

Specification MOS(A)/CV2258 Issue 2 Dated 19.1.55 To be read in conjunction with K1001.	<u>SECURITY</u>	
	<u>Specification</u>	<u>Valve</u>
	UNCLASSIFIED	UNCLASSIFIED

<p><u>TYPE OF VALVE</u> - Silicon Low-level Detector Crystal</p> <p><u>CONSTRUCTION</u> - Shielded coaxial type. The valve is suitable for panclimatic operation at atmospheric pressures equivalent to 67 mm of mercury.</p> <p><u>POLARITY</u> - The pin is equivalent to the cathode of a conventional diode.</p> <p><u>PROTOTYPE</u> - CS4B</p>	<p><u>MARKING</u></p> <p>CV2258</p> <p>Factory Identification Code</p> <p>Date Code</p>					
<p style="text-align: center;"><u>RATING</u></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">Max Operating Frequency (Mc/s)</td> <td style="width: 20%;">12000</td> <td rowspan="2" style="width: 20%; text-align: center; vertical-align: middle;">Note</td> </tr> <tr> <td>Max Operating Temperature Range (°C)</td> <td>-40 to +100</td> </tr> </table>	Max Operating Frequency (Mc/s)	12000	Note	Max Operating Temperature Range (°C)	-40 to +100	<p style="text-align: center;"><u>CONNECTIONS</u></p> <p>The cat's whisker shall be connected to the centre pin contact.</p>
Max Operating Frequency (Mc/s)	12000	Note				
Max Operating Temperature Range (°C)	-40 to +100					
	<p><u>DIMENSIONS</u></p> <p>See K1001/AI/D9 & D9a</p>					
	<p><u>MOUNTING POSITION</u></p> <p>Any</p>					

To be performed in addition to those applicable in K1001

Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
					Min.	Max.	
a Burn-out (Processing Test)	5 watts RF peak power shall be applied to the valve. f = 9375 + 100 Mc/s; FRF = 1000 + 100 pps; tp = 1.0 + 0.1 uS; Duration = 10 secs min. Note 1.		100%		-	-	
b 1. <u>Resistance Ratio</u> Backwards-to-forwards 2. Forward Resistance	Using an Avometer Model 7 the valve shall be tested on the 100,000-ohm range.		100%		10:1	-	
c Voltage Sensitivity - X-band	Valve shall be tested using an approved holder and a load having a 10k +5% resistance. f = 9375 + 10 Mc/s; CW input power = 1 to 5 uW; Note 2.		100%	Sx	1	4	mV/uW
d Voltage Sensitivity - S-band	As for Test (c) f = 3000 + 3 Mc/s; Note 2.		TA	Ss	To be recorded		mV/uW
e VSWR - X-band	As for Test (c) CW input power = 5 uW; Note 3.	4.0	IA		0.5	-	
f Video Resistance	Input voltage = 1.0 mV DC		100%	Rv	2000	7000	ohms
g <u>Burn-out</u> Change in voltage sensitivity - X-band	As for Test (a) but RF peak power = 1.0 W min; Duration = 5 mins. min; Note 1. As for Test (c).	6.5	IB				
				ΔSx	-	2	db
h <u>Tensional Stability</u> Resistance ratio Forward resistance Voltage sensitivity - X-band Video resistance	An axial tension of 15 lbs shall be applied to the centre pin for 1 min. As for Test (b) As for Test (b) As for Test (c) As for Test (f)	6.5	IB				
				Rf	8:1	-	ohms
				Sx	-	300	ohms
				Rv	0.8	4.2	mV/uW
					1900	7350	ohms

Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units		
					Min.	Max.			
j <u>Vibrational Stability</u>	f = 50 c/s nom; Min. pk. accel. = 12g; Duration = 2 x 10 mins; Note 4.	6.5	IB						
	Resistance ratio					8:1	-		
	Forward resistance					Rf	-	300	ohms
	Voltage sensitivity- X-band				As for Test (c)	Sx	0.8	4.2	mV/uW
Video resistance	As for Test (f)	Rv	1900	7350	ohms				
k <u>Climatic Conditioning</u>	See K1001/10.1 Duration = 7 x 24 hrs	6.5	IB						
	Resistance ratio					8:1	-		
	Forward resistance					Rf	-	300	ohms
	Voltage sensitivity- X-band				As for Test (c)	Sx	0.8	4.2	mV/uW
Video resistance	As for Test (f)	Rv	1900	7350	ohms				
m <u>Temperature Cycling</u>	The valve shall be subjected to 6 cycles over the range - 40°C to +70°C. Each cycle shall take not less than one hour.		TA						
	Resistance ratio					8:1	-		
	Forward resistance					Rf	-	300	ohms
	Voltage sensitivity- X-band				As for Test (c)	Sx	0.8	4.2	mV/uW
Video resistance	As for Test (f)	Rv	1900	7350	ohms				

NOTES

1. The input power shall be derived from a source matched better than 0.5 VSWR.
2. The approved holder shall match the mean crystal when measured under the specified test conditions.
3. Reference should be made to Section 1 - Sampling Inspection by Attributes - of Appendix XI to Joint Service Specification, K1001 for information regarding inspection procedure.
4. The valve shall be vibrated sinusoidally in two directions mutually at right angles, one of which shall be along the major axis. See also K1001/11.3.
5. All tests shall be performed at an ambient temperature with the range $20 \pm 5^\circ\text{C}$.