



SMTPA SERIES

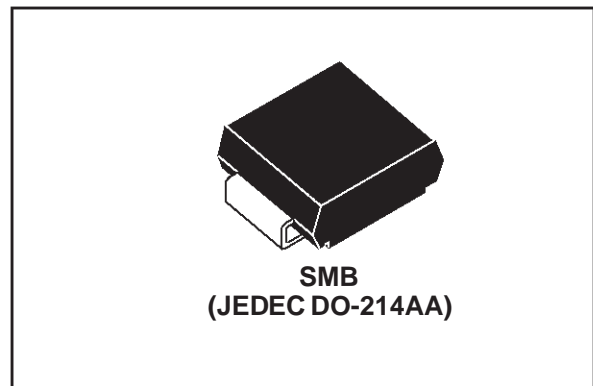
TRISIL™

FEATURES

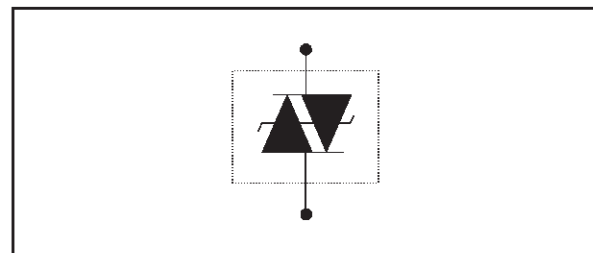
- BIDIRECTIONAL CROWBAR PROTECTION.
- BREAKDOWN VOLTAGE RANGE:
From 62 V To 270 V.
- HOLDING CURRENT = 150 mA min
- REPETITIVE PEAK PULSE CURRENT :
 $I_{PP} = 50 \text{ A}, 10/1000 \mu\text{s}$.

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 (μs) | Current Waveform (μs) | Admissible I_{pp} (A) | Necessary Resistor (Ω) |
|--|------------------------|------------------------------------|------------------------------------|-------------------------|---------------------------------|
| (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_{amb} = 25°C)

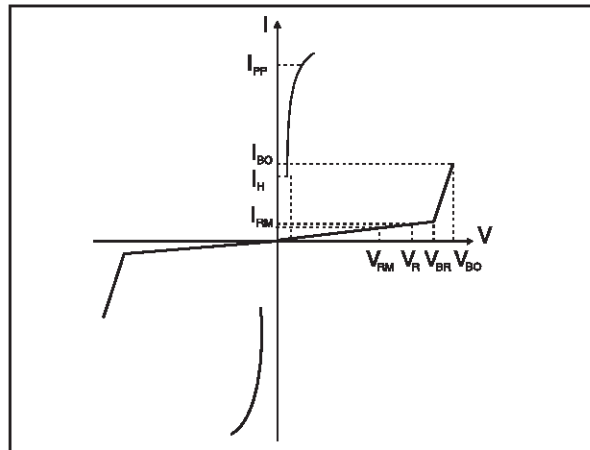
| Symbol | Parameter | | Value | Unit |
|------------------------------------|---|---------------------------|----------------------|----------|
| P | Power dissipation | T _{lead} = 50 °C | 5 | W |
| I _{PP} | Peak pulse current | 10/1000 μs 8/20 μs | 50 100 | A |
| I _{TSM} | Non repetitive surge peak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

THERMAL RESISTANCES

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

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C)

| Symbol | Parameter |
|-----------------|--------------------------------------|
| V _{RM} | Stand-off voltage |
| I _{RM} | Leakage current at stand-off voltage |
| V _R | Continuous Reverse voltage |
| V _{BR} | Breakdown voltage |
| V _{BO} | Breakover voltage |
| I _H | Holding current |
| I _{BO} | Breakover current |
| I _{PP} | Peak pulse current |
| C | Capacitance |



| Type | Marking | I _{RM} @ V _{RM} | | I _R @ V _R | | V _{BO} @ I _{BO} | | I _H | C |
|----------|---------|-----------------------------------|-----|---------------------------------|-----|-----------------------------------|------|----------------|------|
| | | max. | | max. | | max. | max. | min. | max. |
| | 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_R measured at V_R guarantee V_{BRmin} ≥ V_R

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

Note 3: See test circuit 2.

Note 4: V_R = 1V, F = 1MHz. Refer to fig.3 for C versus V_R.

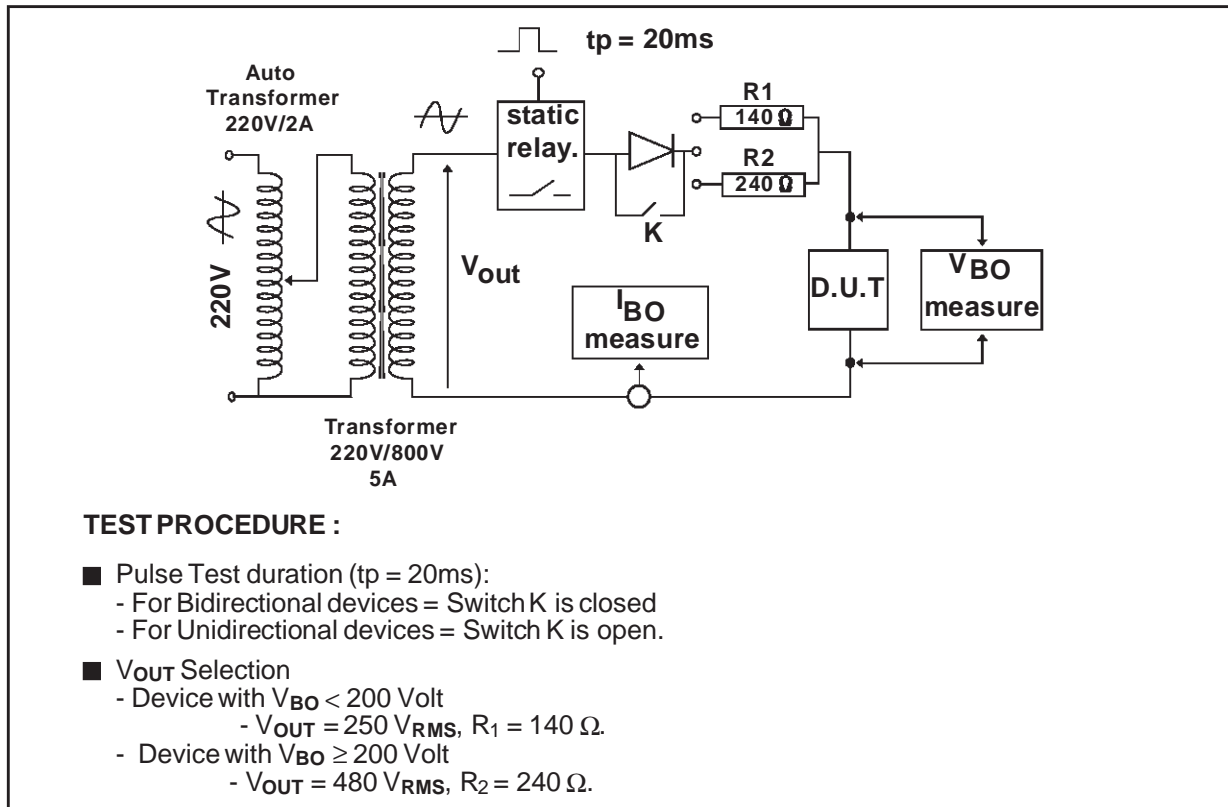
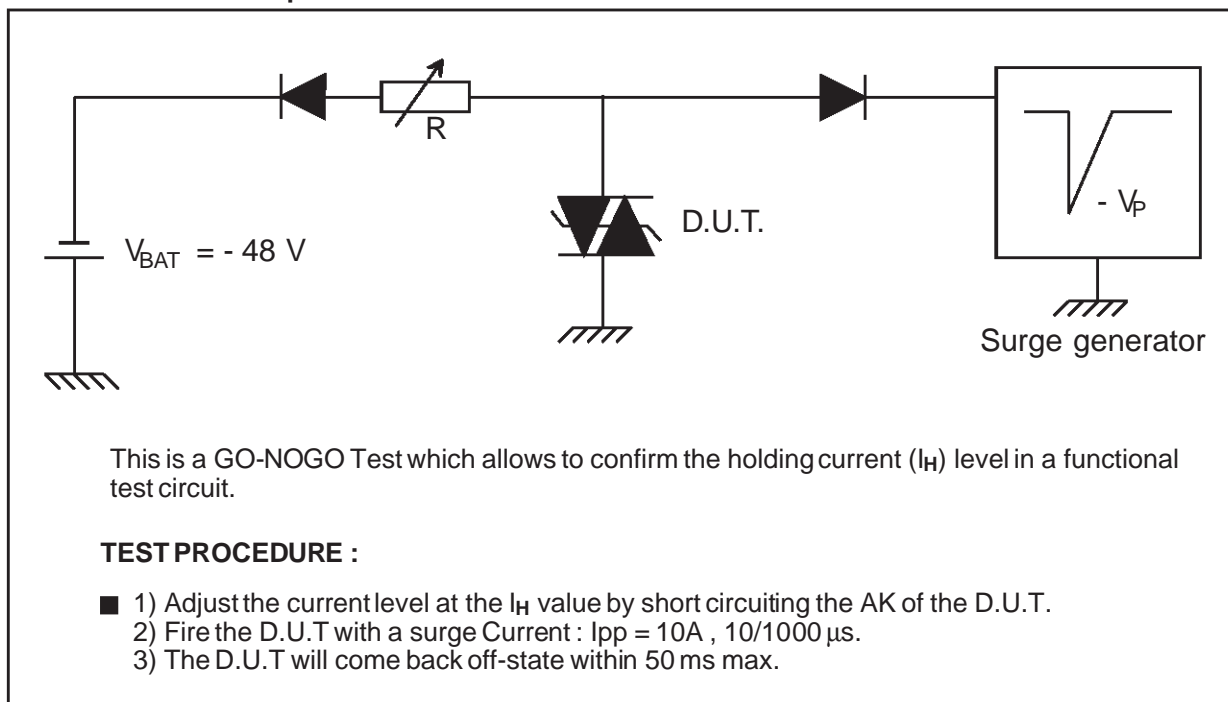
TEST CIRCUIT 1 FOR I_{BO} and V_{BO} parameters :**TEST CIRCUIT 2 for I_H parameter.**

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

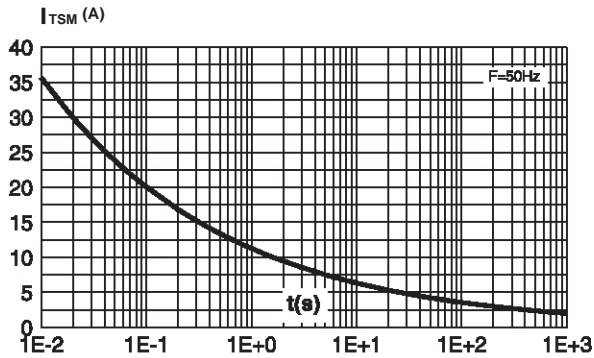


Fig. 2: Relative variation of holding current versus junction temperature.

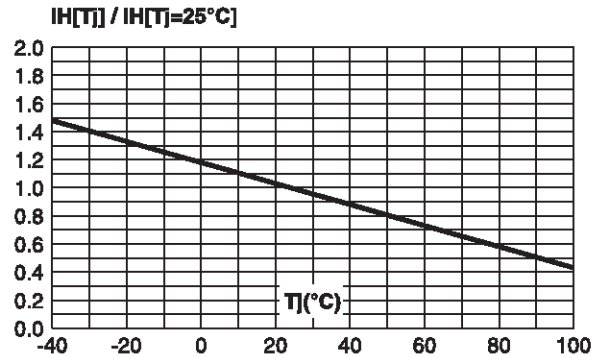


Fig. 3: Relative variation of junction capacitance versus reverse applied voltage (typical values). **Note:** For V_{RM} upper than 56V, the curve is extrapolated (dotted line).

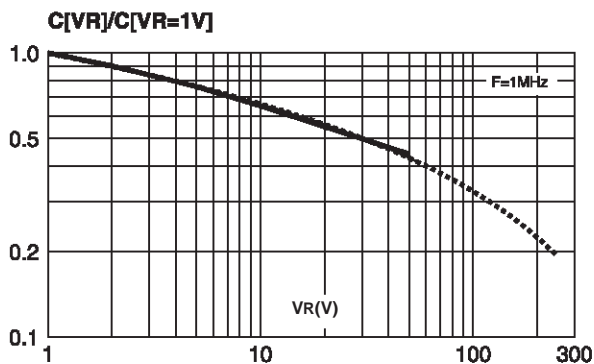


Fig. 4: On-state current versus on-state voltage (typical values).

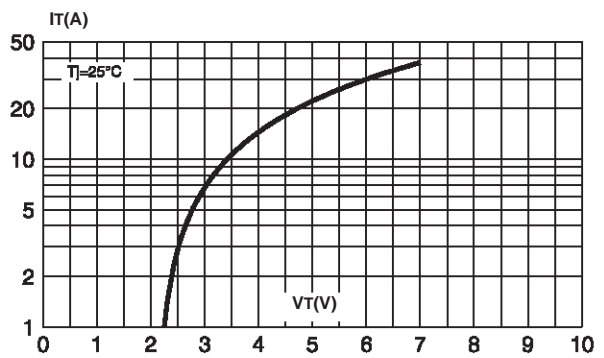
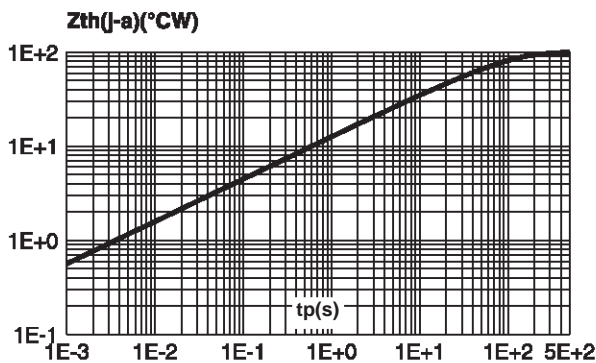
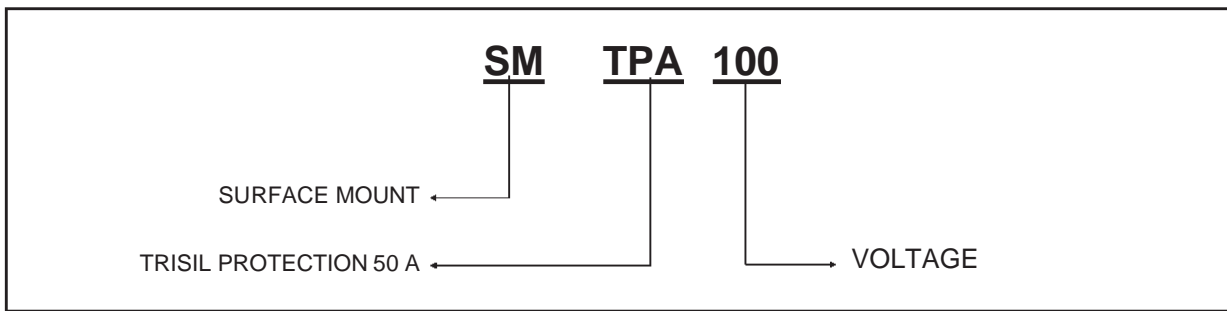


Fig. 5: Transient thermal impedance junction to ambient versus pulse duration (for FR4 PC Board with $T_{lead} = 10$ mm).

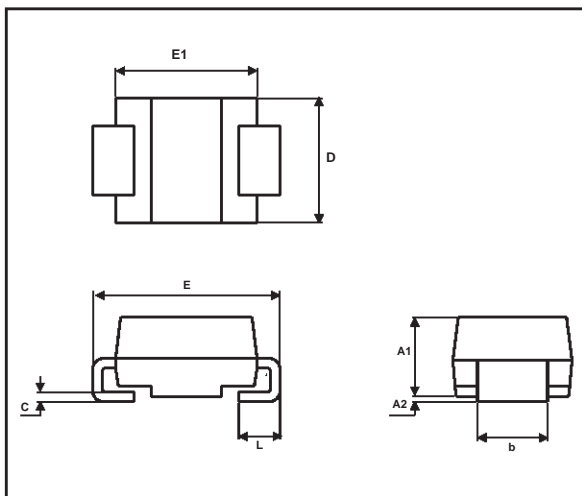




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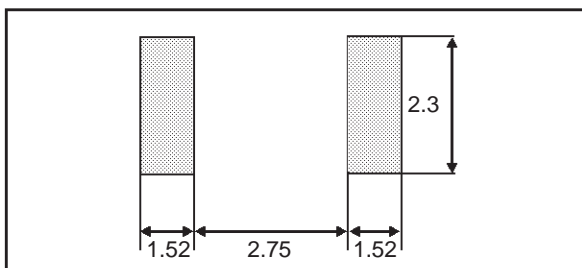
PACKAGE MECHANICAL DATA.

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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