

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION AD/CV7356

ISSUE I DATED 10.5.62

AMENDMENT NO.1

Delete Page 5.

Insert new Pages 5 and 6.

December 1963.

Admiralty Surface Weapons Establishment

CV7356

VALVE ELECTRONIC  
(SEMICONDUCTOR)  
(DEVICE)ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

Specification AD/CV7356 Issue No. 1. Dated 10.5.62. To be read in conjunction with K1007 Mandatory Sections - 1,2,3,4,5.1,5.2,5.3,9, 15. Other Sections and Appendices as called up by this Specification.	<table border="1"> <tr> <th colspan="2">SECURITY</th></tr> <tr> <th>Specification</th><th>Device</th></tr> <tr> <td>Unclassified</td><td>Unclassified</td></tr> </table>	SECURITY		Specification	Device	Unclassified	Unclassified
SECURITY							
Specification	Device						
Unclassified	Unclassified						

—→ Indicates a change

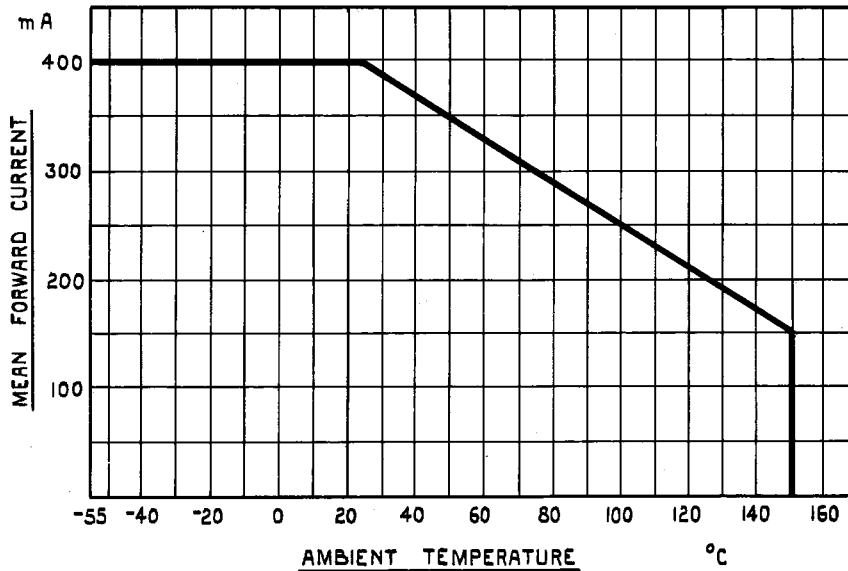
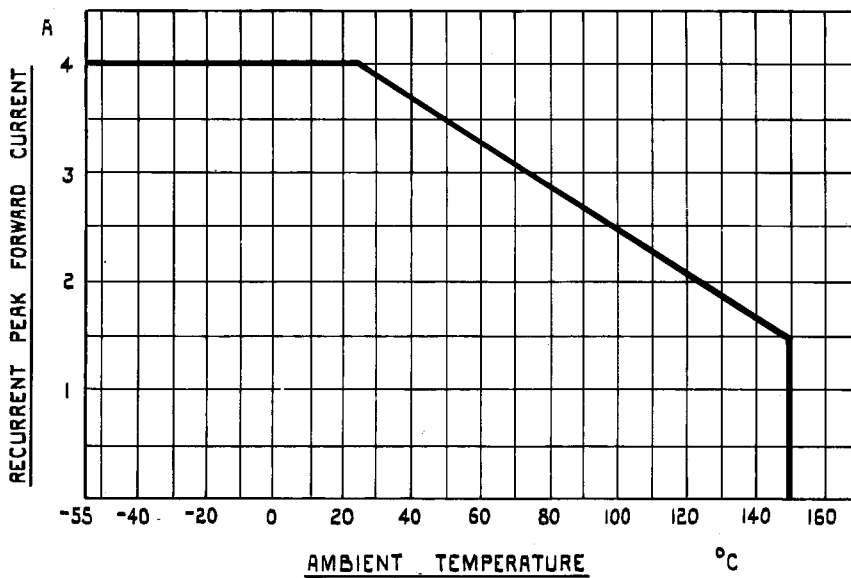
<u>TYPE OF DEVICE</u> - Silicon Power Diode			<u>MARKING</u>	
<u>PROTOTYPE</u> - 1S117			CV7356 or coloured bands denoting CV number. Polarity marking.	
<u>RATINGS AND CHARACTERISTICS</u> (Not for Inspection Purposes) <u>ALL LIMITING VALUES ARE ABSOLUTE</u>			<u>DIMENSIONS</u> K1007/A1/D9	
			<u>MOUNTING POSITION</u> Any	
			<u>PACKAGING</u> K1007. Section 14	
Max. Peak Inverse Voltage at -55°C to +150°C	(V)	800	Note A	
Max. Average Rectified Forward Current at 25°C	(mA)	4.00		
Current derating above 25°C (See Fig. 1 on Page 2)	(mA/°C)	2.0		
Max. Reverse Current at 25°C at V <sub>R</sub> = 800V d.c.	(μA)	0.2		
Max. Reverse Current at 100°C at V <sub>R</sub> = 800V d.c.	(μA)	20		
Max. Recurrent Peak Forward Current (See Fig. 2 on Page 2)				
Overload current (See Fig. 3 on page 3)				
Max. frequency of operation without derating	(kc/s)	10.0		
Max. operating ambient temperature range -55°C to +150°C				
Capacitance (nom.) at V <sub>R</sub> = 12V	(pF)	9		
<u>NOTES</u>				
A. This rating applies to all waveforms including very short transients.				
B. The Joint Services Catalogue Number is 5960-99-037-2981.				

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TEMPERATURE DERATING AT MAX. P.I.V.FIG. 1.FIG. 2.

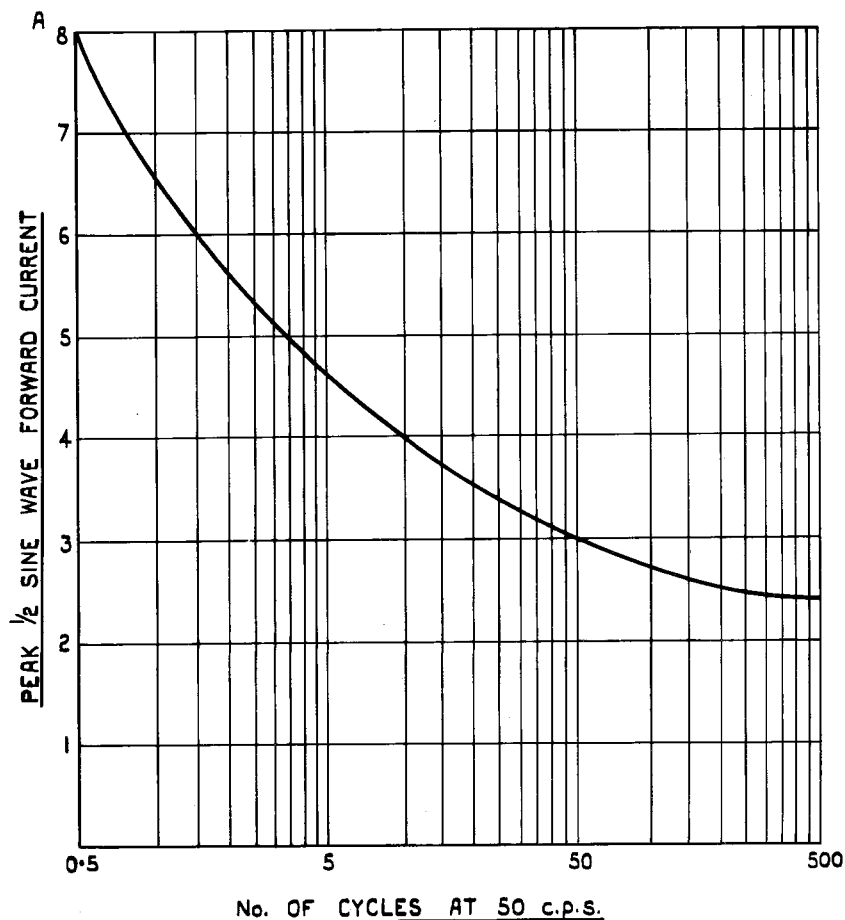
OVERLOAD CURRENT AT MAX. P.I.V. AND 25°C

FIG / 3

## Note 2

The overload current curve applies to the diode conducting half sine waves of forward current followed by half sine waves of reverse voltage. The diode may be on full load before the overload current and may continue at full load afterwards. The reverse voltage may be maintained at the P. I. V. during the overload period. The safe overload current is reduced by 5% from the value indicated on Fig. 3 for every 3°C rise in ambient temperature above 25°C. It should be noted that the overload current curve specifies the peak values of half sine waves. The full cycle mean overload current may be obtained by dividing by  $\pi$

TESTS

K1007	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
	<u>GROUP A</u>							
5C.4	Forward Voltage Drop	If = 400 mA		100%	Vf		1.0	V
5C.2	Reverse Current (1)	Vr = 800V		100%	Ir		0.2	$\mu$ A
	<u>GROUP B Omitted</u>							
	<u>GROUP C</u>							
5C.2	Reverse Current (2)	T amb. = +100°C min. Vr = 800V	2.5	I	Ir		20	$\mu$ A
	<u>GROUP D Omitted</u>							
	<u>GROUP E</u>							
10.1	Lead Fragility	No voltages Note 1	6.5	IA				
11.5	Soldering	No voltages	6.5	IC				
10.2	Temperature Cycling	No voltages Three cycles -55°C to +150°C Note 2		IC				
10.3	Climatic Cycling	No voltages Note 2.						
	<u>Post Temperature Cycling and Climatic Cycling Tests</u>	Combined AQL	10					
5C.4	Forward Voltage Drop	As in Group A	6.5		Vf		1.1	V
5C.2	Reverse Current (2)	As in Group C	6.5		Ir		22	$\mu$ A
11.3	Fatigue	No voltages		IA				
	<u>Post Fatigue Tests</u>	Combined AQL	10					
5C.4	Forward Voltage Drop	As in Group A	6.5		Vf		1.1	V
5C.2	Reverse Current (2)	As in Group C	6.5		Ir		22	$\mu$ A
11.4	Shock	No voltages Hammer angle = 60°		T.A.				
	<u>Post Shock Tests</u>	Combined AQL	10					
5C.4	Forward Voltage Drop	As in Group A	6.5		Vf		1.1	V
5C.2	Reverse Current (2)	As in Group C	6.5		Ir		2.2	$\mu$ A
11.6	Centrifuge	No voltages 10,000 g		T.A.				
	<u>Post Centrifuge Tests</u>	Combined AQL	10					
5C.4	Forward Voltage Drop	As in Group A	6.5		Vf		1.1	V
5C.2	Reverse Current (2)	As in Group C	6.5		Ir		22	$\mu$ A

K1007	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
	<u>GROUP F</u>							
→ 13	Operating Life (1)	Half-wave circuit with resistive load at max. rated P.I.V. T amb. not greater than +150°C. f = 50 c/s. Forward current not less than the value corresponding to the chosen T amb. according to the derating curve, Fig. 2 on page 2. Note 3. t = 72 hrs. min.		III				
13.3	<u>Post Life Test (1) end Points.</u>							
5C.4	Forward Voltage Drop	As in Group A	0.65		V <sub>F</sub>	1.1		V
5C.2	Reverse Current (2)	As in Group C	0.65		I <sub>R</sub>	22		μA
→ 13	Operating Life (2) Notes 5 and 6.	As for operating life (1) except t = 1000 hrs.		IA				
	<u>Post Life Test (2) end Points.</u>							
5C.4	Forward Voltage Drop	As in Group A	4.0		V <sub>F</sub>	1.1		V
	Reverse Current (2)	As in Group C	4.0		I <sub>R</sub>	22		μA
13.4	Storage Life (1)	No voltages t = 150 hrs. T amb. = -55°C		I				
13.5	Storage Life (2)	No voltages t = 150 hrs. T amb. = +150°C		I				
	<u>Post Storage Life Tests</u>	Combined AQL for each Storage Life.	4.0					
5C.4	Forward Voltage Drop	As in Group A			V <sub>F</sub>	1.1		V
5C.2	Reverse Current (2)	As in Group C			I <sub>R</sub>	22		μA

K1007	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
	<u>GROUP G</u>							
5.3.2.11	Retest after 28 days holding period							
8	Inoperatives		0.5	100%				
5C.4	Forward Voltage Drop	As in Group A	0.5	100%	V <sub>F</sub>	1.0		V
5C.2	Reverse Current (1)	As in Group A	0.5	100%	I <sub>R</sub>	0.2		μA

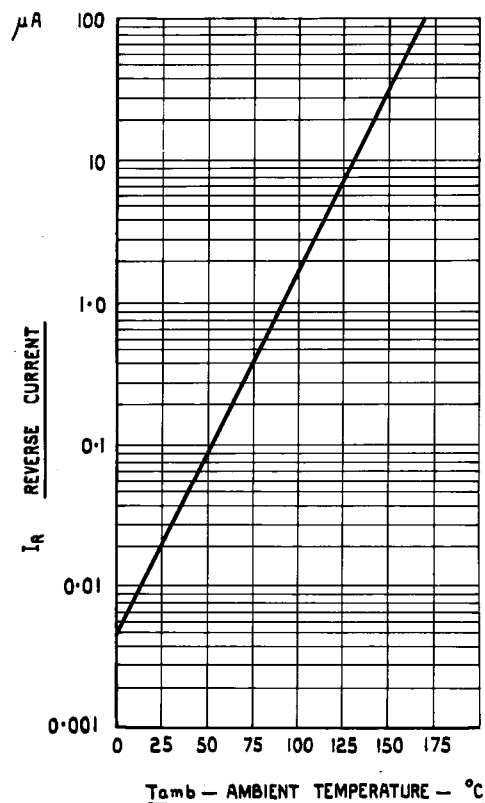
NOTES

1. Rectifiers used for this test must have undergone at least 28 cycles of climatic cycling in accordance with K1007/10.3.1. or K1007/10.3.2., or 6 cycles of climatic cycling in accordance with K1007/10.3.3.
2. A sample of rectifiers shall first be subjected to temperature cycling followed by climatic cycling, and shall then pass the post temperature cycling and climatic cycling tests.
3. The connections to the rectifier shall be made at least 20 mm from the body.

K1007, Section B

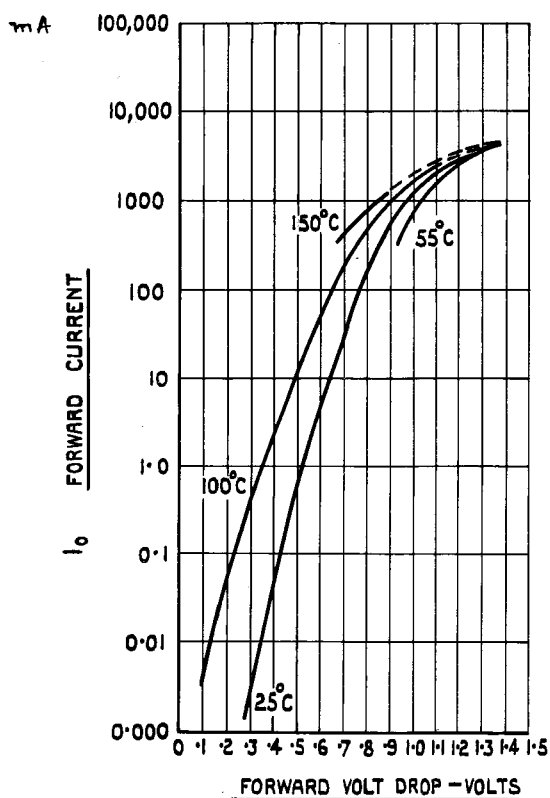
5. / Clause 4.5.3.3 will not apply. However, the Inspectorate will inform the Qualification Approval Authority if and when the requirements of Operation Life (2) have not been met.
6. This test shall be conducted on the initial lot and thereafter every ninety days or every fifth lot, whichever occurs first.

TYPICAL VARIATION OF REVERSE  
CURRENT AT MAX. P.I.V. WITH TEMPERATURE





TYPICAL VARIATION OF FORWARD  
VOLTAGE DROP WITH FORWARD CURRENT



TYPICAL VARIATION OF  
CAPACITANCE WITH VOLTAGE  
AT 25°C

