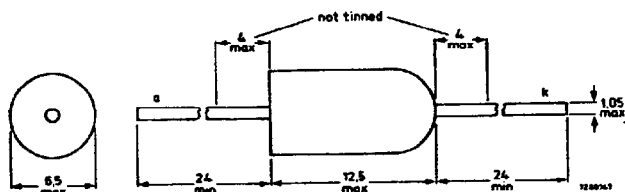


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS		page: 1 of: 16	BS CECC 50 005 015 CECC 50 005 015 Issue: 1 Date: Sept 1981				
Specification available from: MULLARD LIMITED, Mullard House, Torrington Place, London WC1E 7HD							
ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH BS CECC 50 000:1981							
DETAIL SPECIFICATION Type number(s) : BZX 70 series and BZW 70 series							
Construction Semiconductor material : Silicon Encapsulation material : Plastic							
1. MECHANICAL DESCRIPTION Third angle projection 		2. ELECTRICAL APPLICATION Ambient rated voltage regulator diode intended for medium power regulators and transient suppression circuits.					
For detail dimensions see appendix 3 All dimensions in millimetres		3. ASSESSMENT LEVELS F AND L					
4. LIMITING VALUES (Absolute Maximum Rating System) These apply over the operating temperature range, unless otherwise stated.							
4.1 Minimum and maximum operating ambient temperature		T_{amb}	<table border="1"> <tr> <td>min</td> <td>-55 °C</td> </tr> <tr> <td>max</td> <td>150 °C</td> </tr> </table>	min	-55 °C	max	150 °C
min	-55 °C						
max	150 °C						
4.2 Minimum and maximum storage temperature		T_{stg}	<table border="1"> <tr> <td>min</td> <td>-55 °C</td> </tr> <tr> <td>max</td> <td>150 °C</td> </tr> </table>	min	-55 °C	max	150 °C
min	-55 °C						
max	150 °C						
4.3 POWER DISSIPATION $T_{case} = 25^{\circ}C$							
4.3.1 Maximum continuous reverse power dissipation (see fig 1 and 2)		P_{tot}	2.5 W				
4.3.2 Maximum non-repetitive peak reverse power dissipation ($t = 100 \mu s$) (see also fig 3)		P_{RSM}	3.0 KW				
4.4.1 Maximum average forward current		$I_{F(av)}$	1.0 A				
Refer to Qualified Products List PD9002 and/or CECC 00200 for details of manufacturers approved to this specification.							

5 ELECTRICAL CHARACTERISTICS

The following characteristics are given at

$T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated.

- 5.1.1 Minimum, nominal and maximum values of working voltage at $I_Z = \text{table 1 col 9}$ V_Z see table 1 col 1, 2 and 3
- 5.1.2 Maximum continuous reverse voltage (stand off voltage) (note 1) V_R see table 1 col 7
- 5.1.3 Maximum reverse suppression voltage (clamping voltage) at I_{R3} as table 1 col 10 and $t_p = 500 \mu\text{s}$ (note 2 and 3) (exponential pulse) $V_{(S)R}$ see table 1 col 8
- 5.2 Maximum reverse current at $V_R = \text{table 1 col 7}$ I_{R1} see table 1 col 4
- 5.3 Maximum reverse current at $V_R = \text{table 1 col 7}$
 $T_{\text{case}} = 150^{\circ}\text{C}$ I_{R2} see table 1 col 5
- 5.4 Maximum differential resistance at $I_Z = \text{table 1 col 9}$ r_{zt} see table 1 col 6
- 5.6 Maximum forward voltage at $I_F = 1 \text{ A}$ $V_F = 1.5 \text{ V}$
- 5.10 Maximum value of thermal resistance junction to ambient $R_{th(j-amb)}$ see fig 1

Notes

- 1 Recommended stand-off voltage is defined as being the maximum reverse voltage to be applied without causing conduction in the avalanche mode or significant reverse dissipation.
- 2 The maximum reverse suppression voltage is the voltage which will appear across the diode at the specified pulse duration and ambient temperature. See curves on fig 4 for square pulses and fig 5 for exponential pulses.
- 3 Duration of exponential pulse is defined as the time taken for the pulse to fall to 37% of its initial value. It is assumed that the energy content does not continue beyond twice this time.

6.0 TEST CONDITIONS AND INSPECTION REQUIREMENTS

All clause references are made with respect to CECC 50 000, unless otherwise stated. samples submitted to tests marked (D) shall not be accepted for release (see clause 3.5.6 of CECC 50 000). All tests shall be made at $T_{case} = 25 \pm 5^{\circ}C$ unless otherwise stated. Marking must withstand all tests of this specification which might change or damage it and must remain legible.

7.0 ORDERING INFORMATION

The following minimum information is necessary to order a specific device, unless otherwise specified :

- precise type number
- CECC reference of detail specification with issue number and/or date when relevant
- level of quality assessment as defined in appendix II A of CECC 50 000, and, if required, screening sequence as defined in appendix VI of CECC 50 000
- any other particulars.

TABLE 1		COLUMN									
BZX 70	BZW 70	1	2	3	4	5	6	7	8	9	10
		V_Z nom	V_Z min	V_Z max	I_{R1} max	I_{R2} max	r_{ZT} max	V_R	$V_{(SR)}$ max	I_Z	I_{R3}
		V	V	V	uA	uA	ohms	V	V	mA	A
C7V5	5V6	7.5	7.0	7.9	50	150	3.5	5.6	11.5	50	104.0
C8V2	6V2	8.2	7.7	8.7	20	60	3.5	6.2	12.5	50	96.0
C9V1	6V8	9.1	8.5	9.6	10	30	4.0	6.8	14.0	50	85.5
C10	7V5	10.0	9.4	10.6	10	30	4.0	7.5	15.5	50	77.5
C11	8V2	11.0	10.4	11.6	10	30	4.5	8.2	17.0	50	70.5
C12	9V1	12.0	11.4	12.7	10	30	5.0	9.1	18.5	50	64.5
C13	10	13.0	12.4	14.1	10	30	6.0	10.0	20.0	50	60.0
C15	11	15.0	13.8	15.6	10	30	8.0	11.0	23.0	50	52.0
C16	12	16.0	15.3	17.1	10	30	9.0	12.0	24.5	20	49.0
C18	13	18.0	16.8	19.1	10	30	11.0	13.0	27.5	20	43.5
C20	15	20.0	18.8	21.2	10	30	12.0	15.0	31.0	20	39.0
C22	16	22.0	20.8	23.3	10	30	13.0	16.0	33.5	20	36.0
C24	18	24.0	22.7	25.9	10	30	14.0	18.0	37.0	20	32.5
C27	20	27.0	25.1	28.9	10	30	18.0	20.0	41.0	20	29.0
C30	22	30.0	28.0	32.0	10	30	22.0	22.0	46.0	20	26.0
C33	24	33.0	31.0	35.0	10	30	25.0	24.0	50.0	20	24.0
C36	27	36.0	34.0	38.0	10	30	27.0	27.0	56.0	20	21.5
C39	30	39.0	37.0	41.0	10	30	30.0	30.0	60.0	10	20.0
C43	33	43.0	40.0	46.0	10	30	40.0	33.0	66.0	10	18.0
C47	36	47.0	44.0	50.0	10	30	50.0	36.0	72.0	10	16.5
C51	39	51.0	48.0	54.0	10	30	55.0	39.0	78.0	10	15.0
C56	43	56.0	52.0	60.0	10	30	63.0	43.0	86.0	10	14.0
C62	47	62.0	58.0	66.0	10	30	75.0	47.0	95.0	10	12.5
C68	51	68.0	64.0	72.0	10	30	90.0	51.0	105.0	10	11.5
C75	56	75.0	70.0	79.0	10	30	100	56.0	115.0	10	10.5

All tests are non-destructive (3.5.6 of CECC 50 000)						IL Inspection level AQL given in %			
GROUP A lot by lot									
EXAMINATION OR TEST	REF.	CONDITIONS at T _{case} = 25 °C unless otherwise stated	INSPECTION REQUIREMENTS						
			LIMITS			LEVELS			
						F		L	
			MIN	MAX	UNITS	IL	AQL	IL	AQL
SUB-GROUP A1 Visual inspection	4.2.1					1	.65	1	.65
SUB-GROUP A2a Non-operatives Open circuit Short circuit	4.3.4	V _F at I _F = 1 A		7.0	V	11	0.1	11	0.1
			0.7		V				
SUB-GROUP A2b Working voltage V _Z	4.3.4 D-041	I _Z = table 1 col 9 pulse tested	table 1 col 2	col 3	V	11	.65	11	.65
Differential resistance r _{zt}	4.3.4 D-022	I _Z = table 1 col 9		col 6	ohms				
BZX 70 series only (see app.1) Reverse suppression voltage V _{(S)R}		I _{R3} = table 1 col 10 t _p = 500 us exponential pulse (see notes 2 and 3)		col 8	V				
followed by Reverse current I _{R1}	4.3.4 D-002	V _R = table 1 col 7		col 4	uA				
SUB-GROUP A3 BZX 70 series only Reverse current I _{R1}	4.3.4 D-002	V _R = table 1 col 7		table 1 col 4	uA	1	2.5	1	2.5