This Specification contains a small amount of data which may not be legible. It has been acquired directly from the manufacturer or standards organization and Technical Indexes/IHS have not been able to obtain a better copy.

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| BRITISH STANDARDS INSTITUTION<br>2 PARK STREET, LONDON W1A 2BS | page:<br>1<br>of:<br>11 | BS CECC 50 009-036<br>CECC 50 009-036<br>Issue: 1<br>Date: March 1984 |
| Specification avaliable from:<br>MULLARD LIMITED, Mullard House,<br>Torrington Place, London WC1E 7HD | | |
| ELECTRONIC COMPONENT OF ASSESSED<br>QUALITY IN ACCORDANCE WITH<br>BS CECC 50 000:1981 | | |

DETAIL SPECIFICATION FOR CASE-RATED RECTIFIER DIODES

Type number(s) : BYV 23

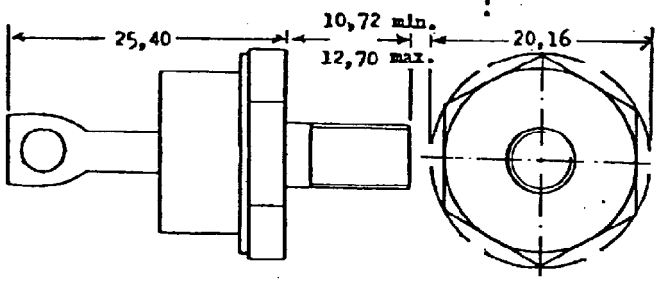
Construction

Semiconductor material : Silicon

Encapsulation material : Glass to metal hermetically sealed

1. MECHANICAL DESCRIPTION

Third angle projection




Outline IEC191/2 A4U or A4M

Marking information see page 3

All dimensions in millimetres

2. ELECTRICAL APPLICATION

CASE RATED SCHOTTKY BARRIER RECTIFIER DIODE INTENDED FOR HIGH FREQUENCY POWER SWITCHING UP TO 80A AVERAGE SQUAREWAVE 70A AVERAGE SINEWAVE AT 30/35/40/45 VOLTS.

3. ASSESSMENT LEVELS

F AND L

4. LIMITING VALUES (Absolute Maximum System)

These apply over the operating temperature range, unless otherwise stated.

4.1 Voltage :

| | | | |
|---|---|---|---|
| 4.1.1 | Crest working reverse voltage | $V_{RWM}$ | See Table 1 |
| 4.1.2 | Repetitive peak reverse voltage | $V_{RRM}$ | |
| 4.1.3 | Non-repetitive peak reverse voltage | $V_{RSM}$ | |
| 4.1.4 | Continuous (DC) reverse voltage | $V_R$ | |

TABLE 1- VOLTAGE RATINGS

| Type number | $V_R$<br>$V_{RWM}$ | $V_{RSM}$<br>$V_{RRM}$ |
|---|---|---|
| BYV23 30 | 15 | 30 |
| BYV23 35 | 20 | 35 |
| BYV23 40 | 25 | 40 |
| BYV23 45 | 30 | 45 |

Refer to Qualified Products List PD9002 and/or CECC 00200 for details of manufacturers approved to this specification.

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4.2 Current:

4.2.1 Forward current at the breakpoint temperature (see figure 1) sinusoidal $T_{case}$=90 °C ... $I_{F(AV)max}$ 70 A
squarewave $T_{case}$=85 °C ... $I_{F(AV)max}$ 80 A

4.2.3 Continuous (direct) forward current ..... $I_F$ 113 A

4.2.4 Surge (non-repetitive) forward current:
1) Without reapplication of reverse voltage $I_{FSM}$ 1500 A
2) With reapplication of reverse voltage .. $I_{FSM}$ 1500 A

4.3 Temperature

4.3.1 Case temperature
Maximum value for which the voltage ratings are specified in 4.1 ..... $T_{CASE\ max}$ 125 °C

4.3.2 Virtual junction temperature
Minimum and maximum values of the junction temperature for which the voltage and current ratings in 4.1 and 4.2 apply ..... $T_{(vj)min}$ -55 °C
max 125 °C

4.3.3 Storage temperature ..... $T_{stg\ min}$ -55 °C
max 150 °C

Mechanical
Maximum permissible torque on nut ..... 3.5 Nm
Minimum permissible torque for good thermal contact 1.7 Nm

5. ELECTRICAL CHARACTERISTICS
The following characteristics are given at $T_{case}$ =25 °C,unless otherwise stated.

5.1 Forward voltage :

5.1.1 Maximum peak forward voltage a $I_{FM}$ = 250 A corresponding to $I_F$ (AV) = 80 A ..... $V_{FM1}$ 1.1 V

5.1.2 Maximum peak forward voltage a $I_{FM}$ = 70 A and $T_{case}$=100 °C ..... $V_{FM2}$ 0.55 V

5.2 Reverse current :
Maximum value of the peak reverse current $I_{RM}$ at the rated repetitive reverse voltage $V_{RRM}$:

5.2.1 Without forward dissipation ..... $I_{RM1}$ 50 mA

5.2.2 At $T_{case}$=125 °C without forward dissipation $I_{RM2}$ 350 mA

5.3 Total power dissipation :
Maximum total power dissipation graphs as a function of the mean forward current and conduction angle ..... $P_{tot}$ See fig 1 and 2

Maximum terminal capacitance ..... $C_J$ 4000 pF



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5.5 Thermal resistance :
Junction to reference point, maximum value for d.c. current ..... $R_{th}$ 0.6 °c/w

6.0 Marking
A suffix 'M' added to the type number indicates that the device has metric thread

7.0 ORDERING INFORMATION
The following minimum information is necessary to order a specific device, unless otherwise specified :
- precise type number (see clause 6)
- 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.

8. 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 $T_{case} = 25 \pm 5$ °C unless otherwise stated. Marking must withstand all tests of this specification which might change or damage it and must remain legible.



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