MINISTRY OF ~~SUPPLY~~ AVIATION D.L.R.D., R.A.E.

VALVE ELECTRONIC **CV2231**

Amdt 1

Specification ~~MOSA~~ MOA/CV2231
Issue 4 Dated 21.7.1959
To be read in conjunction with B.S.448, B.S.1409 and K.1001

Amdt 1

SECURITY	
Specification	Valve
UNCLASSIFIED	UNCLASSIFIED

→ Indicates a change

TYPE OF VALVE - Pulse Modulator Pentode
CATHODE - Indirectly Heated
ENVELOPE - Glass, unmetallised
PROTOTYPE - E.2266

MARKING
See K.1001/4

RATINGS

(All limiting values are absolute)

			Note
Heater Voltage	(V)	6.3	
Heater Current	(A)	1.2	
Max. Anode Operating Voltage (D.C.)	(V)	600	
Max. Anode Voltage (pulse)	(kV)	10.0	A
Max. Screen Voltage (D.C.)	(V)	600	
Max. Anode Dissipation	(W)	12.0	
Max. Screen Dissipation	(W)	3.0	
Max. Cathode Current (D.C.)	(m A)	120	
Max. Cathode Current (peak)	(A)	2.5	
Max. hk R.M.S. Voltage	(V)	230	
Mutual Conductance	(mA/V)	8.5	B
Inner μ		8.5	

BASE
B.S.448/B9A

CONNECTIONS

Pin	Electrode
1	IC
2	g1
3	k
4	h
5	h
6	IC
7	IC
8	g2
9	g3
T.C.	a

CAPACITANCES (pF)

C in	13.5	C
C out	12.0	C
Ca,g1	0.40	C

DIMENSIONS

See B.S.448/B9A/2.2
Size Ref. No.4

Dimensions (mm)	Min	Max
A seated height	66.5	76
B diameter	19.0	22.2
C overall length	-	83

TOP CAP
BS.448/CT1

NOTES

A. Maximum pulse duration of 15% of one cycle with a maximum of 15 μsecs.

B. Measured at Va = 150; Vg2 = 150; Ia = 50 mA.

C. Measured without a metal screen in a fully shielded socket.

CV2231

TESTS

To be performed in addition to those applicable in K1001.

Test Conditions:- Unless otherwise stated.

Vh (V)	Va (V)	Vg2 (V)	Vg3 (V)	Vg1 (V)	Ia (mA)
6.3	150	150	0	Adjust	50

K1001 Ref.	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	Symbol	LIMITS MIN.	LIMITS MAX.	UNITS
	Group A Reverse Grid Current		-	100%	-Ig1	-	2.5	µA
	Negative Grid volts		-	100%	-Vg1	9.5	15.5	V
	Screen Current		-	100%	Ig2	-	8.0	mA
	Mutual Conductance	Peak Grid swing ±0.5V	-	100%	gm	6.5	10.5	mA/V
	Anode Current Tail	Vg1 = -30V	-	100%	Iatail	-	400	µA
	Anode Current	Vg1 = -2V	-	100%	Ia	75	-	mA
	Emission (1)	Va=Vg2=Vg3=Vg1=30V	-	100%	Ik	250	-	mA
	High Voltage	Va=7kV. Vg2=150V	-	100%	Ia	-	60	µA
→	Tail Test	Vg3=0. Vg1=-80V						
→	Peak Anode Current	Va=7kV. Vg2=600V Vg3=0. Vg1=-160 Note 1.	-	100%	Iapk	2.0	-	A
	Emission 2	Va=Vg2=Vg3=Vg1= 250V peak. Note 2.	-	100%	Iapk	2.5	-	A
	Group B Heater Current		1.5	II	Ih	1.08	1.32	A
	Group C Inner Amplification Factor	Adjust Vg1 for Ia=50mA. Reduce Vg1 by 2V, increase Vg2 to maintain Ia=50mA.	6.5	Ic	µg1,g2	7	10	-
	g3 Negative Cut-off Voltage.	Va=100V, Vg2=50V Vg1=0. Adjust Vg3 for Ia=50 µA	6.5	Ic	-Vg3	65	110	V
AIII	Capacitances	Measured on 1 Mc/s bridge with valve mounted in a fully shielded socket. Note 3.	6.5	Ic	Cin. Cout. Cag1	10.0 8.0 0.2	17.0 16.0 0.6	pF pF pF

Also Anode 3 & 4 See Anode 1 for revised note

Notes

1. Anode load = 2.2kΩ in series with a 1.6 mH choke. The valve to be driven with 2 µsec. pulses at a p.r.f. = 1000 cps. so that the grid voltage rises to +50V max.
2. Valve to be strapped as a diode and a pulse of 250V peak applied from an approved pulse emission test unit.
3. The capacitance connections shall be:-

	Pin connections		
Test	HP	LP	E
C in	2	1,3,4,5,6,7,8,9,C	TC
C out	TC	1,3,4,5,6,7,8,9,C	2
Cag1	TC	2	1,3,4,5,6,7,8,9,C

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOSA/CV2231 ISSUE 4 DATED 21.7.1959

AMENDMENT NO. 1.

1.

(i) Amend "MINISTRY OF SUPPLY D.L.R.D., R.A.E." to read "MINISTRY OF AVIATION - DLRD/RAE"

(ii) Amend "Specification MOSA/CV2231" to read "Specification MOA/CV2231"

2.

Delete existing Note 1 and substitute new Note 1 as follows:-

Valve to be driven with a 2 u sec. pulse at p.r.f. 1000 c.p.s. so that the grid voltage rises to 50V positive (max.) during pulse. RL. = 2.2k ± 5%.

The load circuit shall include some ~~source~~ series inductance which together with the circuit damping shall be chosen so that the peak pulse E.H.T. overshoot is equal to half the load pulse voltage. The E.H.T. storage capacitance, fed from a high impedance supply, shall be ~~0.5~~ 0.05 uF. Duration of test shall be 2 minutes. During the second minute the valve shall be ~~sensibl~~y free from flashing as shown by disturbance of the current waveform displayed on an oscilloscope.

Amdt 4

Amdt 3

Amdt 4

T.V.C. for R.A.E.

giving a short circuit current not greater than 40mA Amdt 4

January, 1965.

NJ.253618

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV2231 ISSUE 4 DATED 21.7.1959

AMENDMENT NO. 2

Amendment No.1. paragraph 1 (ii) should read

"Amend 'Specification MOSA/CV2231' to read 'Specification MOA/CV2231.'"

April, 1965.

T.V.C. for R.A.E.

(278512)

ELECTRONIC VALVE SPECIFICATION

SPECIFICATION CV2231 ISSUE 4 DATED 21-7-1959

AMENDMENT NO. 3

PAGE 2. NOTE 1 (as amended by Amendment No. 1)

SECOND PARAGRAPH

Amend the EHT storage capacitance of "0.5 μF" to read "0.05 μF".

November, 1965.
NJ/319539

T.V.C. for R.A.E.

13/11/65

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOA/CV2231, ISSUE 4, DATED 21.7.1959.

AMENDMENT No. 4

Page 2 Note 1. (Inserted by Amendment No. 1)

Amend second paragraph as follows:-

First line: Delete "source", substitute "series"

Fifth line: Between "supply" and "shall" insert the following:-

"giving a short circuit current not greater than 40 mA".

Seventh line: Delete "sensibly".

AHS 5/3/66

February, 1966 T.V.C. for R.A.E.

(319560)