

LOW VOLTAGE TRANSIL™

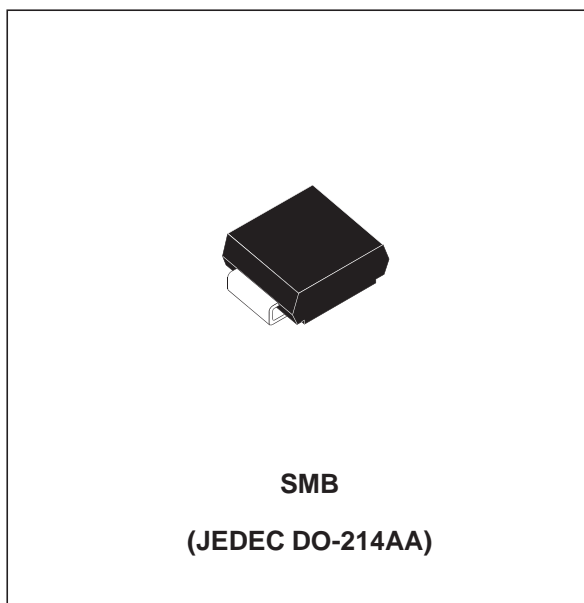
FEATURES

- UNIDIRECTIONAL TRANSIL DIODE
- PEAK PULSE POWER : 600 W (10/1000μs)
- REVERSE STAND-OFF VOLTAGE = 3.3 V
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- UL RECOGNIZED

DESCRIPTION

The SMLVT3V3 is a Transil diode designed specifically for protecting 3.3V supplied sensitive equipment against transient overvoltages.

Transil diodes provide high overvoltage protection by clamping action. Their instantaneous response to transient overvoltages makes them particularly suited to protect voltage sensitive devices such as MOS technology and low voltage supply IC's.



ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C)

| Symbol | Parameter | | Value | Unit |
|------------------------------------|---|---|----------------------|----------|
| P _{PP} | Peak pulse power dissipation (see note 1) | T _j initial = T _{amb} | 600 | W |
| P | Power dissipation on infinite heatsink | T _{amb} = 75°C | 5 | W |
| I _{FSM} | Non repetitive surge peak forward current | t _p = 10 ms T _j initial = T _{amb} | 50 | A |
| T _{stg} T _j | Storage temperature range Maximum junction temperature | | - 65 to + 175 175 | °C °C |
| T _L | Maximum lead temperature for soldering during 10 s | | 260 | °C |

Note 1 : For a surge greater than the maximum values, the diode will fail in short-circuit.

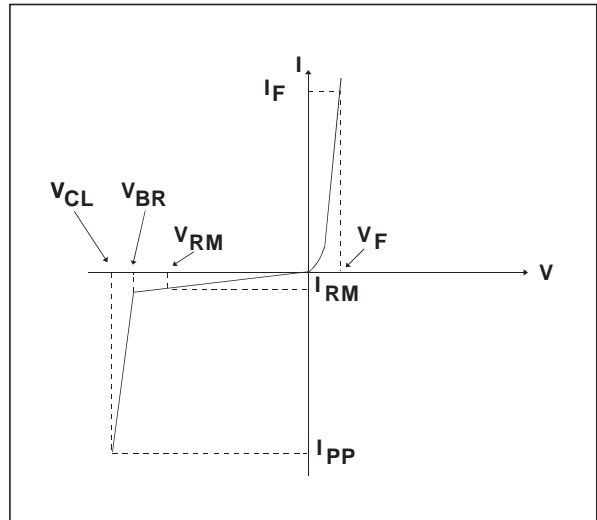
THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|-----------------------|--|-------|------|
| R _{th (j-l)} | Junction to leads | 20 | °C/W |
| R _{th (j-a)} | Junction to ambient on printed circuit on recommended pad layout | 100 | °C/W |

SMLVT3V3

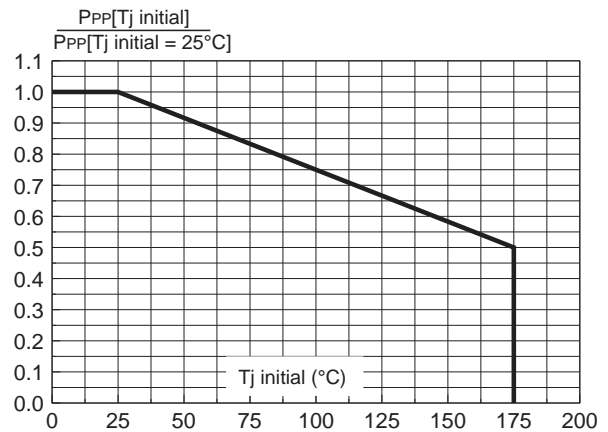
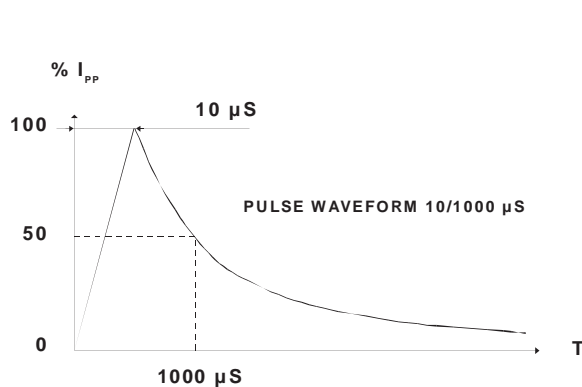
ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C)

| Symbol | Parameter |
|-----------------|-------------------------------------|
| V _{RM} | Stand-off voltage. |
| V _{BR} | Breakdown voltage. |
| V _{CL} | Clamping voltage. |
| I _{RM} | Leakage current @ V _{RM} . |
| I _{PP} | Peak pulse current. |
| αT | Voltage temperature coefficient |
| V _F | Forward voltage drop |



| Type | I _{RM} @ V _{RM} | | V _{BR} @ I _R | | V _{CL} @ I _{PP} | | V _{CL} @ I _{PP} | | αT | C |
|----------|-----------------------------------|-----|----------------------------------|----|-----------------------------------|----|-----------------------------------|-----|----------------------|------|
| | max | | min | | max | | max | | max | max |
| | μA | V | V | mA | V | A | V | A | 10 ⁻⁴ /°C | pF |
| SMLVT3V3 | 200 | 3.3 | 4.1 | 1 | 7.3 | 50 | 10.3 | 200 | -5.3 | 5200 |

Fig. 1 : Peak pulse power dissipation versus initial junction temperature (printed circuit board).



Note 2 : Pulse test : t_p < 50 ms

Note 3 : ΔV_{BR} = αT * (T_{amb} - 25) * V_{BR}(25°C).

Note 4 : V_R = 0V , F = 1MHz.

Fig. 2 : Peak pulse power versus exponential pulse duration (T_j initial = 25°C).

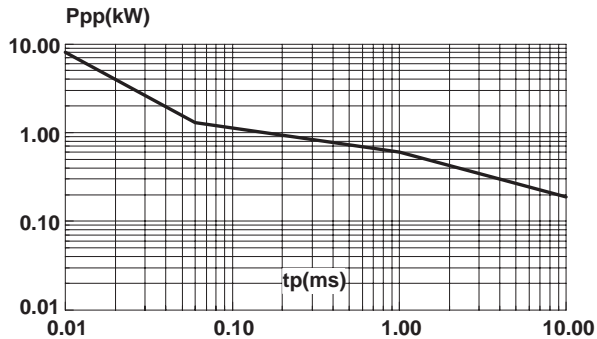


Fig. 3 : Clamping voltage versus peak pulse current (T_j initial = 25°C). Exponential waveform $t_p = 20 \mu s$ and $t_p = 1 ms$.

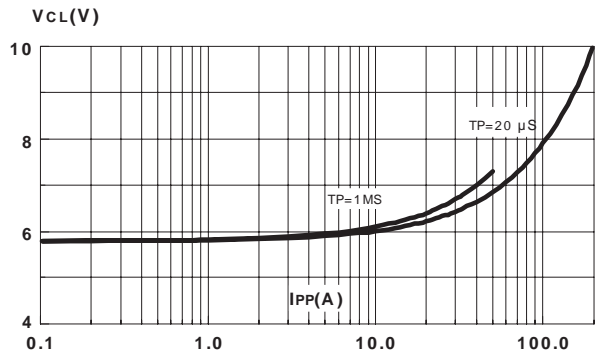


Fig. 4 : Capacitance versus reverse applied voltage (typical values).

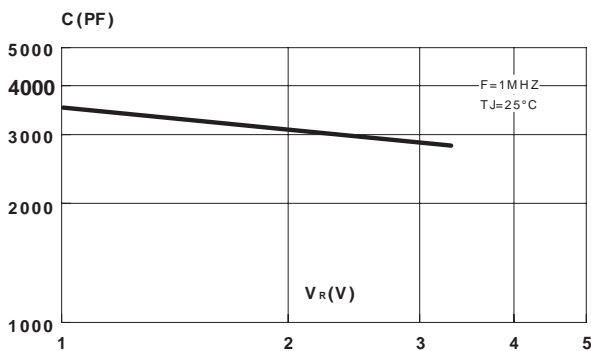


Fig. 5 : Peak forward voltage drop versus peak forward current (typical values).

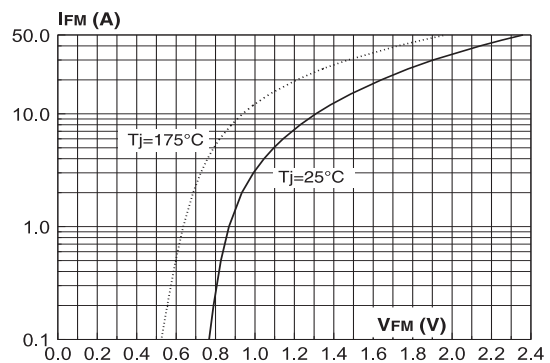


Fig. 6 : Transient thermal impedance junction ambient versus pulse duration. Mounting on FR4 PC Board with Recommended pad layout.

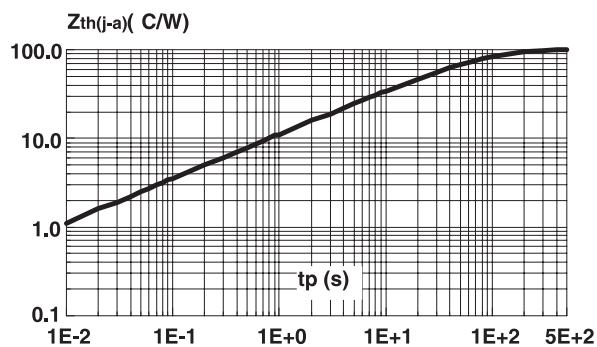
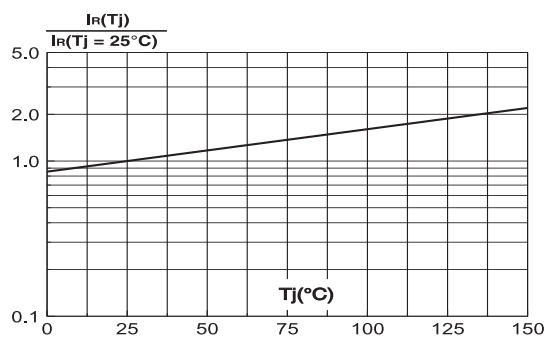
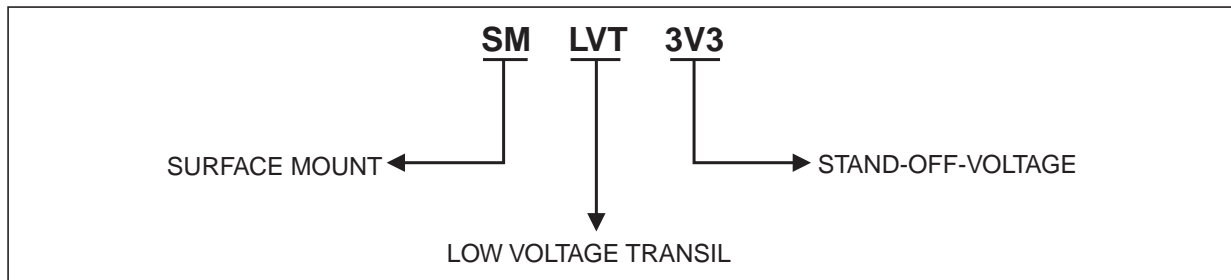


Fig. 7 : Relative variation of leakage current versus junction temperature.



SMLVT3V3

ORDER CODE



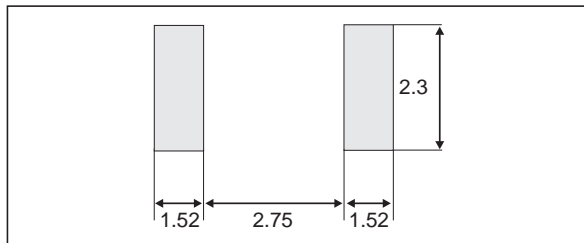
PACKAGE MECHANICAL DATA

SMB (Plastic) - Jedec DO-214AA

| REF. | DIMENSIONS | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A1 | 1.90 | 2.15 | 2.45 | 0.075 | 0.085 | 0.096 |
| A2 | 0.05 | 0.15 | 0.20 | 0.002 | 0.006 | 0.008 |
| b | 1.95 | | 2.20 | 0.077 | | 0.087 |
| c | 0.15 | | 0.41 | 0.006 | | 0.016 |
| E | 5.10 | 5.40 | 5.60 | 0.201 | 0.213 | 0.220 |
| E1 | 4.05 | 4.30 | 4.60 | 0.159 | 0.169 | 0.181 |
| D | 3.30 | 3.60 | 3.95 | 0.130 | 0.142 | 0.156 |
| L | 0.75 | 1.15 | 1.60 | 0.030 | 0.045 | 0.063 |

FOOTPRINT DIMENSIONS (Millimeter)

SMB Plastic.



Marking: Logo, data code, type code and cathod band

Weight = 0.12 g

Packaging : standard packaging is in tape and reel.

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