

SPECIAL QUALITY STABILISING TUBE **M8225**

Special quality 75V gas-filled voltage stabiliser for use in equipment where mechanical vibration and shocks are unavoidable.

This data should be read in conjunction with the GENERAL OPERATIONAL RECOMMENDATIONS - VOLTAGE STABILISER AND REFERENCE TUBES and the GENERAL NOTES - SPECIAL QUALITY VOLTAGE STABILISER AND REFERENCE TUBES which precede this section of the handbook; the index numbers are used to indicate where reference should be made to a specific note.

LIMITING VALUES¹ (absolute ratings)

Minimum voltage necessary for ignition (Note A)	115	V
Burning current		
Maximum	60	mA
Minimum	2.0	mA
Maximum starting current (Note B)	100	mA
Maximum negative anode voltage	50	V
Minimum ambient temperature	-55	°C
Maximum bulb temperature		
For operation (Note C)	+90	°C
For storage	+70	°C
Maximum acceleration (continuous operation)	} See page D3	
Maximum shock (short duration)		

CHARACTERISTICS (Note D)

Initial values

Maintaining voltage at $I_a = 30\text{mA}$		
Maximum	81	V
Minimum	75	V
Burning current above which the incremental resistance is positive	7.0	mA
Incremental resistance (approx.) in the current range 10 to 60mA	130	Ω
Temperature coefficient of maintaining voltage	See page C2	
Typical maximum voltage jumps in the current range		
2 to 10mA	200	mV
10 to 20mA	20	mV
20 to 60mA	<10	mV
Increase in maintaining voltage as burning current is increased over the range 2 to 60mA (Note E)		
Maximum	8.0	V
Typical	5.0	V

Life performance

	\pm Over life (Note F)		
	$I_a = 30\text{mA}$	$I_a = 60\text{mA}$	
Typical increase in maintaining voltage as burning current is increased over the range 2 to 60mA (Note E)	6.5	6.5	V
Typical percentage variation of maintaining voltage at burning current (room temperature)			
In 1000hrs.	-0.2 to +0.9	-0.7 to +0.2	%
In 10,000hrs.	-0.2 to +1.0	-0.7 to +1.4	%
In 30,000hrs.	-0.2 to +1.2	-0.7 to +2.0	%



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TEST CONDITIONS (unless otherwise specified)

R_{lim} (k Ω) 1.0
 $I_{burning}$ (mA) 30

After an initial warming-up period of 3 minutes at a burning current of 30mA.

GROUP A

	AQL ² (%)	Individuals ³	Min.	Max.
Ignition voltage. Illumination 5 to 50ft. cd.	†	—	75	110 V
Maintaining voltage	†	—	—	81 V
Change in maintaining voltage for burning current change of 2 to 60mA	†	—	—	8.0 V
Voltage jumps. Burning current varied from 2 to 10mA	†	—	—	300 mV (pk-pk)
10 to 60mA	†	—	—	100 mV (pk-pk)
Oscillation. Burning current varied from 2 to 60mA	†	—	—	20 mV (pk-pk)

† This test is carried out on a 100% basis.

GROUP B

Ignition voltage in darkness after 24 hours in darkness	2.5	—	—	110 V
Leakage current. Supply voltage = 55V, R_{lim} = 1M Ω	2.5	—	—	10 μ A
Microphonic noise	2.5	—	—	5.0 mV (pk-pk)
Group quality level ⁷	6.5	—	—	—

GROUP C

Base strain test ⁶ . No applied voltage	6.5	—	—	—
Glass strain test ^{8A} . No applied voltage	6.5	—	—	—

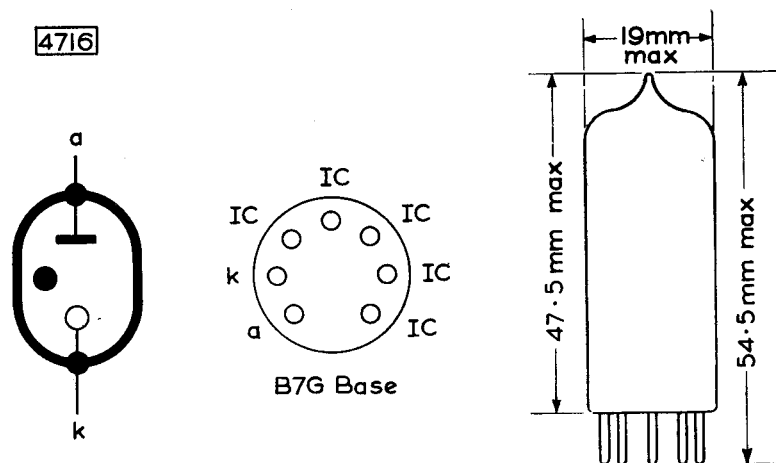


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GROUP G	AQL ² (%)	Individuals ³		V
		Min.	Max.	
Valves held for 28 days and retested for				
Inoperatives ¹³	0.5	—	—	
Ignition voltage as in group A	0.5	—	110	V
Maintaining voltage	0.5	75	81	V

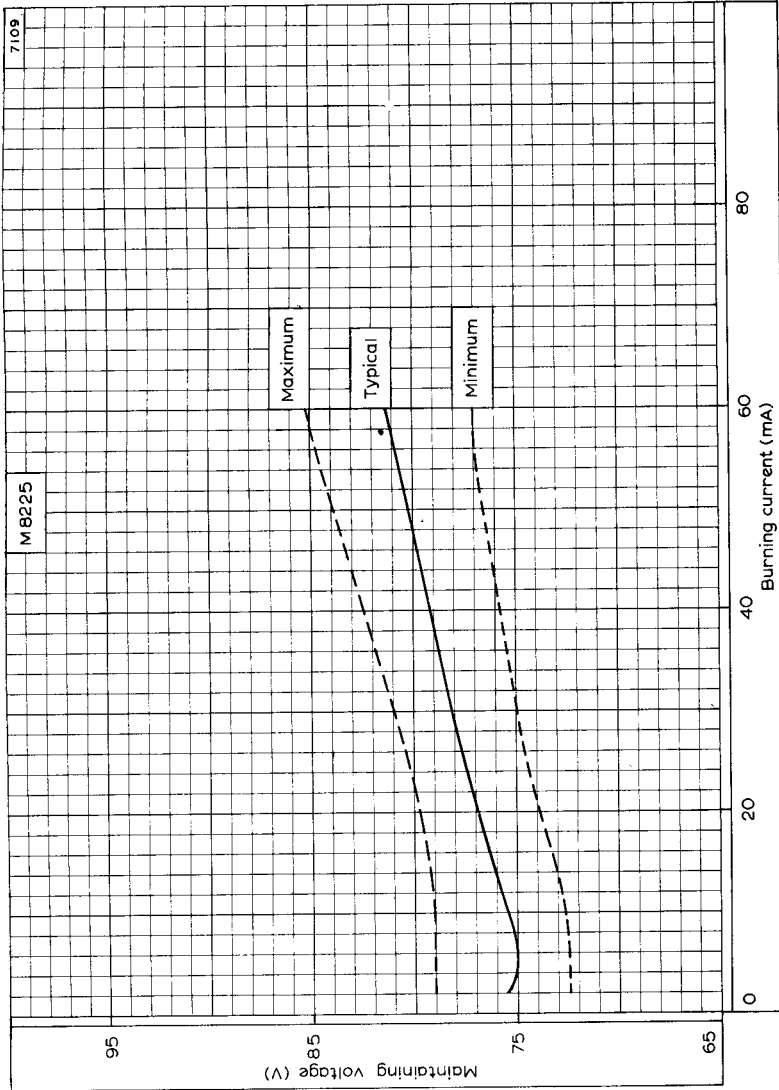
OPERATING NOTES

- This value holds good over life in light or darkness. In total darkness, an ignition delay of up to about 5 seconds may occur.
- To be restricted for long life to approximately 30 seconds in each 8 hours use.
- This tube will operate satisfactorily at bulb temperatures up to 90°C, providing the tube is not used at either extreme of the current range.
- Thermal equilibrium is reached within 3 minutes of igniting the tube.
- Following a sudden large change in the tube current, the change in maintaining voltage may be up to 2.5 volts greater than that given, until tube thermal equilibrium is re-established (within 3 minutes).
- These figures apply when the tube is operated only at the currents stated.



The bulb and base dimensions of this valve are in accordance with BS448, Section B7G

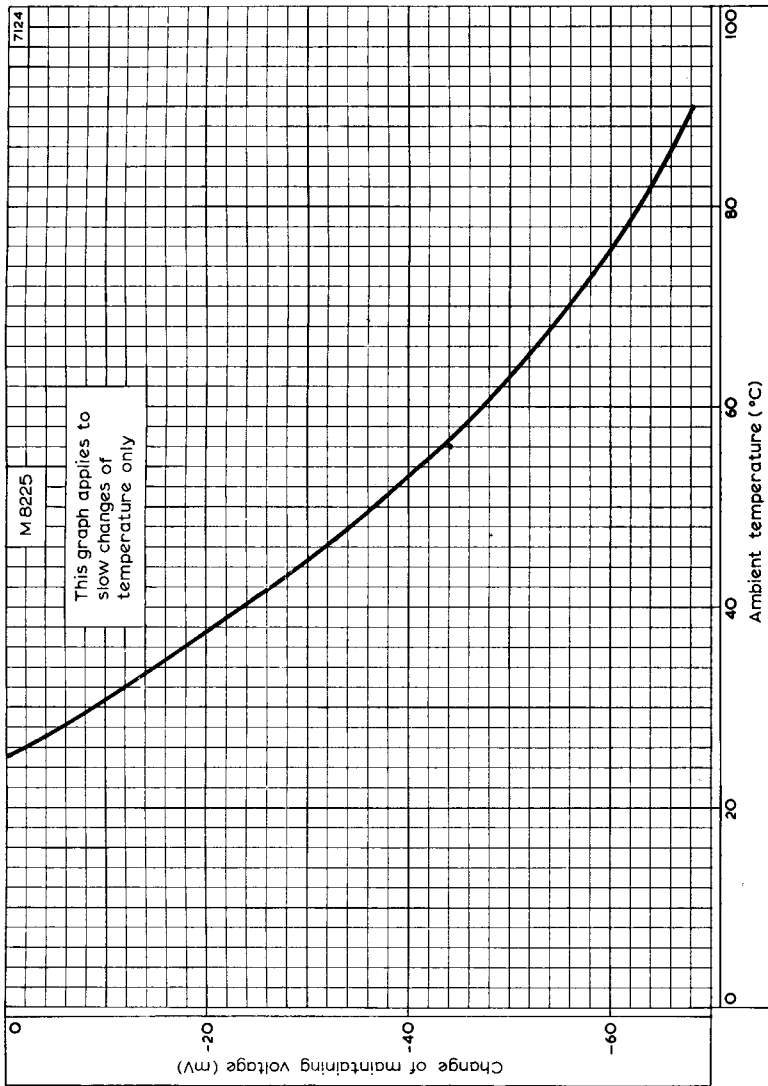
SPECIAL QUALITY STABILISING TUBE **M8225**



MAINTAINING VOLTAGE PLOTTED AGAINST BURNING CURRENT



M8225 SPECIAL QUALITY STABILISING TUBE



CHANGE OF MAINTAINING VOLTAGE PLOTTED AGAINST AMBIENT TEMPERATURE FOR SLOW CHANGES IN TEMPERATURE