

DATA SHEET



BZD142W

ZenBlock™; zener with
integrated blocking diode

Product specification

2000 May 01

ZenBlock™; zener with integrated blocking diode

BZD142W

FEATURES

- Zener and blocking function in one package
- Glass passivated
- Low leakage current
- Excellent stability
- Supplied in 8 mm embossed tape.

DESCRIPTION

Cavity free cylindrical glass package through Implotec™(1) technology. This package is hermetically sealed

and fatigue free as coefficients of expansion of all used parts are matched.

(1) Implotec is a trademark of Philips.

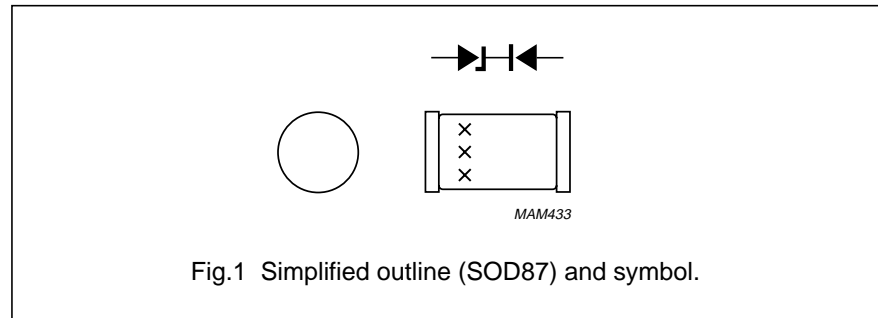


Fig.1 Simplified outline (SOD87) and symbol.

LIMITING VALUES

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
T _{stg}	storage temperature		-65	+150	°C
T _j	junction temperature		-65	+150	°C
Limiting values zener					
P _{tot}	total power dissipation	T _{tp} = 105 °C; see Fig.2	-	1.5	W
P _{RSM}	non-repetitive peak reverse power dissipation	10/1000 μs exponential pulse; T _j = 25 °C prior to surge; see Fig.5	-	100	W
Limiting values blocking diode					
V _R	continuous reverse voltage		-	600	V
E _{RSM}	non-repetitive peak reverse avalanche energy	L = 120 mH; T _j = T _{jmax} prior to surge; inductive load switched off	-	10	mJ

ELECTRICAL CHARACTERISTICS ZENER

T_j = 25 °C unless otherwise specified.

TYPE NUMBER SUFFIX (1)	WORKING VOLTAGE			TEMPERATURE COEFFICIENT		TEST CURRENT	CLAMPING VOLTAGE		REVERSE CURRENT at STAND-OFF VOLTAGE	
	V _Z (V) at I _Z (see Fig.4)			S _Z (%/K) at I _{test}		I _{test} (mA)	V _{(CL)R} (V)	at I _{RSM} (A) ⁽²⁾	I _R (μA)	at V _R (V)
	MIN.	NOM.	MAX.	MIN.	MAX.		MAX.		MAX.	
68	61	68	75	0.07	0.12	10	106	0.94	5	56
100	90	100	110	0.07	0.12	5	139	0.72	5	82
160	149	160	171	0.07	0.12	5	224	0.45	5	130

Notes

1. To complete the type number the suffix is added to the basic type number, e.g. BZD142W-68.
2. Non-repetitive peak reverse current in accordance with "IEC 60060-1, Section 8" (10/1000 μs pulse); see Fig.5.

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ELECTRICAL CHARACTERISTICS BLOCKING DIODE

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$	700	–	–	V
I_R	reverse current	$V_R = 600\text{ V}$	–	–	5	μA
		$V_R = 600\text{ V}; T_j = 150\text{ °C}$	–	–	100	μA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0;$ see Fig.3	–	15	–	pF

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		30	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	150	K/W

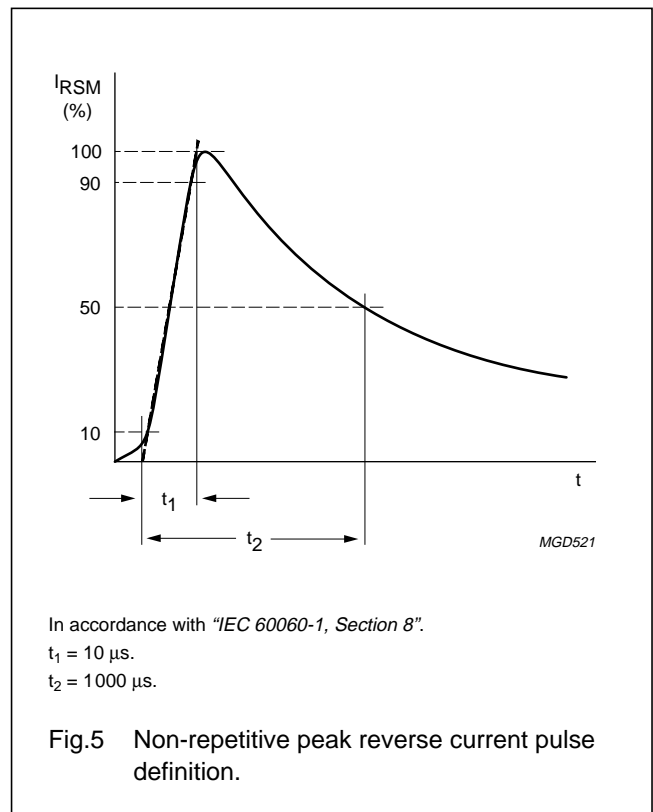
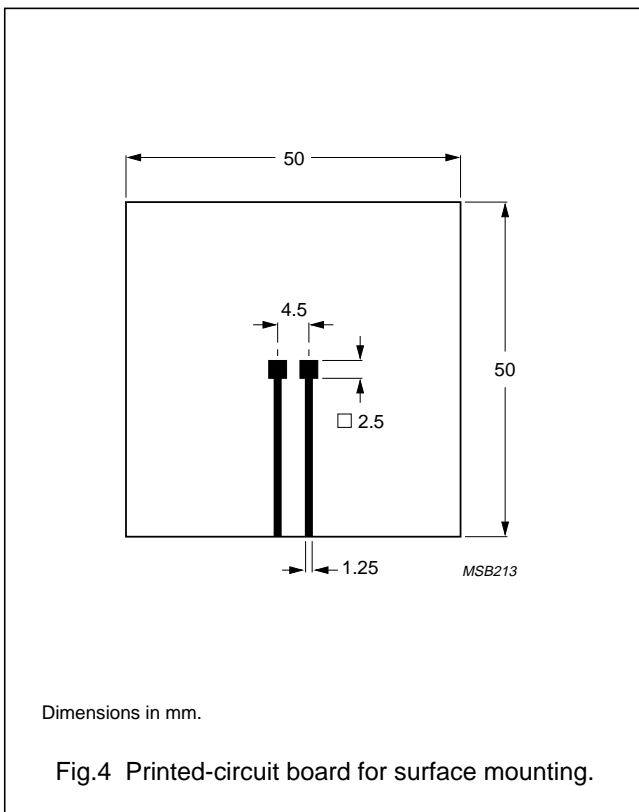
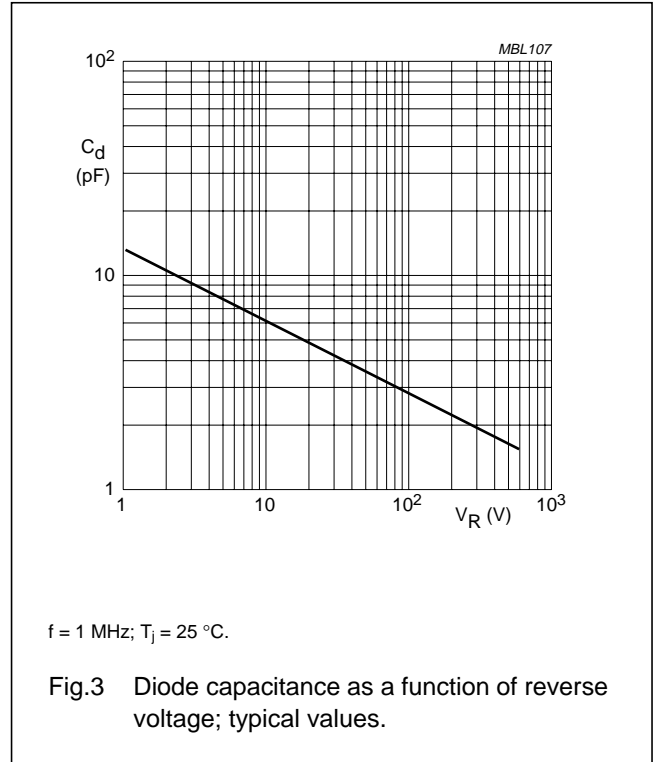
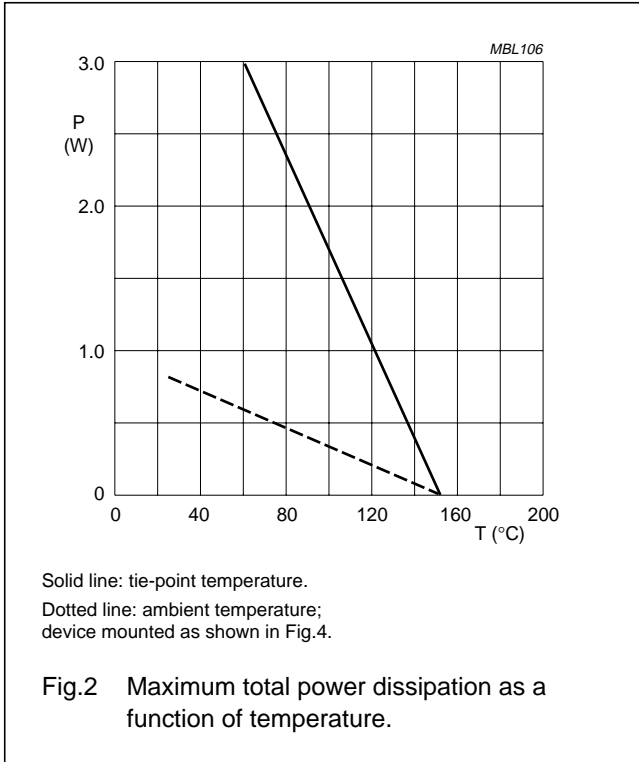
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer $\geq 40\ \mu\text{m}$, see Fig.4. For more information please refer to the '*General Part of associated Handbook*'.

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GRAPHICAL DATA



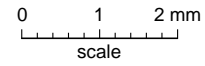
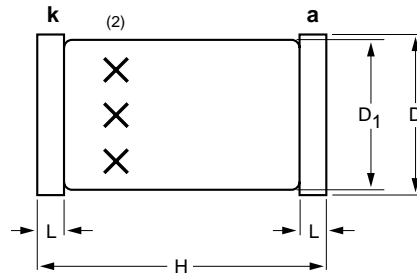
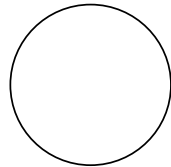
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PACKAGE OUTLINE

Hermetically sealed glass surface mounted package;
Implotec™(1) technology; 2 connectors

SOD87



DIMENSIONS (mm are the original dimensions)

UNIT	D	D1	H	L
mm	2.1 2.0	2.0 1.8	3.7 3.3	0.3

Notes

1. Implotec is a trademark of Philips.
2. The marking indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD87	100H03					99-03-31 99-06-04

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DATA SHEET STATUS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS ⁽¹⁾
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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