

MILITARY SPECIFICATION

CV 7433-5

SEMICONDUCTOR DEVICE, DIODES

Description: This specification covers the detail requirements for High Stability Silicon diodes and is in accordance with Specification K1007, Issue 3, except as otherwise stated.

Mechanical Dimensions and Outlines: K1007, 10.3.3.4

Polarity: Cathode marked as clause 1.3.4.4.

Absolute Maximum Ratings:-

TYPE	Rating	V_R	P_{av}	I_o	I_f	T_{opr}	T_{stg}	Shock	Vibration
	Unit	V	mW	mA	A	$^{\circ}C$	$^{\circ}C$	g	g
CV7433	Min					-55	-55		
	Max	100	275	250	1.25	150	150	1500	10
CV7434	Min					-55	-55		
	Max	200	275	250	1.25	150	150	1500	10
CV7435	Min					-55	-55		
	Max	400	275	250	1.25	150	150	1500	10
NOTE			A		B			C	

CV 7433-5

- Notes:
- A. See derating curve figure 1
 - B. Maximum Recurrent Peak forward current at 25°C
 - C. Duration 0.5mS
 - D. Commercial equivalents ZS91, 92, 94

Primary Electrical Characteristics:

Characteristics		I_R			I_R			V_F	C	
Unit		μA			μA			V	pF	
CV7433	Min									
	Max	.5			15			1.1	12	
CV7434	Min									
	Max		.5			15		1.1	12	
CV7435	Min									
	Max			.5			15	1.1	12	
C O N D I T I O N S	V_R	V	100	200	400	100	200	400		10
	T_{amb}	°C	25	25	25	100	100	100	25	25
	I_F	mA							250	

Reliability Assurance Requirements: Under discussion

Requirements:

Marking The device shall be marked as K1007
Section B.1.3.4. Essential marking,
1.3.4.1(a) and 1.3.4.1(b).

Quality Assurance Provisions:

Destructive Tests The tests listed in Table 2,
Group B Inspection, Sub Groups 2, 3 and 4
and Table 3, Group C Sub Group 2 are
considered destructive.

Group C Inspection This inspection shall be conducted
on the initial lot, and thereafter every
ninety days or every fifth lot, whichever
occurs first.

Preparation for delivery:

Packaging The device shall be packed according to
K1007, Issue 3 Section A 1.2(C)

Joint Services Catalogue Numbers:

CV7433	=	5960-99-037-3493
CV7434	=	5960-99-037-3494
CV7435	=	5960-99-037-3495

This specification is prepared by, and the Qualification Approval
Authority is:-
Ministry of Aviation, Royal Radar Establishment, Malvern, Worcs., England.

TABLE 1 GROUP A INSPECTION

Examination or Test	TEST CONDITIONS		AQI %	Insp. Level	Symbol	LIMITS		UNITS
	K1007/NATO Ref:	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u> Visual and Mechanical Inspection	5.1	Excluding Physical Dimensions	.65	II				
<u>SUB-GROUP 2</u> Reverse Current (1)	8A.2.2	CV7433, $V_R = 100V$ CV7434, $V_R = 200V$ CV7435, $V_R = 400V$	1.0	II	I_R I_R I_R	- - -	.5 .5 .5	μA μA μA
Forward Voltage (1) Drop	8A.3.2	$I_F = 250mA$			V_F		1.1	V
Forward Voltage (2) Drop	8A.3.2	$I_F = 20mA$ 25°C			V_F	.62	.73	V
Capacitance	8A.5.1	$V_R = -10V$			C		12	pF
<u>SUB-GROUP 3</u> Reverse Current (2)	8A.2.2	Temp. ambient 100°C CV7433 $V_R = 100V$ CV7434 $V_R = 200V$ CV7435 $V_R = 400V$	2.5	I	I_R I_R I_R		15 15 15	μA μA μA
<u>SUB-GROUP 4</u> Omitted								

TABLE 2 GROUP B INSPECTION

(See Page 3, Quality Assurance Provisions, Destructive Tests)

Examination or Test	TEST CONDITIONS		AQI %	Insp. Level	Symbol	LIMITS		UNITS
	K1007/NATO Ref:	SPECIFIC CONDITIONS				Min	Max	
<u>SUB-GROUP 1</u> Physical Dimensions	5.1	According to 10.3.3.4	6.5	IC				
<u>SUB-GROUP 2</u> Solderability	5.13		4.0	IA				
Temperature Cycling	5.5	-55°C to +150°C						
Thermal Shock	5.6.2	+25°C to 100°C						
Moisture Resistance	5.3.1.3							
<u>SUB-GROUP 3</u> Vibration Fatigue	5.15		4.0	IA				
<u>SUB-GROUP 4</u> Lead Fatigue	5.10.2	2 Cycles	6.5	IA				
<u>SUB-GROUP 5</u> Omitted								
<u>SUB-GROUP 6</u> Omitted								
<u>SUB-GROUP 7</u> High Temperature Life	6.2.1	T _{stg} = 150°C Duration 1,000 hours	4.0	I				

TABLE 2 GROUP B INSPECTION

Examination or Test	TEST CONDITIONS		AQL %	Insp. Level	Symbol	LIMITS		UNITS
	K1007/NATO Ref:	Specific Conditions				Min	Max	
<u>SUB-GROUP 8</u> Operating Life Post Test End Points for Sub-Groups 2, 3, 7 and 8 Forward Voltage drop (2) Reverse Current (2)	6.3.2	Operation at an ambient temperature between 25°C and 150°C. Forward current not less than the value corresponding to the chosen T_{amb} according to the derating curve Fig.1. CV7433 $V_R = 100V$ CV7434 $V_R = 200V$ CV7435 $V_R = 400V$	6.5	IC	ΔV_F I_R I_R I_R	3.0 17 17 17	mV μA μA μA	
		As in Group A, Sub-Group 2, Note 1.						
		CV7433 $V_R = 100V$ CV7434 $V_R = 200V$ CV7435 $V_R = 400V$						

TABLE 3 GROUP C INSPECTION
 (See Page 3. Quality Assurance Provisions Group C Inspection)

Examination or Test	TEST CONDITIONS		AQL %	Insp. Level	Symbol	LIMITS		UNITS
	K1007/NATO Ref:	Specific Conditions				Min	Max	
<u>SUB-GROUP 1</u>								
Omitted								
<u>SUB-GROUP 2</u>								
Shock	5.17.1	Non-operating. 5 blows in each of three mutually perpendicular directions.	6.5	IC				
Post Test End Points as for Group B <u>Sub-Groups 2, 3, 4, 7 and 8</u>								

NOTES

1. This measurement of forward voltage drop at 20mA is to be made accurately at a fixed temperature in the range 25-35°C and the measurement accuracy must be better than 0.5mV. The measurement is to be repeated after exposure to the tests in Sub-Groups 2, 3, 7 and 8 and the maximum change in forward voltage after exposure to any of these tests shall be less than 4.0mV.

FIG 1

