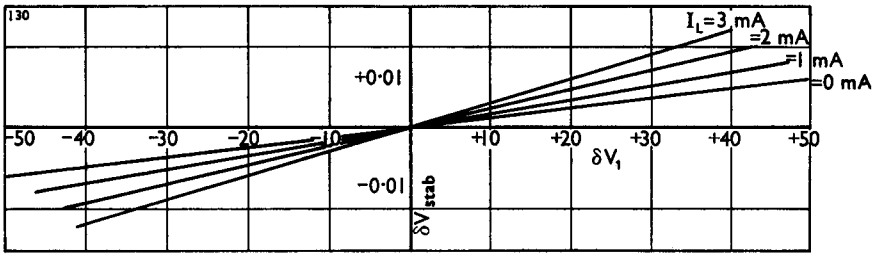


Fig. 1.

TABLE A

I_L (mA)	R_L (kΩ)	R_1 (kΩ)	R_2 (kΩ)	δ V_1 from 250V (V)	δ V_{stab} (V)
0	∞	8·35	22·3	±50	±0·006
1	83	7·7	16·7	±46	±0·008
2	41	7·15	13·4	±43	±0·01
3	27·6	6·67	11·2	±40	±0·012

The curves given above show limits of input voltage and the variation in output voltage for various loads.

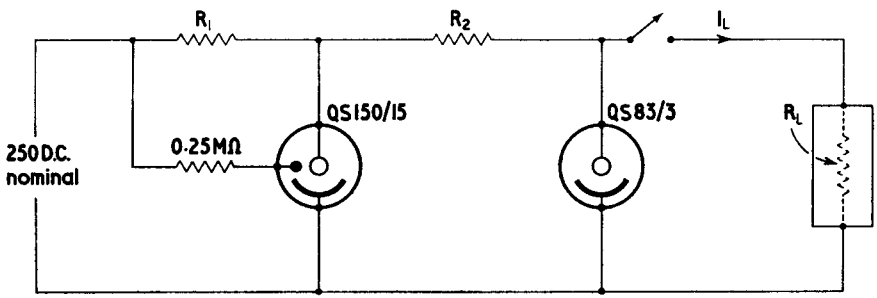


Fig. 2.

The switch in the above circuit should be of the type which closes within 2 seconds of the application of the supply voltage (i.e. 250V D.C.). If the use of this switch is undesirable the circuit arrangement shown in Fig. 3 is recommended.

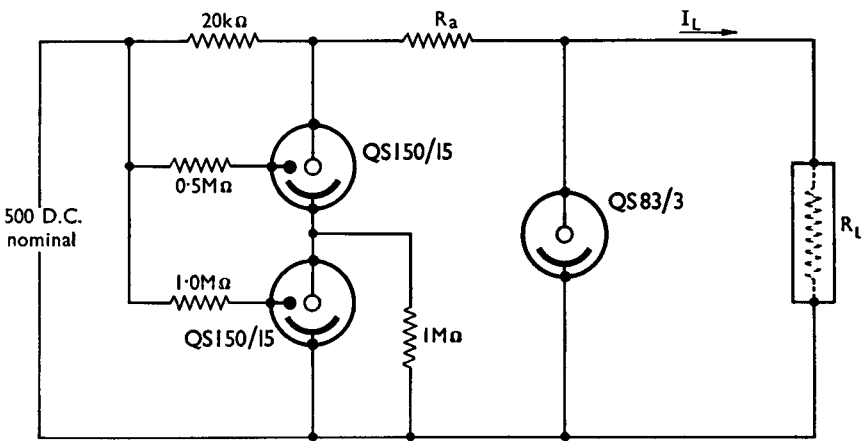


Fig. 3

TABLE B

I_L (mA)	R_L (kΩ)	R_a (kΩ)	δ V_i from 500V	δ V_{stab}
0	∞	72·3	±50	±0·0015
1	83	54	±50	±0·0021
2	41·5	43	±50	±0·0026
3	27·7	36	±50	±0·0031

GENERAL

If a different voltage, or a current greater than 3mA is required, it is necessary to employ one of the constant voltage networks such as the series voltage stabiliser, using a QS83/3 as the voltage reference source for the network.

QS83/3

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