

SMTPB SERIES

TRISIL

FEATURES

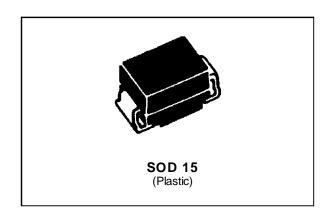
- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGE RANGE: From 62 V To 270 V.
- HOLDING CURRENT = 150 mA min
- PEAK PULSE CURRENT: IPP = 90 A, 10/1000 µs.

DESCRIPTION

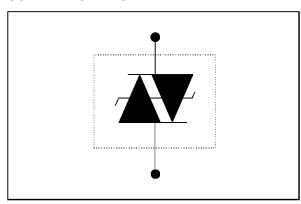
The SMTPBxx series has been designed to protect telecommunication equipment against lightning and transient induced by AC power lines.

IN ACCORDANCE WITH FOLLOWING STANDARDS:

CCITT K17 - K20	{ 10/700 μs 5/310 μs	1.5 kV 38 A
VDE 0433	{ 10/700 μs 5/200 μs	2 kV 50 A
CNET	{ 0.5/700 μs 0.2/310 μs	1.5 kV 38 A



SCHEMATIC DIAGRAM



ABSOLUTE RATINGS (limiting values) $(-40^{\circ}\text{C} \le \text{T}_{amb} \le + 85^{\circ}\text{C})$

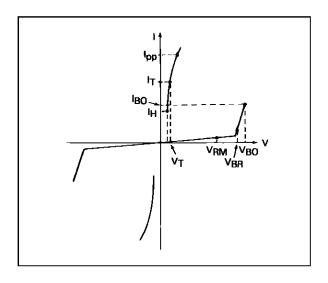
Symbol	Parameter	Value	Unit	
Р	Power dissipation on infinite heatsink	10	W	
lpp	Peak pulse current 10/1000 μs 8/20 μs		90 150	А
ITSM	Non repetitive surge peak on-state current tp = 20 ms		50	А
di/dt	Critical rate of rise of on-state current Non repetitive		100	A/μs
dv/dt	Critical rate of rise of off-state voltage	5	KV/μs	
T _{stg} T _j	Storage and operating junction temperature range		- 40 to + 150 + 150	°C °C
TL	Maximum lead temperature for soldering during	+ 260	°C	

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-l)	Junction to leads. On infinite heatsink.	10	°C/W
R _{th} (j-a)	Junction to ambient. On printed circuit with standard footprint dimensions.	75	°C/W

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	
V _{RM}	Stand-off voltage	
V _{BR}	Breakdown voltage	
V _{BO}	Breakover voltage	
lΗ	Holding current	
VT	On-state voltage	
IBO	Breakover current	
lpp	Peak pulse current	



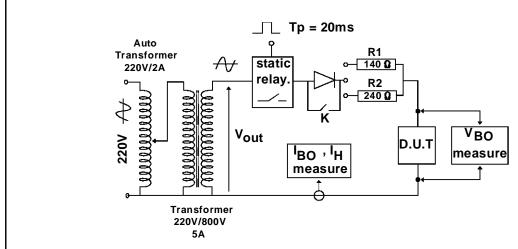
Туре	Marcking	I _{RM} @	[®] V _{RM}	V_{BR}	@ I R	V _{BO}	<u>@</u> В О	lн	٧T	С
		max		min		max note1	max	min note1	max note2	max note3
	Laser	μ A	V	٧	mA	V	mA	mA	V	pF
SMTPB62	W07	2	56	62	1	82	800	150	3.5	350
SMTPB68	W11	2	61	68	1	90	800	150	3.5	350
SMTPB100	W17	2	90	100	1	133	800	150	3.5	200
SMTPB120	W21	2	108	120	1	160	800	150	3.5	200
SMTPB130	W23	2	117	130	1	173	800	150	3.5	200
SMTPB180	W29	2	162	180	1	240	800	150	3.5	200
SMTPB200	W31	2	180	200	1	267	800	150	3.5	200
SMTPB220	W35	2	198	220	1	293	800	150	3.5	200
SMTPB240	W39	2	216	240	1	320	800	150	3.5	200
SMTPB270	W43	2	243	270	1	360	800	150	3.5	200

All parameters tested at 25°C, except where indicated.

Note 1 : See the reference test circuit for I_H , I_{BO} and V_{BO} parameters. Note 2 : Square pulse Tp=1 ms - $I_T=5$ A. Note 3 : $V_R=1$ V, F=1MHz.



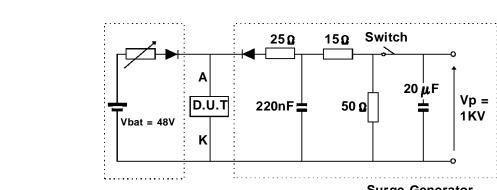
REFERENCE TEST CIRCUIT FOR I_H, I_{BO} and V_{BO} parameters :



TEST PROCEDURE:

- Pulse Test duration (Tp = 20ms):
 - For Bidirectional devices = Switch K is closed
 - For Unidirectional devices = Switch K is open.
- Vout Selection
 - Device with V_{BR} ≤ 150 Volt
 - Vout = 250 V_{RMS}, $R_1 = 140 \Omega$.
 - Device with V_{BR} ≥ 150 Volt
 - $V_{\text{OUT}} = 480 \text{ V}_{\text{RMS}}, R_2 = 240 \Omega.$

FUNCTIONAL HOLDING CURRENT (IH) TEST CIRCUIT = GO - NOGO TEST.



Surge Generator 10/700 μsec Vp =1KV / Ipp = 25A

This is a GO-NOGO Test which allows to confirm the holding current (I_H) level in a functional test circuit. This test can be performed if the reference test circuit can't be implemented.

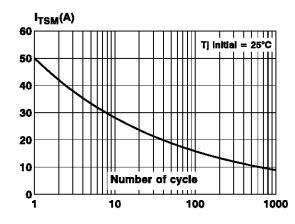
TEST PROCEDURE:

- 1) Adjust the current level at the I_H value by short circuiting the AK of the D.U.T.
 - 2) Fire the D.U.T with a surge Current : Ipp = 25A, $10/700 \,\mu s$.
 - 3) The D.U.T will come back to the OFF-State withing a duration of 50 ms max.



Figure 1: Non repetitive surge peak on state current versus number of cycles. (with sinusoïdal pluse: F= 50 Hz).

Figure 2: On - state characteristics (typical values).



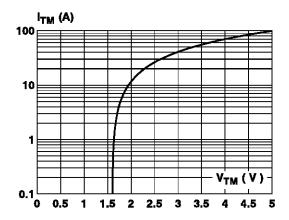
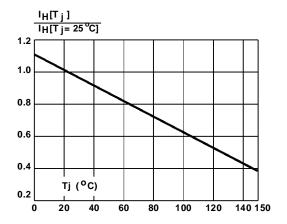
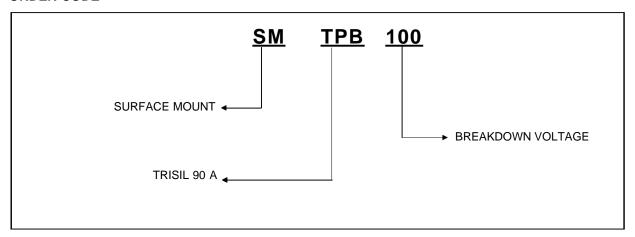


Figure 3: Relative variation of holding current versus junction temperature.



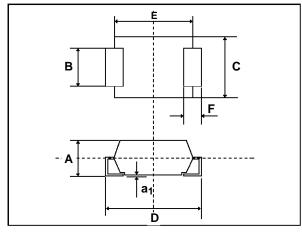
ORDER CODE



MARKING: Logo, date code, type code.

PACKAGE MECHANICAL DATA.

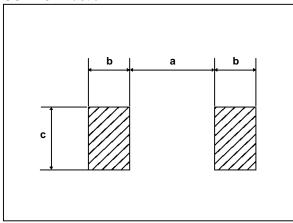
SOD 15 Plastic.



Ref	Millim	neters	Inc	hes
	min	max	min	max
Α	2.5	3.1	0.098	0.122
a ₁	1	0.2	ı	0.008
В	2.9	3.1	0.114	0.122
С	4.8	5.2	0.190	0.200
D	7.6	8.0	0.300	0.315
Е	6.3	6.6	0.248	0.259
F	1.3	1.7	0.051	0.067

FOOTPRINT DIMENSIONS.

SOD 15 Plastic.



Ref	Millimeters
а	4.2
b	2
С	3.3

Packaging: Standard packaging is in film.

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