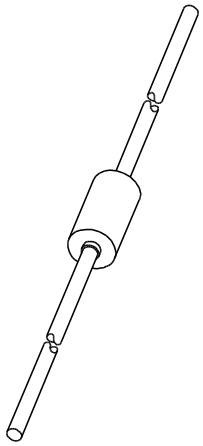
DATA SHEET



BZV37
Bidirectional voltage regulator diode

Product specification
Supersedes data of April 1992
File under Discrete Semiconductors, SC01

1996 Apr 26

Philips
Semiconductors

PHILIPS

Bidirectional voltage regulator diode BZV37

FEATURES

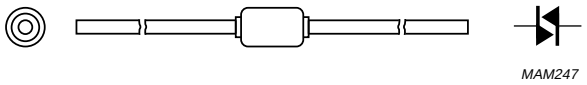
- Low total power dissipation: max. 400 mW
- Working voltage: nom. 6.5 V
- Non-repetitive peak reverse power dissipation: max. 40 W
- Bidirectional.

APPLICATIONS

- Voltage stabilizer and transient protection element.

DESCRIPTION

Low-power voltage regulator diode in an hermetically sealed leaded glass SOD68 (DO-34) package.



The diode is type branded.

Fig.1 Simplified outline (SOD68; DO-34) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_Z	continuous working current		–	50	mA
I_{ZSM}	non-repetitive peak reverse current	t = 30 s; t_1 = 8 µs; t_2 = 20 µs; T_j = 25 °C prior to surge; see Fig.3	–	7	A
		t = 30 s; t_1 = 10 µs; t_2 = 1000 µs; T_j = 25 °C prior to surge; see Fig.3	–	2	A
P_{tot}	total power dissipation	$T_{amb} \leq$ 25 °C	–	400	mW
P_{ZSM}	non-repetitive peak reverse power dissipation	t_p = 100 µs square wave; T_j = 25 °C prior to surge; see Fig.2	–	40	W
T_{stg}	storage temperature		–65	+200	°C
T_j	junction temperature		–	200	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	NOM.	MAX.	UNIT
V_Z	working voltage	I_{Ztest} = 5 mA	6.2	6.5	6.8	V
$V_{(CL)R}$	clamping voltage	I_{ZSM} = 7 A; t_1 = 8 µs; t_2 = 20 µs	–	–	25	V
		I_{ZSM} = 2 A; t_1 = 10 µs; t_2 = 1000 µs	–	–	15	V
r_{diff}	differential resistance	I_{Ztest} = 5 mA	–	–	20	Ω
S_Z	temperature coefficient	I_{Ztest} = 5 mA	–	–	0.1	%/K
C_d	diode capacitance	V_R = 0 V	–	–	150	pF
I_R	reverse current	V_R = 4 V	–	–	10	µA
		V_R = 4 V; T_j = 150 °C	–	–	30	µA
		V_R = 2 V	–	–	3	µA

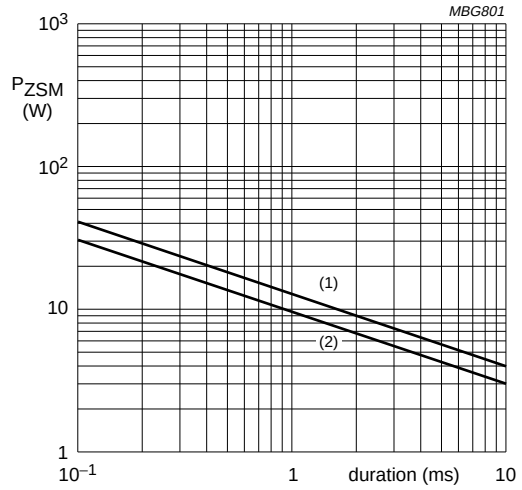
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point	lead length 8 mm	300	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	lead length max.; note 1	380	K/W

Note

1. Device mounted on a printed circuit-board without metallization pad.

GRAPHICAL DATA



(1) T_j = 25 °C (prior to surge).
(2) T_j = 150 °C (prior to surge).

Fig.2 Maximum permissible non-repetitive peak reverse power dissipation versus duration.

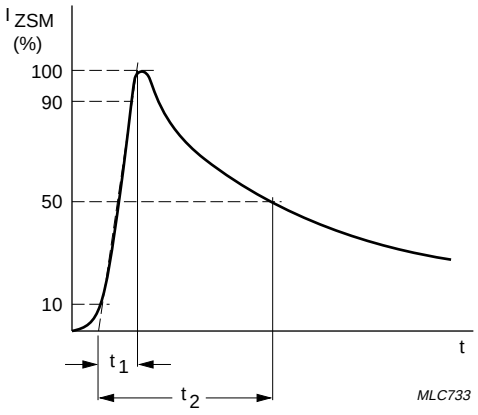
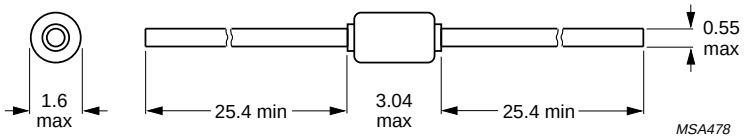


Fig.3 Current pulse according to IEC 60-2, Section 6.

PACKAGE OUTLINE



Dimensions in mm.

Fig.4 SOD68 (DO-34).

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.