

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV7180

ISSUE NO.1 DATED 1.7.61

AMENDMENT NO.1

Page 2 Group C RF Admittance

Column headed TEST CONDITIONS; amend  
f = 9375Mcs  $\pm$  10 Mcs to read  
f = 9375Mcs  $\pm$  2.5Mcs.

Page 4 Note 3

Amend the final paragraph beginning "The normal crystal admittance" to read "The nominal crystal admittance".

Ministry of Aviation/RAE

December 1961

(7260)

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV.7180

ISSUE No. 1 DATED 1st JULY 1961

AMENDMENT No. 2.

Page 4 - Notes. Add new note:-

"6. Minimum Bias Supply Impedance 50 K.ohms".

Ministry of Aviation/R.A.E.

August 1963.

(39967)

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION CV7180

ISSUE NO. 1 DATED 1.7.1961

AMENDMENT NO. 3

PAGE 2 GROUP E CLIMATIC CYCLING

COLUMN HEADED TEST CONDITIONS

AMEND TO READ:-

DURATION 7 CYCLES TEMP.  $35^{\circ} \pm 2^{\circ}\text{C}$

NO VOLTAGES NOTE 4.

JULY, 1964

NM.190451.

MINISTRY OF AVIATION, R.A.E.

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

VALVE ELECTRONIC  
SEMICONDUCTOR DEVICE

**CV 7180**

Specification M.O.A./CV.7180 Issue 1. Dated 1.7.61. To be read in conjunction with K.1007	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

TYPE OF VALVE:- Silicon, Coaxial Detector Crystal FREQUENCY RANGE:- Up to 12,000 Mc/s. CONSTRUCTION:- Coaxial Shielded. PROTOTYPE:- VX.4182. POLARITY:- The pin is equivalent to the cathode of a thermionic diode.	<p style="text-align: center;"><u>MARKING</u></p> See K.1007/4. CV. No. and if possible the factory and date code.
	<p style="text-align: center;"><u>DIMENSIONS</u></p> K.1007/A1/D12A and D12B. (See Note B)

<u>RATING AND CHARACTERISTICS</u> (Not for Inspection Purposes)			Notes	<p style="text-align: center;"><u>PACKAGING</u></p> See K.1007/14 No lead shield required.
Max. Temperature Range	°C	-40 to +70		
Forward Bias	µA	50		
Max. Forward Resistance (Vf. = 0.5 v.)	Ω	200	A	
Min. Reverse Resistance (Vr. = 0.5 v.)	kΩ	10	A	

- NOTES
- A. It is recommended that the valve should be replaced in service when the d.c. characteristics fall outside these values.
  - B. When plugged into a holder, contact shall be made to the open face of the outer. The length of the centre conductor of the holder must not exceed 0.247 ins. from the open end of the valve.
  - C. This valve supersedes Valve Type CV.2258.
  - D. The Joint Services Catalogue No. is 5960-99-037-2471

CV7180

TESTS

To be performed in addition to those applicable in K.1007

Test Conditions:- Unless otherwise stated:- Tamb = 20 ± 5°C. Source Impedance: V.S.W.R. = 1.05 max. Test Holder as in Note 3.								
K.1007 REF.	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS		UNITS
						MIN.	MAX.	
	<u>Group A omitted</u>							
	<u>Group B</u>							
	Tangential Sensitivity	f = 9375 Mc/s. ± 25 Mc/s forward bias current = 50μA ± 1μA Note 1.	0.65	II	S <sub>t</sub>	51	-	-dbm
	Reverse Current	V <sub>r</sub> = -0.5 v.	0.65	II	I <sub>r</sub>	-	25	μA
	<u>Group C</u>							
5A.3	R.F. Admittance	f = 9375 Mc/s. ± 10 Mc/s Forward bias current 50μA ± 1μA C.W. input power = 5μW. max.	2.5	I	V.S.W.R.	-	2.0	ratio to 1.
5A.6	Video Resistance	Input = 1mV max. (d.c. or a.c. r.m.s.) forward bias current 50μA ± 1μA	2.5	I	R <sub>v</sub>	600	800	Ω
	Forward Current	V <sub>f</sub> = 0.5 v.	2.5	I	I <sub>f</sub>	4	-	mA
	<u>Group D</u>							
	Resistance to Voltage Break-down (Burn-out)	R.F. peak power = 1W.min. f = 9375 ± 100 Mc/s. p.r.f. = 1000 p.p.s. ± 100 p.p.s. t <sub>p</sub> = 1 μSec. ± 0.1 μSec. Duration = 5 mins.min. Notes 2 and 4.	-	1B	-	-	-	-
	<u>Post Burn-out Tests</u>							
8	Inoperatives	No voltages	6.5	-	-	-	-	-
	Reverse Current	As in Group B	6.5	-	I <sub>r</sub>	-	40	μA
	Tangential Sensitivity	As in Group B Note 1.	6.5	-	S <sub>t</sub>	51	-	-dbm
	<u>Group E</u>							
10.2	Temperature Cycling	6 cycles -40°C to + 70°C No voltages.	-	TA	-	-	-	-
10.3	Climatic Cycling	Duration 7 cycles. No voltages Note 4.	-	1B	-	-	-	-

TESTS (continued)

K.1007 REF.	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS		UNITS
						MIN.	MAX.	
8	Tensional Stability	Apply an axial tension of 5 lbs. to the centre pin for a minimum period of 10 secs. Note 5.	-	IB	-	-	-	-
	Vibrational Stability	The valves shall be vibrated sinusoidally in two mutually perpendicular planes, one of which shall be along the major axis. f = 50 c/s, peak acceleration = 12 g. min. Duration = 10 mins. in each plane. Note 4.	-	1B	-	-	-	-
	<u>Post Temperature Cycling, Climatic Cycling, Tensional Stability and Vibrational Stability Tests.</u>	Combined AQL	6.5					
	Inoperatives	No voltages.	6.5	-	-	-	-	-
	Reverse Current	As in Group B	6.5	-	Ir	-	40	μA
	Tangential Sensitivity	As in Group B Note 1.	6.5	-	S <sub>t</sub>	51	-	-dbm
13.4	<u>Group F</u> Storage Life (1)	No voltages t = 150 hours T = -40°C.	-	I	-	-	-	-
13.5	Storage Life (2)	No voltages t = 150 hours T = +70°C	-	I	-	-	-	-
	<u>Post Storage Life Tests</u>							
	Repeat Group B Tests	Combined AQL for Storage Life (1)	2.5	-	-	-	-	-
		Combined AQL for Storage Life (2)	4.0	-	-	-	-	-
5.3.2. 11.	<u>Group G</u> Retest after 28 days holding period.		-	100%	-	-	-	-

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TESTS (continued)

K.1007 REF.	TEST	TEST CONDITIONS	AQL %	INSP. LEVEL	SYMBOL	LIMITS		UNITS)
						MIN.	MAX.	
8	Inoperatives	No voltages	0.5	-	-	-	-	-
	Tangential Sensitivity	As in Group B	2.0	-	St	51	-	-dbm

NOTES

1. The value of tangential sensitivity shall be recorded and for the Group D and E tests, the minimum limit shall be -51 dbm except where the value recorded during Group B testing is between -51 and -52 dbm when the value may fall by not more than 1 dbm.
2. The input power shall be derived from a source matched better than 0.5 V.S.W.R.
3. The valves shall be tested in an approved holder. (A suitable holder will be the holder selected for testing Valve Type CV.7181.  
The normal crystal admittance, measured at a plane 0.247 ins. back from the open end of the crystal (inside the body) is as follows:-  $g = 0.0138$ :  
 $jb = -0.0110$ .
4. Valves subjected to these tests shall not be accepted for delivery unless they still meet the full requirements of the specification.
5. Valves subjected to this test shall not be accepted for delivery.

CV.7180/1/4