VALVE ELECTRONIC **CV 2224**

MINISTRY OF SUPPLY (S.R.D.E.)

Specification MOS/CV2224/Issue 4
Dated:- 26.3.53.
To be read in conjunction with K1001

SECURITY	
Specification	Valve
Unclassified	Unclassified

——> indicates a change

TYPE OF VALVE:- High Speed Primed Trigger Tube
CATHODE:- Cold
ENVELOPE:- Glass, unmetallised
→ PROTOTYPE:- G1/371K

MARKING

See K1001/4

RATING

MAIN ELECTRODE			Note
Max. Pulse Current Output	(mA)	15	
Max. D.C. Current Output	(mA)	10	
Min. D.C. Current Output	(mA)	2	
→ Anode Supply Voltage	(V)	270 to 360	
→ Main Gap Maintaining Voltage	(V)	175 to 185	A
Max. Cathode Voltage Output	(V)	140	
Shield Voltage	(V)	150	B
Trigger Bias (Va up to 325 V.)	(V)	0 to 165	
Trigger Bias (Va up to 360V.)	(V)	60 to 165	
Trigger Breakdown Potential	(V)	12 to 26	C
De-ionisation Time (max.)	(μS)	30	D
Transfer Time (nom.)	(μS)	0.5	E
→ Trigger Pulse Width		See Note	F
PRIMING GAP			
Priming Gap Current	(mA)	0.2 to 0.5	G
Anode Feed Resistance	(KΩ)	390	
Cathode Resistance to Main Gap Cathode Potential	(KΩ)	56	

BASE
B7G

Pin	Electrode
1	Priming Gap Cathode
2	Cathode
3	Shield
4	Anode
5	Shield
6	Trigger
7	Priming Gap Anode

DIMENSIONS

See K1001/A1/D4

Dimensions	Min.	Max.
A mm.		54
B mm.		19.1
F mm.	35.7	40.5
L mm.		47.6

CAPACITANCES (pF)

Trigger to Cathode 3.0
Trigger to all other electrodes 5.0

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NOTES

A. To be measured directly between the main gap anode and cathode, with the priming anode left floating.

B. Applied through 50,000 ohms.

C. With a 25 micro-second square pulse applied based on maximum bias.

D. De-ionisation time should be short enough to permit a re-application of the nominal working voltage (90 per cent of maximum, i.e. 325 volts) 30 micro-seconds after the extinguishing of a D.C. discharge of maximum rated current by means of a rectangular pulse applied to the anode. The base of the extinguishing pulse should be 20 volts below the Vm of the main gap. All other electrodes may be at potentials within their working range.

E. This is the time interval between current flowing in the trigger cathode circuit as the result of applying a trigger pulse, and conduction starting in the main anode-cathode gap.

—> F. In use, any pulse width greater than 3 micro-seconds can be applied, provided the amplitude is sufficient and the input circuit suitable. The effective triggering pulse amplitude is a function of pulse width below 25 micro-seconds. For pulse widths greater than 25 micro-seconds, the amplitude is approximately constant at the test value.

G. The priming gap cathode must not be more than 140 volts negative to the main cathode at any time.

TESTS

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To be performed in addition to those applicable in K1001

	Test Conditions					Test	Limits		Notes
							Min.	Max.	
	Trigger Voltage	Trigger Series Res. KΩ	Va	Anode Res. KΩ	Ia mA				
a	Connect to anode thro' 1 MΩ	-	Record	Adj.	10	Main Gap Maintaining Voltage (V)	172	188	1 & 2
b	Connected to Cathode	0	Record	100	-	Main Gap Ignition Voltage (V)	320	-	2 & 3
c	+60 D.C.	22	Record	100	-	Main Gap Ignition Voltage (V)	365	-	2 & 3
d	Floating	-	300	33	-	Priming Gap Current (mA)	0.22	0.53	2 & 3
e	Refer to the test circuit shown below. To the trigger connect a 500 KΩ resistance and in series with this a 100 KΩ resistance. Connect a 50 pF condenser across the 500 KΩ. To the free end of the 100 KΩ resistance connect a +165 volt D.C. bias voltage. To the junction of the two resistances apply a substantially rectangular pulse of +11 volts amplitude and 25 μs width at a P.R.F. of 100 p.p.s.		300	33	-	Main Gap Hold-off	The Main Gap shall not break down		2 & 3
f	Use the same bias and input conditions as under e. To the junction of the two resistances apply a single substantially rectangular pulse of +27 volts amplitude and 25 μs width.		270	22	-	Main Gap Breakdown	The Main Gap shall break down.		2 & 3

NOTES

1. The maintaining voltage shall be measured directly between the main gap anode and cathode, with the priming anode left floating.

2. For this test the shield shall be maintained at a voltage of +155 volts and the cathodes shall be earthed.

3. For this test the priming gap anode shall be connected in series with 330 KΩ to +300 volts.

TEST CIRCUIT