

DATA SHEET



BZD142W

ZenBlock™; zener with integrated blocking diode

Product specification
Supersedes data of 2000 May 01

2001 Oct 10

ZenBlock™; zener with integrated blocking diode

BZD142W

FEATURES

- Zener and 600 V/100 ns blocking function in one package⁽¹⁾
- Protects MOSFETS or power IC controllers such as TINYSwitch™⁽²⁾, TOPSwitch™⁽²⁾ and STARplug™⁽³⁾
- Glass passivated
- Excellent clamping capability and stability
- Supplied in 8 mm embossed tape.

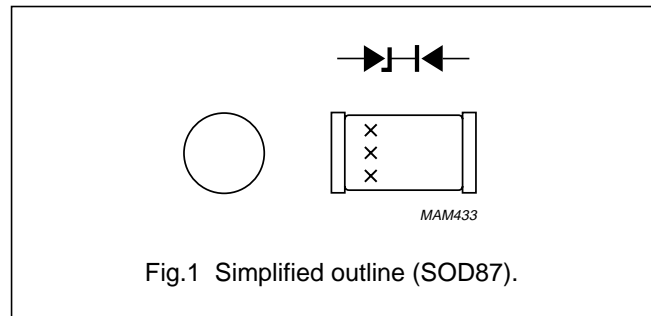


Fig.1 Simplified outline (SOD87).

- (1) Types BZD142W-68,-100 and -160 have a 600 V blocking diode with a minimum t_{rr} of 1000 ns.
- (2) TINYSwitch and TOPSwitch are trademarks of Power Integrations.
- (3) STARplug is a trademark of Koninklijke Philips Electronics N.V.

DESCRIPTION

Cavity free cylindrical glass package through Implotec™⁽⁴⁾ technology. This package is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

- (4) Implotec is a trademark of Koninklijke Philips Electronics N.V.

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	$T_{tp} = 105\text{ °C}$; see Fig.2	–	1.5	W
P_{RSM}	non-repetitive peak reverse power dissipation	10/1000 μ s exponential pulse; $T_j = 25\text{ °C}$ 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	$L = 120\text{ mH}$; $T_j = T_{j\text{ max}}$ prior to surge; inductive load switched off	–	7.5	mJ

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ELECTRICAL CHARACTERISTICS ZENER/TVS

$T_j = 25\text{ °C}$ 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_{test}			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
180	162	180	198	0.07	0.12	5	250	0.40	5	150
200	180	200	220	0.07	0.12	5	277	0.36	5	160

Notes

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

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	$f = 1\text{ MHz}; V_R = 0\text{ V};$ 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

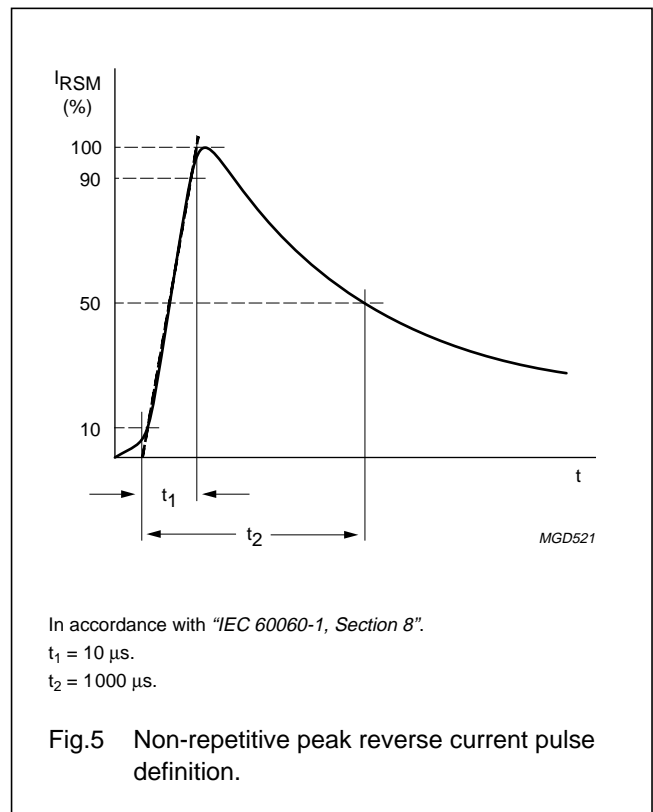
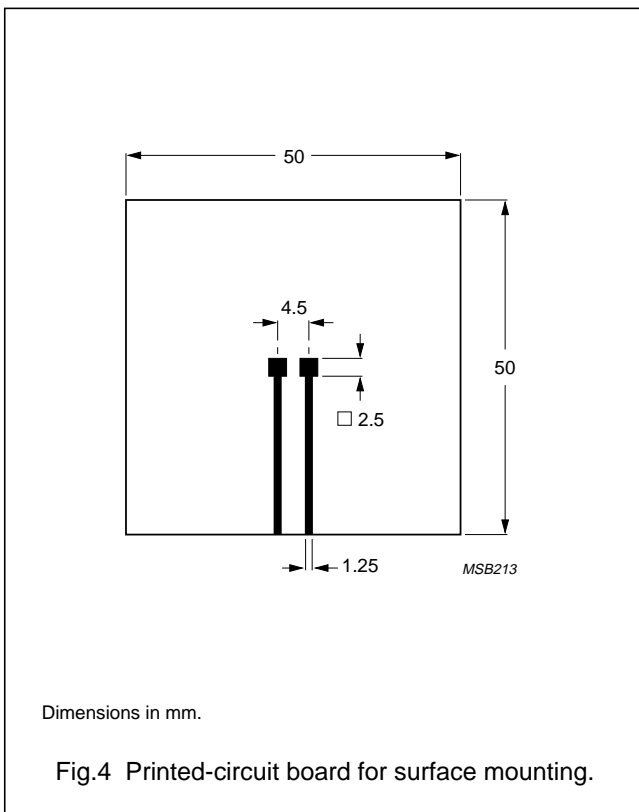
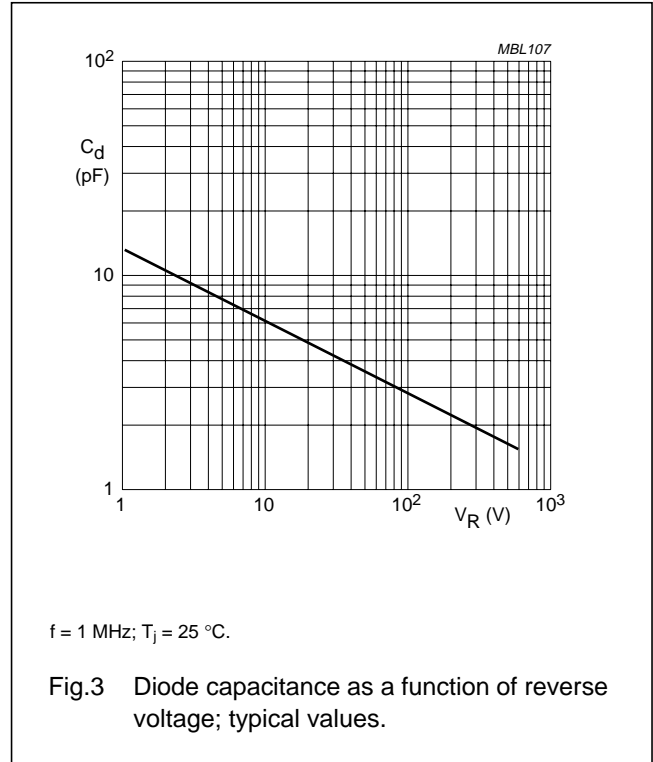
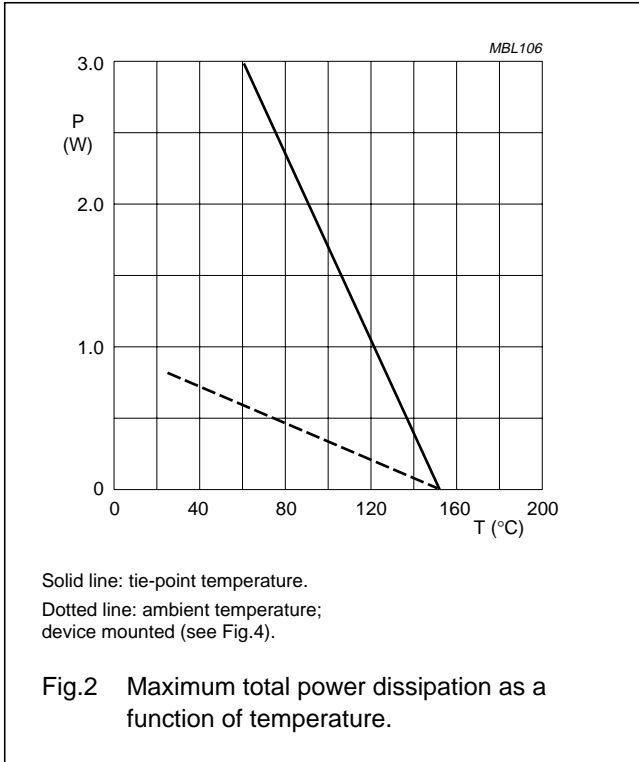
Note

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

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GRAPHICAL DATA



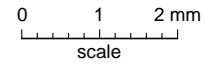
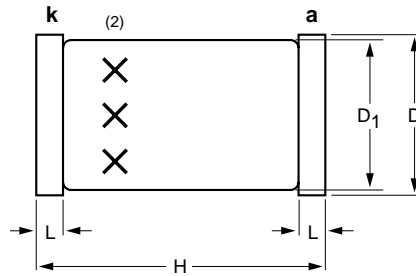
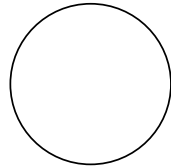
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PACKAGE OUTLINE

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	3.7	0.3
	2.0	1.8	3.3	

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 ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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