MINISTRY OF SUPPLY - DLRD/RRE

VALVE ELECTRONIC CV4081

Specification MOS/CV 4081 Issue 1A Dated 9th August 1959 To be read in conjunction with K1001, BS448 and BS1409	SECURITY Specification: Unclassified Valve: Unclassified

Indicates a change

TYPE OF VALVE - Reliable low noise R.F.triode with flexible leads.
ENVELOPE - Indirectly Heated
CATHODE - Glass - Unmetallised
PROTOTYPE - VX 3519

MARKING
See K1001/4

BASE
B7G/F

RATINGS AND CHARACTERISTICS

All limiting values are absolute

			Note
Heater Voltage	(V)	6.3	
Heater current	(A)	0.37	
Max.Anode Voltage	(V)	200	
→ Max.Grid current	(mA)	3	
Max.Negative Grid Voltage	(V)	20	
Max.Cathode Current	(mA)	20	
Max.Bulb temperature	(°C)	180	
Max.Heater-Cathode Voltage	(V)	100	
→ Max.Grid Resistance			
Fixed Bias	(M.ohms)	0.1	
Auto Bias	(M.ohms)	0.5	
→ Mutual Conductance	(mA/V)	14	A.B.
Anode Impedance	(ohms)	4150	A
→ Amplification Factor		52	A
Noise Factor, nominal	(dB)	1.4	C
Max. Accn. (Continuous operation)	(g)	2.5	
Max. Shock (Short Duration)	(g)	500	

CONNECTIONS

Lead	Electrode	
1	Control grid	g_1
2	Cathode	k
3	Heater	h
4	Heater	h
5	Cathode	k
6	Control Grid	g_1
7	Anode	a

DIMENSIONS

See K1001/A1/D11
BS448: B7G/2.1/1

MOUNTING POSITION

Any

NOTES

→ A. Measured at V_a (b) = 180v. R_a = 3.3 Kohm R_k = 68 ohms Ia = 15.5 mA

B. Measured in a mutual conductance bridge, maximum frequency 1000 c/s, max input signal to grid 0.1v r.m.s.

C. Measured at 45 Mc/s under approved conditions.

D. Measured at 1 Mc/s with valve and socket fully screened.

TESTS

To be performed in addition to those applicable in K1001

TEST CONDITIONS - Unless otherwise stated

Vh (V)	Va (b) (V)	R_e (kohm)	R_k (ohm)
6.3	180	3.3	68

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Symbol	LIMITS Min.	LIMITS Bogey	LIMITS Max.	UNITS
7.1	Glass Strain	No Voltages	6.5	I					
	GROUP A								
	Insulation	Va-all = -100v Vg1-all = -20v		100% 100%	R R	50 20			M M
	Reverse Grid Current	Vg1 = -1.0v Rg1 = 500K max		100%	Ig1			0.7	/uA
	GROUP B	Combined AQL	4.0						
	Heater Current		0.65	II	Ih	0.33	0.37	0.41	A
	Heater Cathode leakage current	Vhk ± 100v	0.65	II	Ihk			10	/uA
	Anode Current (1)		0.65	II	Ia	12	15.5	19	mA
	Mutual Conductance	Note 1	0.65	II V2	gm gm	10.5	14 Note 2	17.5	mA/V mA/V
	Anode Current (2)	Vg1 + -4.0v	0.65	II	Ia			2.6	mA
	Noise Factor	Frequency = 45 Mc/s R_k = 68 ohms ± 5% Note 3	2.5	II	NF		1.4	1.75	dB
	GROUP C								
	Vibration Noise	Va(b) = 160v	2.5	I	Va AC			10	mV
		RL = 2K							
		R_k = 68 ohms							
		C_k = 1000 /uF							
		R_g = 1K							
		C_c = 0.1 /uF							

K1001	TEST	TEST CONDITIONS	AQL	Insp. Level	Symbol	LIMITS Min.	LIMITS Bogey	LIMITS Max	UNITS
	GROUP D								
	Amplification Factor		6.5	IA	/u	36	52	68	
	Capacitance	Measured on a 1 Mc/s bridge with valve mounted in a fully screened socket. Valve Shielded Note 4	6.5	IA	Cge	2.1	2.7	3.3	pF
					~~Cac~~	~~0.16~~	~~0.2~~	~~0.24~~	~~pF~~
					Cag	0.8	1.1	1.4	pF
					Cac	0.18	0.22	0.26	pF Amdt 1
	GROUP E								
5.12	Lead Fragility	No Voltages	6.5	IA					
11.2	Resonance Search	RL = 2K Freq = 50 -1000 c/s	2.5	IC	V_a AC	To be recorded and agreed later			
11.3	Fatigue	Vh = 6.9v switched 1 min on 3 mins off. Va = 0 Min.pk. accel = 5g Duration = 30,39 30 hours							
	Post fatigue tests	Combined AQL	6.5						
	Vibration Noise	Note 5	2.5		Va AC			20	mV
	Heater Cathode leakage current	Vhk ± 100v	2.5		Ihk			20	/uA
	Reverse Grid current	Vg1 = -1.0v Rg1 = 500K max	2.5		Ig			1.4	/uA
	Mutual conductance	Note 1	2.5		gm	10			ma/V
11.5	Shock Test	Hammer angle = 30° No voltages							
	Post Shock Tests	Combined AQL	6.5						
	As for Post Fatigue Tests								

TESTS (Cont'd)

K1001	TEST	TEST CONDITIONS	AQL %	Insp. Level	Symbol	LIMITS Min.	LIMITS Bogey	LIMITS Max	Units
	GROUP F								
AV1/5	Life Test	Vh = 6.3v Va(b) = 180v RL = 3.3K Rk = 68 ohms Vhk = 50 r.m.s 50 c/s							
AV1/5.1.	Stability Life Test Change in mutual Conductance		1.0	I	gm			10	%
AV1/5.3	Intermittent Life Test	See above		IA					
	Life Test end point (500 hrs)	Combined AQL	6.5						
	Inoperatives		2.5						
	Heater cathode leakage current	Vhk ± 100v	2.5		Ihk			35	/uA
	Reverse grid current	Vg1 = -1.0v Rg1 = 500K max	2.5		Ig			1.0	/uA
	Mutual conductance	Note 1	2.5		gm	8.0			mA/V
	do. Average change		2.5		gm			20	%
	Noise Factor	Freq.= 45 Mc/s Rk = 68 ohms ± 5% Note 3	4		NF			2.0	dB
	Life Test end point (1000 hrs)								
	Noise Factor	Freq.= 45 Mc/s. Rk = 68 ohms ± 5% Note 3.	4		NF			2.2	dB
	GROUP G.								
AIX/2.5	Electrical re-test after 28 days holding period			100%					
	Inoperatives		0.5						
	Reverse grid current	Vg1= -1.0v Rg1= 500K max	0.5		Ig1			1.2	/uA

CV4081

NOTES

1. Measured with a mutual conductance bridge or any approved method.

2. For variables test LAL = 12.2 Bogey = 14 and UAL = 15.8. mA/V, the ALD = 4.7 mA/V.

3. To be measured under approved conditions. R_L = 3.3K V_a(b) = 180v.

4. Capacitance connections as follows:-

Capacitance	HP	LP	E
C_{ge}	1. 6	2.3.4.5	C.7
C_{ae}	7	2.3.4.5	C.1.6.
C_{ag}	7	1.6	2.3.4.5.C

5. The conditions specified for the vibration noise test in Group C shall apply.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION M.O.A./CV.4081 ISSUE 1A DATED 9th AUGUST 1959

AMENDMENT NO. 1

Page 3 Group D Capacitance

Against "Cac" amend the columns as follows:-

Min. amend "0.16" to read "0.18".

Bogey amend "0.2" to read "0.22".

Max. amend "0.24" to read "0.26".

March 1965.

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

✓ AMS 29/6/65