

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV.7110

ISSUE 1 DATE 15-8-60

AMENDMENT NO.1

PAGE 1

DIMENSIONS:-

DELETE. AS CV.448
INSERT. SEE PAGE 5

PAGE 5

PLEASE INSERT NEW PAGE 5

NOVEMBER, 1963.

MINISTRY OF AVIATION, R.A.E.

MINISTRY OF AVIATION, D.L.R.D./R.A.E.

SPECIFICATION M.O.A./CV.7110 ISSUE No.1 DATED 15.8.60. To be read in conjunction with K.1007.	<u>SECURITY</u>	
	<u>SPECIFICATION</u>	<u>VALVE</u>
	UNCLASSIFIED	UNCLASSIFIED

TYPE OF VALVE: Germanium V.H.F. mixer crystal PROTOTYPE: C.V.2290 (VI3163, Gex66)		<u>MARKING</u>																																														
<u>RATINGS AND CHARACTERISTICS</u> (Not for inspection purposes) All limiting values are absolute		C.V. Number and if possible, the Factory Code and Date Code - See K.1007/4																																														
		<u>DIMENSIONS</u>																																														
		As C.V.44B																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%; text-align: center;">NOTE</th> </tr> </thead> <tbody> <tr> <td>Max. forward current (d.c.)</td> <td>(mA)</td> <td>50</td> <td></td> <td style="text-align: center;">A</td> </tr> <tr> <td>Max. reverse voltage</td> <td>(V)</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>Max. operating temperature</td> <td>(°C)</td> <td>75</td> <td></td> <td style="text-align: center;">A</td> </tr> <tr> <td>Max. storage temperature</td> <td>(°C)</td> <td>75</td> <td></td> <td></td> </tr> <tr> <td>Min. storage temperature</td> <td>(°C)</td> <td>-55</td> <td></td> <td></td> </tr> <tr> <td>Max. forward voltage drop at 5mA</td> <td>(V)</td> <td>0.6</td> <td></td> <td></td> </tr> <tr> <td>Max. reverse current at -1 V</td> <td>(µA)</td> <td>50</td> <td></td> <td></td> </tr> <tr> <td>Max. stored charge</td> <td>(pC)</td> <td>3</td> <td></td> <td style="text-align: center;">B</td> </tr> </tbody> </table>						NOTE	Max. forward current (d.c.)	(mA)	50		A	Max. reverse voltage	(V)	5			Max. operating temperature	(°C)	75		A	Max. storage temperature	(°C)	75			Min. storage temperature	(°C)	-55			Max. forward voltage drop at 5mA	(V)	0.6			Max. reverse current at -1 V	(µA)	50			Max. stored charge	(pC)	3		B	<u>MOUNTING POSITION</u>	
						NOTE																																										
		Max. forward current (d.c.)	(mA)	50		A																																										
		Max. reverse voltage	(V)	5																																												
		Max. operating temperature	(°C)	75		A																																										
		Max. storage temperature	(°C)	75																																												
		Min. storage temperature	(°C)	-55																																												
		Max. forward voltage drop at 5mA	(V)	0.6																																												
Max. reverse current at -1 V	(µA)	50																																														
Max. stored charge	(pC)	3		B																																												
		Any.																																														
<u>CAPACITANCE</u>																																																
Cap (nominal)	pF	1.5																																														
<u>NOTES</u>																																																
A. See rating curve figure 1, page 2.																																																
B. Charge due to minority carrier storage only, i.e. that due to capacitance not included. Forward current of 10 mA passed for at least 10µ Sec and a 2 volt pulse applied in the reverse direction. The pulse shall have a rise time of less than 2µSec over the amplitude range 10 - 90% and a duration of not less than 0.5µ Sec. The test shall be made in the approved circuit shown in figure 2, page 2.																																																
C. Joint Service Catalogue Number 5960-99-037-2230.																																																

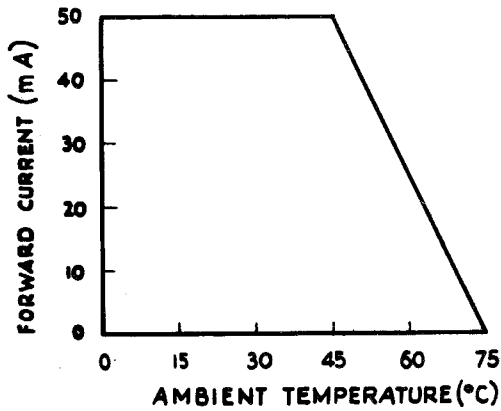


FIG. 1 DERATING CURVE.

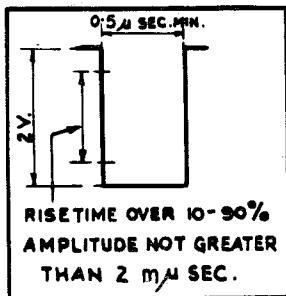
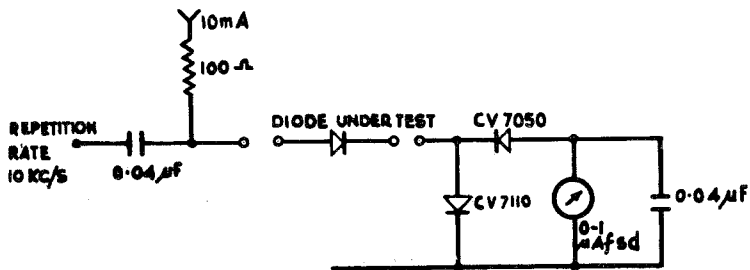


FIG. 2 CIRCUIT FOR MEASURING CHARGE STORED.

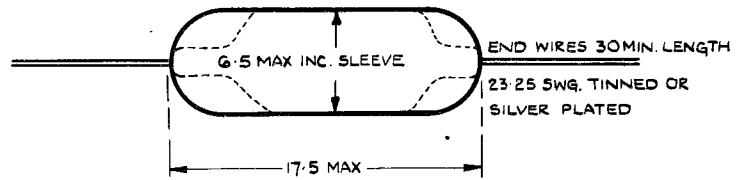
C.V. 7110

E.1007 REF.	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym.	Limits		Units
						Min.	Max.	
	<u>GROUP A</u> omitted							
	<u>GROUP B</u>							
5B.4	Forward voltage drop	$I_f = 5 \text{ mA d.c.}$	0.65	II	V_f	0.2	0.6	V
	<u>GROUP C</u>							
5B.2	Reverse current (1)	$V_r = -1 \text{ V}$	2.5	I	I_r	-	50	μA
5B.2	Reverse current (2)	$V_r = -5 \text{ V}$	2.5	1	I_r	-	2	mA
	<u>GROUP D</u>							
5B5.1	Capacitance	$f = 45 \text{ Mc/s } \pm 5 \text{ Mc/s}$ $V_{in} = 10 \text{ mV r.m.s. max.}$ $V_r = -0.5 \text{ V}$ Note B, page 1	6.5	IC	Cak	-	2.0	pF
	Stored charge			T.A.	Q	-	3	pC
	<u>GROUP E</u>							
10.2	Temperature Cycling	Three cycles -55°C to $+75^\circ\text{C}$ No voltages. Note 1	-	IC	-	-	-	-
10.3	Climatic Cycling	No voltage. Note 1	-	-	-	-	-	-
	<u>Post Temperature Cycling and Climatic Cycling Tests</u>	Combined AQL	10	-	-	-	-	-
8	Inoperatives		6.5	-	-	-	-	-
5B.4	Forward voltage drop	As in Group B	6.5	-	V_f	-	0.65	V
5B.2	Reverse current (1)	As in Group C	6.5	-	I_r	-	65	μA
11.3	Fatigue	No voltages	-	IC	-	-	-	-
	<u>Post Fatigue Tests</u>	Combined AQL	10	-	-	-	-	-
8	Inoperatives		6.5	-	-	-	-	-
5B.4	Forward voltage drop	As in Group B	6.5	-	V_f	-	0.65	V
5B.2	Reverse current (1)	As in Group C	6.5	-	I_r	-	65	μA
11.4	Shock	Hammer angle = 60°	-	T.A.	-	-	-	-
10.1	Lead Fragility	Note 2	6.5	IC	-	-	-	-
11.5	Soldering		6.5	IC	-	-	-	-
	<u>GROUP F</u>							
13	Life	Half wave circuit with resistive load P.I.V. = 1.0 V $T_{amb} = 55^\circ\text{C}$ $I_o = 33 \text{ mA}$ Note 3	-	IA	-	-	-	-
13.3	<u>Life test end points(1000 hrs)</u>	Combined AQL	10	-	-	-	-	-
8	Inoperatives		6.5	-	-	-	-	-
5B.4	Forward voltage drop	As in Group B	6.5	-	V_f	-	0.65	V
5B.2	Reverse current (1)	As in Group C	6.5	-	I_r	-	65	μA

K.1007 REF.	TEST	TEST CONDITIONS	AQL %	Insp. Level	Sym.	Limits		Units
						Min.	Max.	
	<u>GROUP F (cont'd)</u>							
13.4	Storage Life (1)	Tamb = -55°C t = 150 h	-	I	-	-	-	-
13.5	Storage Life (2)	Tamb = +75°C t = 150 h	-	I	-	-	-	-
	<u>Post Storage Life Tests</u>	Combined AQL for each group of tests	6.5	-	-	-	-	-
5B.4	Forward voltage drop	As in Group B	4.0	-	V _F	-	0.65	V
5B.2	Reverse current (1)	As in Group C	4.0	-	I _R	-	65	μA
	<u>GROUP G</u>							
	Retest after 28 days holding period		-	100%	-	-	-	-
8	Inoperatives		0.5	-	-	-	-	-
5B.4	Forward voltage drop	As in Group B	1.0	-	V _F	0.2	0.6	V

NOTES

1. The sample of diodes shall be subjected to conditioning in accordance with K.1007, Section 10.1 and shall then be subjected to temperature cycling and climatic cycling in sequence.
2. Diodes used for this test must have undergone at least 28 days of the climatic test in accordance with K.1007 Section 10.3.2 or 6 cycles in accordance with Section 10.3.3.
3. Alternatively the life test may be carried out at any temperature between 50° and 70°C (at the discretion of the manufacturer of the diode) at a current corresponding on the rating curve (figure 1 on page 2) to the chosen temperature. Positive bias may be applied to the diode if necessary to obtain the specified rectified current.



ALL DIMENSIONS IN MILLIMETRES

FIG.1. DIMENSIONAL OUTLINE DRAWING.