



# SMTPA SERIES

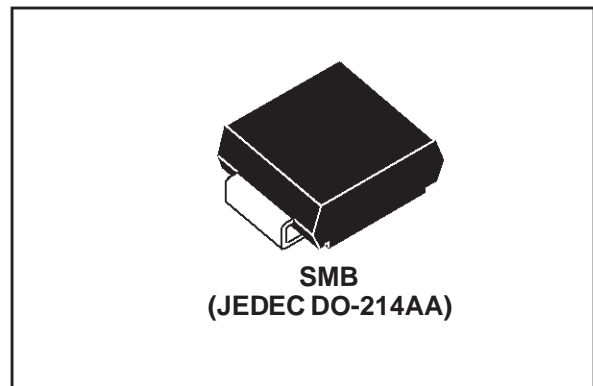
## TRISIL™

### FEATURES

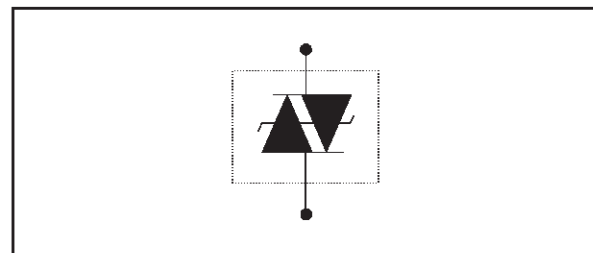
- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGE RANGE:  
From 62 V To 270 V.
- HOLDING CURRENT = 150 mA min
- REPETITIVE PEAK PULSE CURRENT :  
 $I_{PP} = 50 \text{ A}, 10/1000 \mu\text{s}$ .

### DESCRIPTION

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



### SCHEMATIC DIAGRAM



COMPLIES WITH THE FOLLOWING STANDARDS:	Peak Surge Voltage (V)	Voltage Waveform ( $\mu\text{s}$ )	Current Waveform ( $\mu\text{s}$ )	Admissible $I_{pp}$ (A)	Necessary Resistor ( $\Omega$ )
(CCITT) ITU-K20	1000	10/700	5/310	25	-
(CCITT) ITU-K17	1500	10/700	5/310	38	-
VDE0433	2000	10/700	5/310	50	-
VDE0878	2000	1.2/50	1/20	50	-
IEC-1000-4-5	level 3	10/700	5/310	50	-
	level 4	1.2/50	8/20	100	-
FCC Part 68, lightning surge type A	1500	10/160	10/160	75	12.5
	800	10/560	10/560	55	6.5
FCC Part 68, lightning surge type B	1000	9/720	5/320	25	-
BELLCORE TR-NWT-001089 First level	2500	2/10	2/10	150	11.5
	1000	10/1000	10/1000	50	10
BELLCORE TR-NWT-001089 Second level	5000	2/10	2/10	150	11.5
CNET I31-24	1000	0.5/700	0.8/310	25	-

## SMTPA xxx

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25°C)

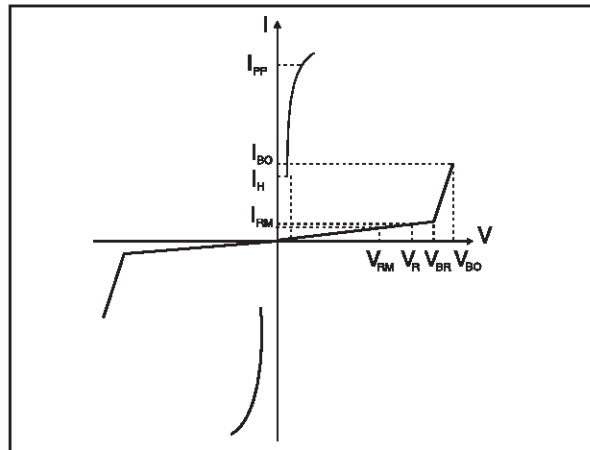
Symbol	Parameter		Value	Unit
P	Power dissipation	T <sub>lead</sub> = 50 °C	5	W
I <sub>PP</sub>	Peak pulse current	10/1000 μs 8/20 μs	50 100	A
I <sub>TSM</sub>	Non repetitive surge peak on-state current	tp = 20 ms	30	A
dV/dt	Critical rate of rise of off-state voltage	V <sub>RM</sub>	5	KV/μs
T <sub>stg</sub> T <sub>j</sub>	Storage temperature range Maximum junction temperature		- 55 to + 150 150	°C °C
T <sub>L</sub>	Maximum lead temperature for soldering during 10 s.		260	°C

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th (j-l)</sub>	Junction to leads.	20	°C/W
R <sub>th (j-a)</sub>	Junction to ambient on printed circuit with standard footprint dimensions.	100	°C/W

### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub> = 25°C)

Symbol	Parameter
V <sub>RM</sub>	Stand-off voltage
I <sub>RM</sub>	Leakage current at stand-off voltage
V <sub>R</sub>	Continuous Reverse voltage
V <sub>BR</sub>	Breakdown voltage
V <sub>BO</sub>	Breakover voltage
I <sub>H</sub>	Holding current
I <sub>BO</sub>	Breakover current
I <sub>PP</sub>	Peak pulse current
C	Capacitance



Type	Marking	I <sub>RM</sub> @ V <sub>RM</sub>		I <sub>R</sub> @ V <sub>R</sub>		V <sub>BO</sub> @ I <sub>BO</sub>		I <sub>H</sub>	C
		max.		max. note 1		max. note 2		min. note 3	max. note 4
	Laser	μA	V	μA	V	V	mA	mA	pF
SMTPA62	U01	2	56	50	62	82	800	150	150
SMTPA68	U05	2	61	50	68	90	800	150	150
SMTPA100	U13	2	90	50	100	133	800	150	100
SMTPA120	U17	2	108	50	120	160	800	150	100
SMTPA130	U19	2	117	50	130	173	800	150	100
SMTPA180	U25	2	162	50	180	240	800	150	100
SMTPA200	U27	2	180	50	200	267	800	150	100
SMTPA220	U31	2	198	50	220	293	800	150	100
SMTPA240	U35	2	216	50	240	320	800	150	100
SMTPA270	U39	2	243	50	270	360	800	150	100

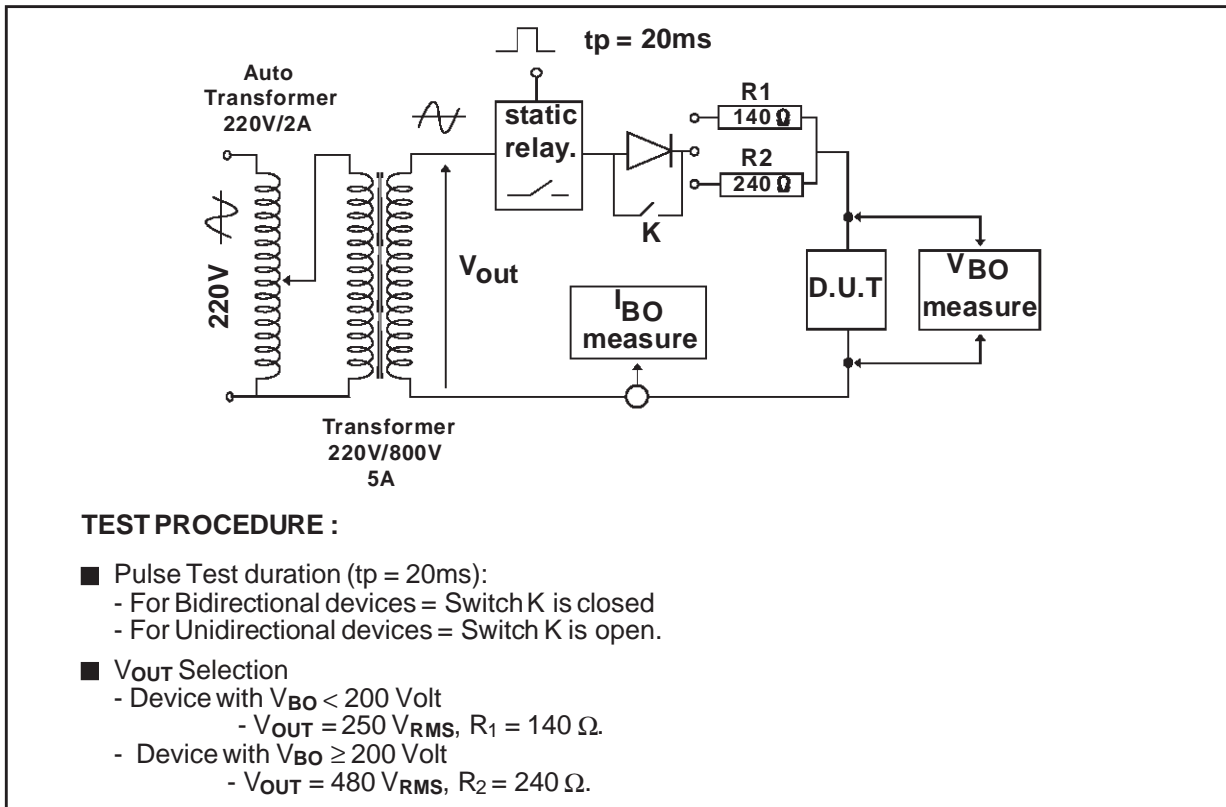
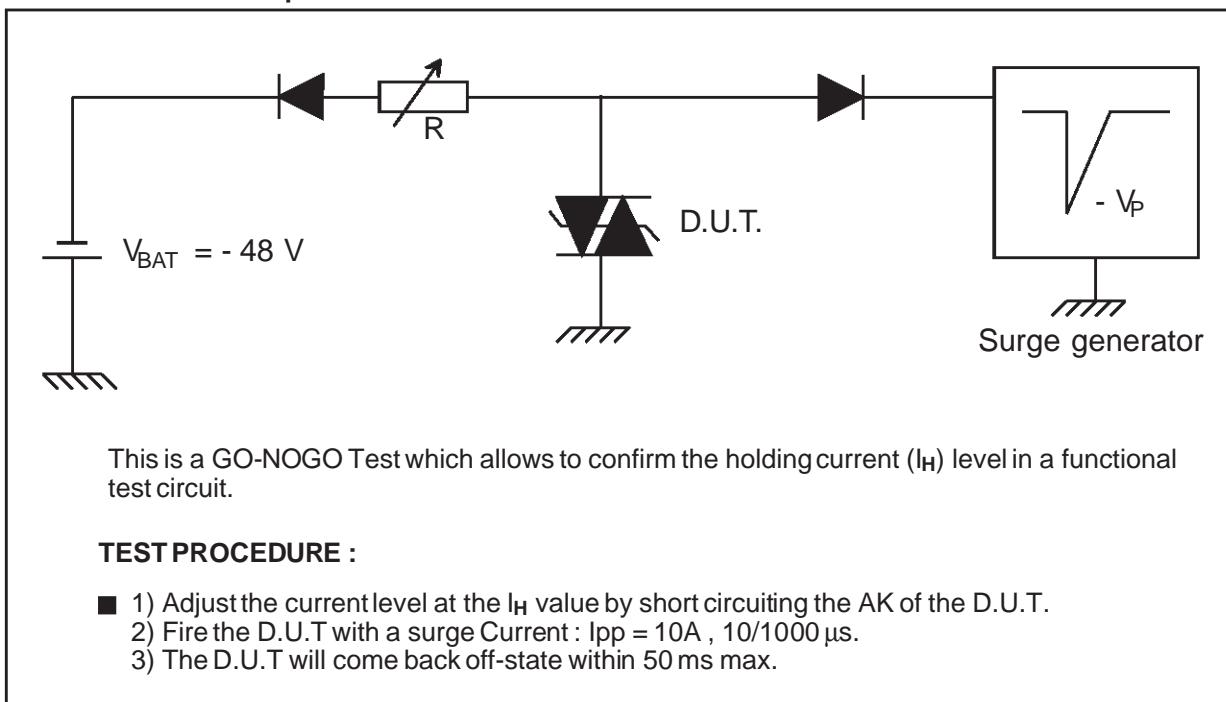
All parameters tested at 25°C, except where indicated.

**Note 1:** I<sub>R</sub> measured at V<sub>R</sub> guarantee V<sub>BRmin</sub> ≥ V<sub>R</sub>

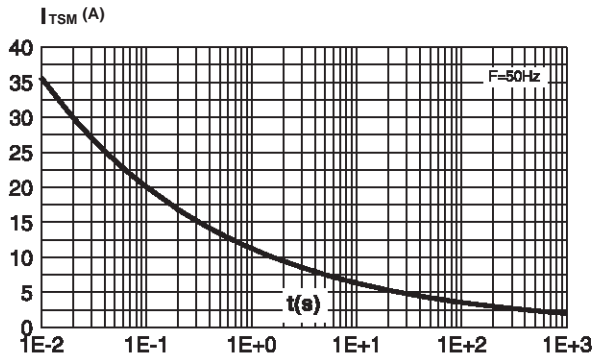
**Note 2:** Measured at 50 Hz (1 cycle) - See test circuit 1.

**Note 3:** See test circuit 2.

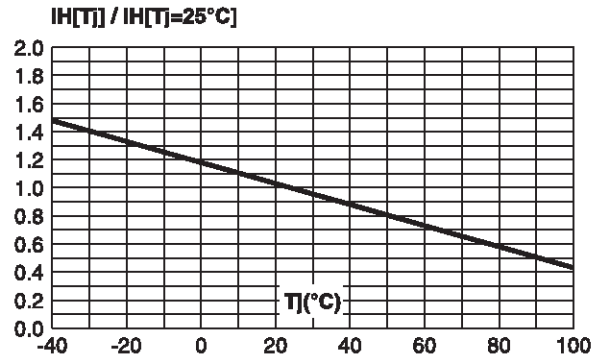
**Note 4:** V<sub>R</sub> = 1V, F = 1MHz. Refer to fig.3 for C versus V<sub>R</sub>.

**TEST CIRCUIT 1 FOR  $I_{BO}$  and  $V_{BO}$  parameters :****TEST CIRCUIT 2 for  $I_H$  parameter.**

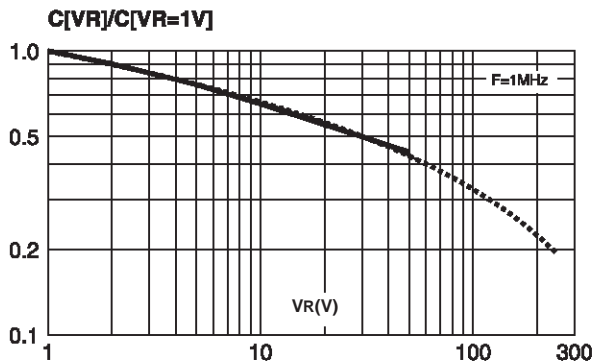
**Fig. 1:** Non repetitive surge peak on-state current versus overload duration ( $T_j$  initial=25°C).



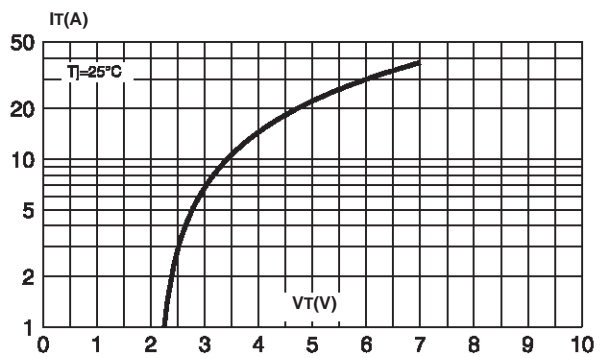
**Fig. 2:** Relative variation of holding current versus junction temperature.



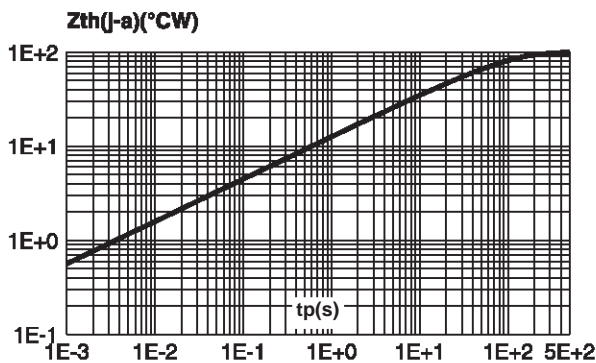
**Fig. 3:** Relative variation of junction capacitance versus reverse applied voltage (typical values). **Note:** For  $V_{RM}$  upper than 56V, the curve is extrapolated (dotted line).

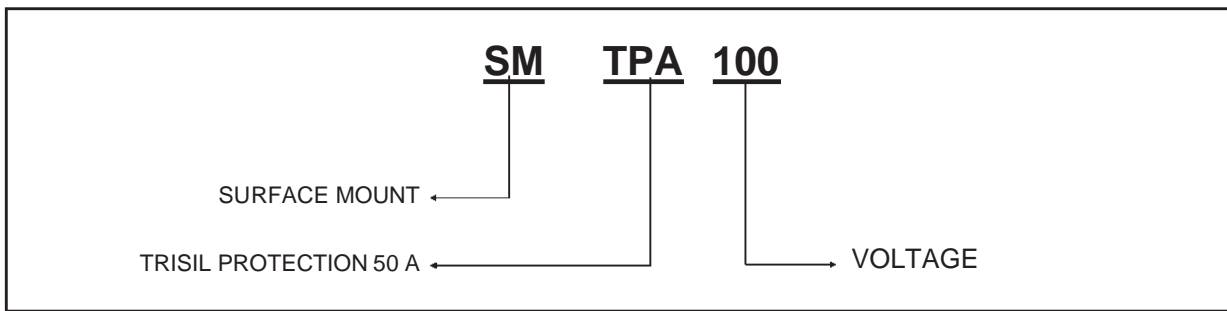


**Fig. 4:** On-state current versus on-state voltage (typical values).



**Fig. 5:** Transient thermal impedance junction to ambient versus pulse duration (for FR4 PC Board with  $T_{lead} = 10$  mm).

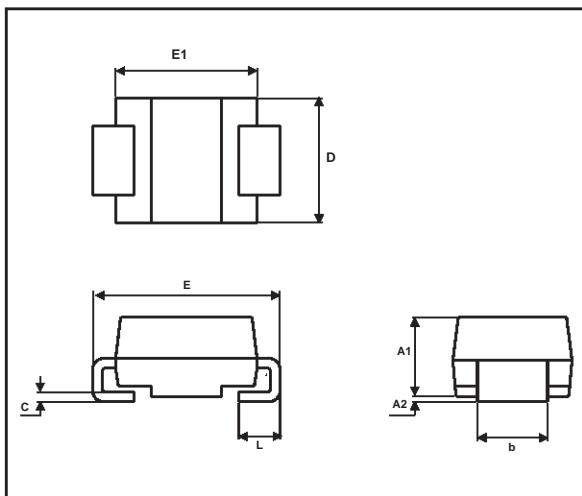




**MARKING** : Logo, date code, type code.

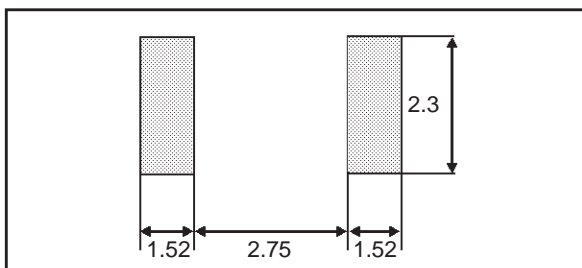
**PACKAGE MECHANICAL DATA.**

SMB (JEDEC DO-214AA)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.41	0.006	0.016
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
D	3.30	3.95	0.130	0.156
L	0.75	1.60	0.030	0.063

**FOOT PRINT DIMENSION (in millimeters)**  
**SMB**



**Packaging :**

Standard packaging is in tape and reel

**Weight :** 0.12g

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