SPECIFICATION CV 2355 - 2357 ISSUE 2 DATED 1.5.56

AMENDMENT 1

Page 3

Clause g

Test Conditions

DELETE "Apply an axial tension of 10 lb. to the centre pin for 10 sec. min."

INSERT "Apply an axial tension of 5 lb. to the centre pin for 10 sec. min."

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Note 2. Second Table.

DELETE the units "OHMS" and substitute "MHOS".

T.V.C. Office
for Director,
Royal Aircraft Establishment.

April, 1957

N.87622R.

MINISTRY OF SUPPLY - D.L.R.D.(A)/R.A.E.

VALVE ELECTRONIC

CV2355
CV2356
CV2357

Specification MOS(A)CV2355, CV2356 and CV2357 Issue 2 Dated 1.5.56 To be read in conjunction with K.1001	SECURITY	
	Specification	Valve
	UNCLASSIFIED	UNCLASSIFIED

——————→ Indicates a change

TYPE OF VALVE - Close tolerance low level detection silicon crystal	MARKING CV2355) CV2356) as CV2357) appropriate Factory Identification Code Date Code
FREQUENCY RANGE - The valves may be used at all frequencies up to 12,000 Mc/s	DIMENSIONS See K.1001/A1/D9
CLIMATIC PERFORMANCE - Although these valves are intended to be fully panclimatic, some samples may not stand exposure to high humidity conditions for long periods without deterioration in performance. The valves should be used in sealed units and should not be removed from their protective packing until required for use.	MOUNTING POSITION Any
POLARITY - The cats whisker shall be connected to the inner contact, i.e. the pin is equivalent to the cathode of a thermionic diode	
TEMPERATURE RANGE - -40 to +70°C	

NOTES

A. These valves supersede CV2226, and are identical with CV2258 except that

1. They are more sensitive.
2. The tolerances in respect of R.F. Admittance are tighter.

CV2258 MUST be used in all cases where the special performances of CV2355, CV2356 and CV2357 are not essential.

B. CV2355, CV2356 and CV2357 are identical except that in each case they have different nominal R.F. Admittances. See Note 2 page 3.

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→ The tests (with the exception of clause (a), which may, if desired by the manufacturer, be performed immediately after assembly) are to be performed not earlier than 28 days after the completion of manufacture of the valve. They are to be performed in the order shown at an ambient temperature of 20° ± 5°C.

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
a	Burn-out (Processing Test)	5 watts RF peak power shall be applied to the valve. f = 9375 ± 100 Mc/s; PRF = 1000 ± 100 pps; tp = 1.0 ± 0.1 µsec. Duration = 10 secs. min. Note 1.		100%				
b	1. Resistance Ratio backwards-to-forwards	The valve shall be tested using a meter with a f.s.d. of 3 mA, a series resistor of 500Ω and a 1.5 volt battery. Note 7.		100%		10:1	-	
	2. Forward Resistance	As above.		100%	Rf	-	275	ohms
c	Voltage Sensitivity X band	The valve shall be tested using a holder conforming with the requirements of Note 2. The load shall have a resistance of 10kΩ ± 5%. Frequency = 9375 ± 10 Mc/s CW input power = 1 to 5 µW;		100%	Sx	2	-	mV/µW
d	VSWR = X band	As for Test (c) but CW input power = 5 µW ± 0.5 µW		100%		0.75	-	
→ e	Video Resistance	Input = 1 mV max. (D.C. or A.C. r.m.s.)		100%	Rv	2000	7000	ohms
f	Burn-out	As for Test (a) but RF peak power = 1.0 W min; Duration = 5 mins. min; Notes 1, 3 and 5.		IB				
→	Change in Voltage Sensitivity X band	As for Test (c)	6.5		ΔSx	-40	+60	%

TESTS (contd.)

	Test	Test Conditions	AQL %	Insp. Level	Symbol	Limits Min.	Limits Max.	Units
g	Tensional Stability	Apply an axial tension of 10 lb. to the centre pin for 10 secs. min. Note 5		IB				
		Combined AQL	6.5					
	Resistance ratio	As for Test (b)				8:1	-	
	Forward resistance	As for Test (b)			Rf	-	300	ohms
	Voltage sensitivity - X band	As for Test (c)			Sx	1.8	-	mV/µW
	Video resistance	As for Test (e)			Rv	1900	7350	ohms
h	Vibrational Stability	Frequency = 50 c/s nom; Min. peak acceleration = 12g; Duration = 2 x 10 mins; Notes 4 and 5		IB				
		Combined AQL	6.5					
	Resistance ratio	As for Test (b)				8:1	-	
	Forward resistance	As for Test (b)			Rf	-	300	ohms
	Voltage sensitivity - X band	As for Test (c)			Sx	1.8	-	mV/µW
	Video resistance	As for Test (e)			Rv	1900	7350	ohms
j	Climatic Conditioning	See K1001/10.1 Duration = 7 days Note 6		IB				
		Combined AQL	6.5					
	Resistance ratio	As for Test (b)				8:1	-	
	Forward resistance	As for Test (b)			Rf	-	300	ohms
	Voltage sensitivity - X band	As for Test (c)			Sx	1.8	-	mV/µW
	Video resistance	As for Test (e)			Rv	1900	7350	ohms
k	Temperature cycling	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	As for Test (b)				8:1	-	
	Forward resistance	As for Test (b)			Rf	-	300	ohms
	Voltage sensitivity - X band	As for Test (c)			Sx	1.8	-	mV/µW
	Video Resistance	As for Test (e)			Rv	1900	7350	ohms

NOTES

1. The input power shall be derived from a source matched better than 0.5 VSWR.

NOTES (contd.)

2. There shall be three test holders, different for each of the types CV2355, CV2356 and CV2357. These shall be such that the normalized admittances at 9375 Mc/s ± 10% at a reference plane in the measuring line and with the crystal replaced by a 66 ohm coaxial line with matched termination, shall be within ±5% of the following values:-

Type	g	jb
CV2355	2.70	+0.10
CV2356	2.70	+0.56
CV2357	2.70	-0.36

The reference plane is the position of voltage minimum in the measuring line corresponding to a short circuit at a plane within the crystal body 0.247 inches from the open end.

The nominal crystal admittances, measured in each case, at a plane 0.247 inches back from the open end of the crystal, (inside the body) are as follows

Type	G	jB
CV2355	0.0056	-0.0006 ohms
CV2356	0.0056	-0.0031 ohms
CV2357	0.0056	+0.0020 ohms

3. Reference should be made to K.1001 Appendix XI, Section 1 - Sampling Inspection by Attributes - 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 K.1001/11.3.

5. Valves subjected to these tests (f, g and h) shall not be accepted for delivery unless they still meet the full requirements of the specification.

6. Valves subjected to test (j) shall not be accepted for delivery.

7. This test may be carried out using an Avometer model 7 on the 100,000 ohms range.