

Specification MOS/CV4096 Issue 1, Dated 7.5.59 To be read in conjunction with K.1001, BS448 and BS1409	SECURITY	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

→ Indicates a change

Type of Valve - Reliable H.F. Beam Tetrode Sharp Cut Off Cathode - Directly Heated Envelope - Glass - Un-metallised Prototype - VX9185		MARKING	
		See K.1001/4, except that the valve shall only be marked with the CV Number Factory and Date Code.	
RATING (All limiting values are absolute)		BASE	
		See App. 1 to CV 2237 BS 448/B5G/F	
		CONNECTIONS	
		PIN	ELECTRODE
		1	a (red dot)
		2	g ₂
		3	f (-), bp ₁
		4	g ₁
		5	f (+), bp ₂
Typical Operating Conditions		DIMENSIONS	
Measured at $V_a = V_{g2} = 67.5V$ $V_{g1} = 0, R_{g1} = 5 M\Omega$		See App. 1 to CV 2237 See BS448/B5G/F Size Ref. No. 1	
Anode Current (mA) 1.8 Screen Current (mA) 0.5 Mutual Conductance (mA/V) 1.1			
Capacitances (pF)		Dimensions (millimetres)	
C _{in} (nom.) 3.4 C _{out} (nom.) 2.1 C _{a, g1} (max.) 0.06		Min.	Max.
		A. Overall Length	-
		Diameter	38.15
		B. Minor	-
		C. Major	7.264
		Lead Length	38.1
		MOUNTING POSITION	
		ANY	

Z.19171.

CV 4096/1/1

CV4096

TESTS

To be performed in addition to those applicable in K.1001. Tests shall be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test conditions - unless otherwise specified										
		Vf(V)	Va(V)	Vg2(V)	Vg1(V)	Rg ₁ (Megohms)				
		1.25	67.5	67.5	0	5				
K.1001 Ref.	Test	Test Conditions			AQL %	Insp. Level	Sym-bol	Limits		Units
								Min.	Max.	
7.1	Glass Strain	No voltages			6.5	I				
	<u>GROUP A</u>									
	Electrode Insulation	Vg ₁ - all = -100V Vg ₂ - all = -100V Va - all = -100V Vf = 0				100% 100% 100%	R R R	100 100 100		MΩ MΩ MΩ
	Reverse Grid Current	Vg ₁ = -0.5V Rg ₁ = 0.1 MΩ max.				100%	Ig ₁	-	0.5	μA
	Contact Potential	Vf = 1.25V Va = Vg ₂ = 0 Vg ₁ = + 1.8V through 200 KΩ				100%	+Ig ₁	0.25		μA
	<u>GROUP B</u>	Combined AQL			1.0	II				
	Filament Current				0.65	II	If	18	22	mA
	Anode Current				0.65	II	Ia	1.2	2.4	mA
	Screen Grid Current				0.65	II	Ig ₂	0.35	0.7	mA
	Mutual Conductance (1)	Note 1			0.65	II	gm	0.75	1.45	mA/V
	<u>GROUP C</u>	Combined AQL			4.0	I				
	Mutual Conductance (2)	Note 1 Vf = 1.0V			2.5	I	gm	0.60	1.45	mA/V
	Mutual Conductance (3)	Note 1 Vf = 1.0V Take reading after 15 minutes			2.5	I	gm	0.60	1.45	mA/V
5.12	<u>GROUP D</u>									
	Lead Fragility				6.5	IA				
	Filament Anode Short	Note 2				T.A.				

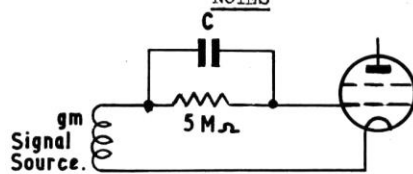
CV 4096/1/2

K.1001 Ref.	Test	Test Conditions	AQL	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
	<u>GROUP D</u> (Cont'd) Capacitance Functional Test	Measured on a 1 Mc/s bridge with the valve mounted in a fully screened socket. No shield.	6.5	IC	Ca, g ₁ C _{in} C _{out}		0.06 3.0 3.8 1.7 2.5	pF pF pF
				T.A.			The valves shall operate satisfac- torily in W.S. A40 and A41.	
11.3	<u>GROUP E</u> Fatigue <u>Post Fatigue</u> <u>Tests</u>	Acceleration = 5g peak min. Time = 99 hrs. Note 3		IA				
11.4	Mutual Conductance (1) Shock <u>Post Shock</u> <u>Tests</u> Mutual Conductance (1)	Note 1 Hammer Angle 30° No voltages Note 1	2.5 2.5	IA IA	gm	0.60		mA/V mA/V
A VI/ 5 A VI/ 5.1 A VI/ 5.3 A VI/ 5.6	<u>GROUP F</u> Life <u>Stability</u> <u>Life Test</u> Mutual Conductance (2) <u>Intermittent</u> <u>Life Test</u> <u>Life Test</u> <u>End Point</u> (500 hrs.) Inoperatives Mutual Conductance (1)	Note 1 V _f = 1.0V Combined AQL Note 1	1.0 6.5 2.5 2.5	I IA	gm	0.60		mA/V mA/V

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits		Units
						Min.	Max.	
A VI/ 5.6	<u>GROUP F</u> (Contd.)							
	Electrode Insulation	V _f = 0 V _{g1} - all = -100V V _{g2} - all = -100V V _a - all = -100V	4.0		R R R	50 50 50		MΩ MΩ MΩ
	<u>Life Test End Point</u> 1,000 hrs.	Combined AQL	10	1A				
	Inoperatives		4.0					
	Mutual Conductance (1)	Note 1	4.0		gm	0.60		mA/V
	Reverse Grid Current	As in Group A	4.0		I _{g1}	-	1.0	μA
	Electrode Insulation	V _f = 0 V _{g1} - all = -100V V _{g2} - all = -100V V _a - all = -100V	6.5		R R R	30 30 30		MΩ MΩ MΩ
Contact Potential	As in Group A			+I _{g1}	To be recorded		μA	
A IX/ 2.4 & 2.5	<u>GROUP G</u> Electrical Retest after 28 days holding period			100%				
A VI/ 5.6	Inoperatives		0.5					
	Mutual Conductance (1)	Note 1			gm	0.75	1.45	mA/V
	Reverse Grid Current	As in Group A	0.5		I _{g1}	-	0.5	μA

NOTES

1. Test in circuit



Bypass capacity C shall have a resistance of less than 20,000 ohms at the test frequency.

2. Raise V_f until filament opens. Test for filament to anode short only. After performance of the filament burn out test, if the short circuit shall pass in excess of five times the rated filament current without burning out the short circuit, the valve shall be deemed a failure. This test shall be performed by a Service

3. Filament voltage and H.T. voltage are switched simultaneously 1 min. on 3 min. off throughout the duration of the test. Frequency = 170 cps. The valves to be vibrated in each of three mutually perpendicular planes in turn for periods of 30, 30 and 39 hours. One plane to include the longitudinal axis of the valve.

CV 4096/1/5