

BRITISH STANDARDS INSTITUTION
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BS CECC 500 13 -002
ISSUE 1 JUNE 1987
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Specifications available from:-
AS SHOWN IN PD9002, CECC 00200

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ELECTRONIC COMPONENTS OF ASSESSED QUALITY
DETAIL SPECIFICATION IN ACCORDANCE WITH
BS CECC 50 000: 1982

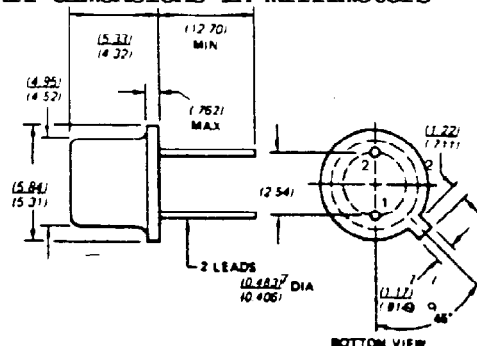
DETAIL SPECIFICATION FOR:

CR 068 CR 075 CR 082 CR 091 CR 100
CR 110 CR 120 CR 130 CR 140 CR 150

ORDERING INFORMATION:
See clause 7 of this document

1. MECHANICAL DESCRIPTION

All dimensions in millimeters



TO-18
(2 PIN)

IEC 191-2 CODE (B10-C7) BS 3934:
SO-124, SB2-3

2. DESCRIPTION

CASE RATED
CURRENT REGULATING
DIODE IN HERMETIC GLASS/METAL
ENCAPSULATION

3. LEVEL OF QUALITY ASSESSMENT

LEVEL E Plus additional tests

4. LIMITING VALUES (Absolute maximum rating systems)

These apply over the operating temperature range unless otherwise stated.

CECC 500 13 Section 3 Reference		SYMBOL	VALUE		
			MIN.	MAX.	UNIT
4.1	Operating temperature range	T_{case}	-55	150	°C
4.2	Storage temperature range	T_{stg}	-55	200	°C
4.3.1	Power dissipation at $T_{case} = 25^{\circ}C$ De rating factor $\theta_{jc} 100^{\circ}C/watt$	P_{tot}	-	75	mW
4.4	Maximum value of reverse current	I_R	-	50	mA
4.5	Maximum value of forward voltage	V_{s2}	-	100	V

See the relevant Qualified Products List of availability of components made to this specification.



Documents

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

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+ indicates verified in inspection testing clause 9.

CECC 500 13 CLAUSE REFERENCE	PARAMETER AND TEST CONDITIONS	SYMBOL	MIN.	MAX.	UNITS
5.1 +	Regulator Current $V_S = 25\text{V}$ CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	I_{S1}	0.612 0.675 0.738 0.819 0.900 0.990 1.08 1.17 1.26 1.35	0.745 0.825 0.902 1.001 1.100 1.210 1.32 1.43 1.54 1.65	mA
5.2 +	Regulator Current $V_S = 100\text{V}$ CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	I_{S2}	- - - - - - - - - -	0.823 0.908 0.992 1.101 1.210 1.331 1.452 1.573 1.694 1.815	mA
5.3 +	Regulator Current $V_S = 100$ $T_{\text{case}} = +125^{\circ}\text{C}$ CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	I_{S3}	- - - - - - - - - -	0.82 0.91 1.00 1.10 1.21 1.33 1.45 1.57 1.70 1.82	mA
5.4 +	Regulator Current Variation $V_S = 20\text{V} \text{ \& } 30\text{V}$ CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	ΔI_S	- - - - - - - - - -	7.41 8.70 10.0 11.4 12.5 14.3 15.6 17.2 18.5 19.6	μA

CHARACTERISTICS

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PAGE 3 OF 15 PAGES $T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated.

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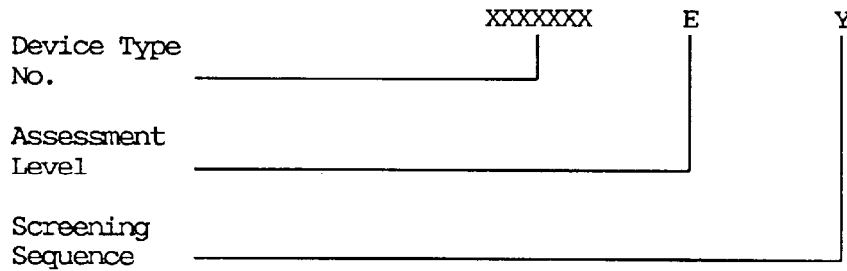
CECC 500 13 CLAUSE REFERENCE	PARAMETER AND TEST CONDITIONS	SYMBOL	MIN.	MAX.	UNITS
5.5 +	Small Signal Regulator Conductance $V_S = 25\text{V}$ Frequency = 1kHz CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	g_s	- - - - - - - - - - -	0.741 0.869 1.000 1.136 1.250 1.429 1.563 1.724 1.852 1.961	μmho
5.6 +	Knee Conductance $V_S = 6\text{V}$ Frequency = 1kHz CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	g_k	- - - - - - - - - - -	2.500 2.285 3.449 4.167 4.878 5.555 6.452 7.407 8.696 9.524	μmho
5.7 +	Limiting Voltage $I_L = 0.490\text{mA} =$ V_L 0.540mA = CR 068 0.590mA = CR 075 0.655mA = CR 082 0.720mA = CR 091 0.792mA = CR 100 0.864mA = CR 110 0.936mA = CR 120 1.008mA = CR 130 1.080mA = CR 140 1.080mA = CR 150	V_L	- - - - - - - - - - -	1.15 1.20 1.25 1.29 1.35 1.40 1.45 1.50 1.55 1.60	V
5.8 +	Temperature Coefficient $V_S = 25\text{V}$ -55°C $\leq T_{\text{amb}} \leq +125^{\circ}\text{C}$ CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	αI_S	-0.01 -0.03 -0.05 -0.08 -0.10 -0.13 -0.16 -0.18 -0.19 -0.21	+0.13 +0.10 +0.05 +0.04 +0.02 +0.01 +0.00 +0.00 +0.00 +0.00	%/°C
5.9	Thermal Resistance, Junction to case CR 068 CR 075 CR 082 CR 091 CR 100 CR 110 CR 120 CR 130 CR 140 CR 150	R_{th} (j-case)	-	100	°C/W



6. MARKING

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1. Each diodes shall bear the following marking:
 - a. The manufacturer's type number (See Table 1).
 - b. The factory identification code.
 - c. The date code.
 - d. Mark of conformity unless a Certificate of Conformity is used.
2. Each package containing one or more of these diodes shall bear all the above markings and in addition
 - d. This detail specification number (See Table 1).
3. Interpretation of marking information



KEY:

Quality Assessment Level
(CECC 50 000 ISSUE III APPENDIX IIA)

E

Screening Sequence
(CECC 50 000 ISSUE III APPENDIX VI)

BLANK

No Screening

A

Sequence A

B

Sequence B

C

Sequence C

D

Sequence D

7. ORDERING INFORMATION

The following minimum information is necessary to order a specific device, unless otherwise stated.

- 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

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ORDER TYPE	SPECIFICATION NUMBER			MARKING
BS CR 068 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 068E-Y
BS CR 075 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 075E-Y
BS CR 082 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 082E-Y
BS CR 091 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 091E-Y
BS CR 100 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 100E-Y
BS CR 110 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 110E-Y
BS CR 120 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 120E-Y
BS CR 130 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 130E-Y
BS CR 140 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 140E-Y
BS CR 150 -Y TO	BS CECC 50013-002	ISSUE 1	DATED JUNE '87	CR 150E-Y

8. RELATED DOCUMENTS

BS 6001	Sampling procedures and tables for inspection by attributes.
BS 9000	General requirements for electronic components of assessed quality
BS CECC 50 000	Generic specification for discrete semiconductor devices
CECC 00 200	Qualified products list
IEC 147	Essential ratings and characteristics of semiconductor devices and general principles of measuring methods
IEC 191 - 2	Mechanical standardisation of semiconductor devices - dimensions
PD 9002	BS 9000 component selection guide

9. TEST CONDITIONS AND INSPECTION REQUIREMENTS

These are given in the following table, where the values and exact test conditions to be used should be specified as required for a given type, and as required by the relevant text in CECC 50 000.