



SMTJ Series 3500A Transient Voltage Suppressor

Rev.1.3

DESCRIPTION:

The SMTJ series of high current transient suppressors have been specially designed for use in D.C. line protection and any demanding applications. They offer superior clamping characteristics by virtue of the snapback technology. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level.



SMT-4



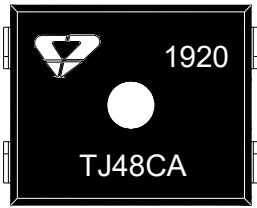
FEATURES:

- ✧ Halogen-free.
- ✧ Bi-directional.
- ✧ RoHS compliant.
- ✧ Low slope resistance.
- ✧ Very low clamping voltage.
- ✧ Sharp breakdown voltage.
- ✧ Glass passivated junction.
- ✧ Snapback technology for superior clamping factor.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ High temperature reflow soldering: 260°C/40s at terminals.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

ABSOLUTE MAXIMUM RATINGS (T_A=25°C, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|------|
| Peak pulse current@8/20μs | I _{PP} | 3500 | A |
| Operating junction temperature range | T _J | -55 to +150 | °C |
| Storage temperature range | T _{STG} | -55 to +150 | °C |
| Typical thermal resistance junction to lead | R _{θJL} | 15 | °C/W |
| Typical thermal resistance junction to ambient | R _{θJA} | 65 | °C/W |

MARKING



TJ48CA: Device Marking Code
1920: the 20th week, 2019

ELECTRICAL CHARACTERISTICS (T_A=25°C)

| Part Number | Marking | V _R | V _{BR} @I _T | | I _T | I _R @V _R | V _C @8/20μs | V _C @8/20μs | C _o ^① |
|-------------|---------|----------------|---------------------------------|--------|----------------|--------------------------------|------------------------|------------------------|-----------------------------|
| | | | 3000A | 3500A | | | Max(V) | Max(V) | |
| Bi-Polar | Bi | V | Min(V) | Max(V) | mA | Max(μA) | Max(V) | Max(V) | |
| SMTJ36CAT-Z | TJ36CA | 36 | 40.0 | 45.0 | 10 | 5 | 80 | 90 | 4200 |
| SMTJ48CAT-Z | TJ48CA | 48 | 50.0 | 59.0 | 10 | 5 | 95 | 105 | 3700 |

V_R: Stand-off voltage -- Maximum voltage that can be applied

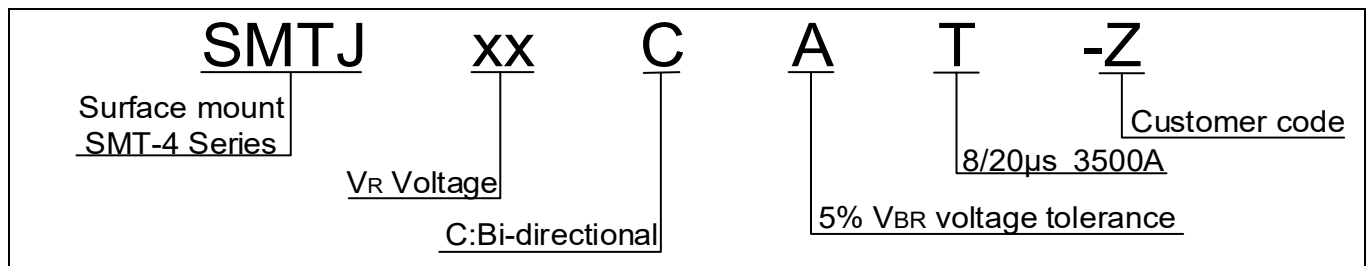
V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

① Off-state capacitance is measured in V_{RWM}=0V, f=1MHz

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

FIG.1:V- I curve characteristics (Bi-directional with negative resistance)

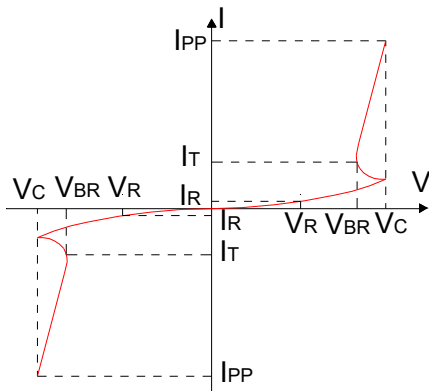


FIG.2: Typical V_{BR} vs. junction temperature

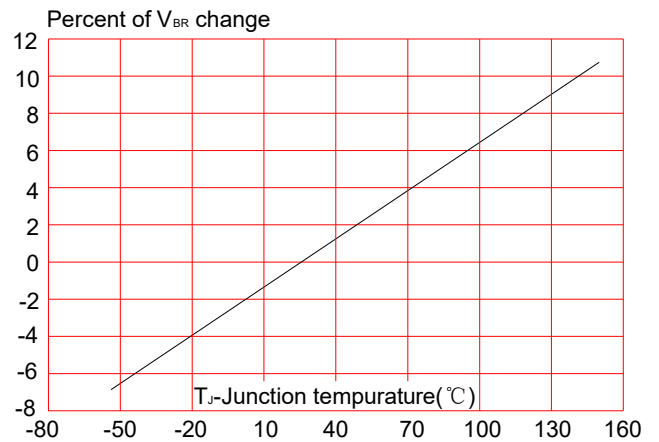


FIG.3: Pulse waveform

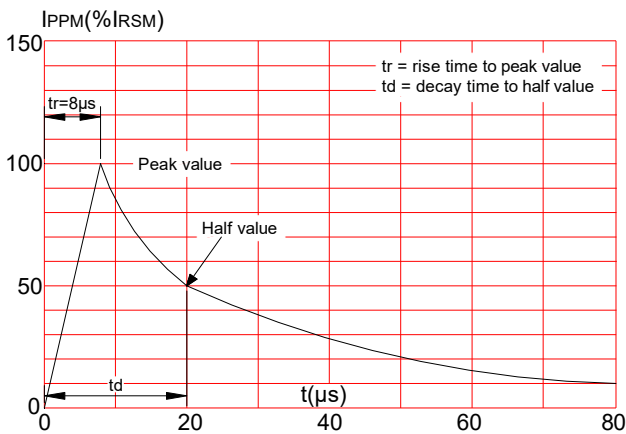
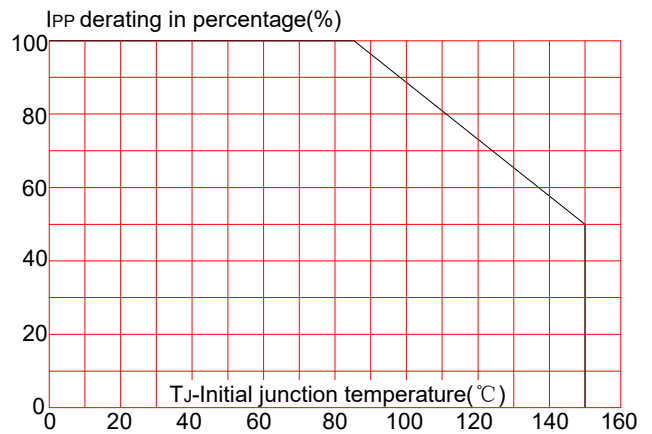
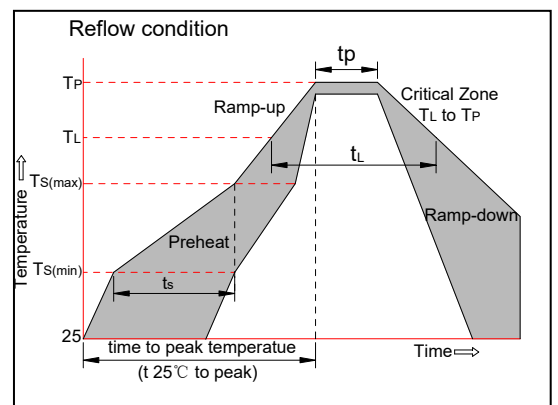


FIG.4: Pulse derating curve

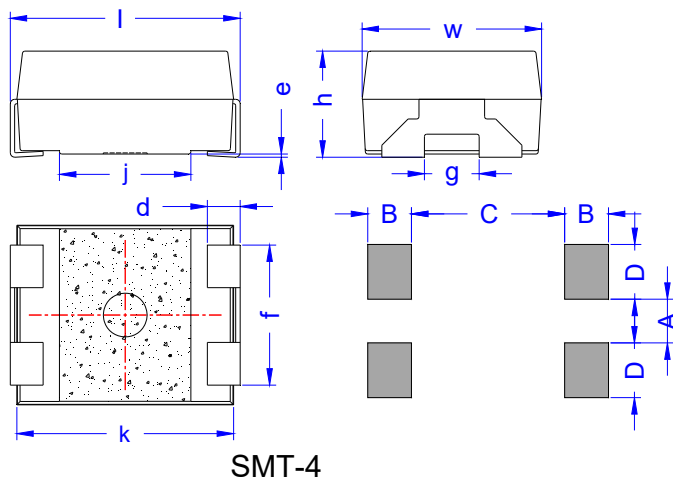


SOLDERING PARAMETERS

| | | |
|---|---|---|
| Reflow Condition | | Pb-Free assembly (see figure at right) |
| Pre Heat | -Temperature Min (T _{s(min)}) | +150°C |
| | -Temperature Max(T _{s(max)}) | +200°C |
| | -Time (Min to Max) (t _s) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T _L)to peak) | | 3°C/sec. Max |
| T _{s(max)} to T _L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T _L)(Liquidus) | +217°C |
| | -Temperature(t _L) | 60-150 secs. |
| Peak Temp (T _p) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t _p) | | 20-40secs. |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T _p) | | 8 min. Max |
| Do not exceed | | +260°C |

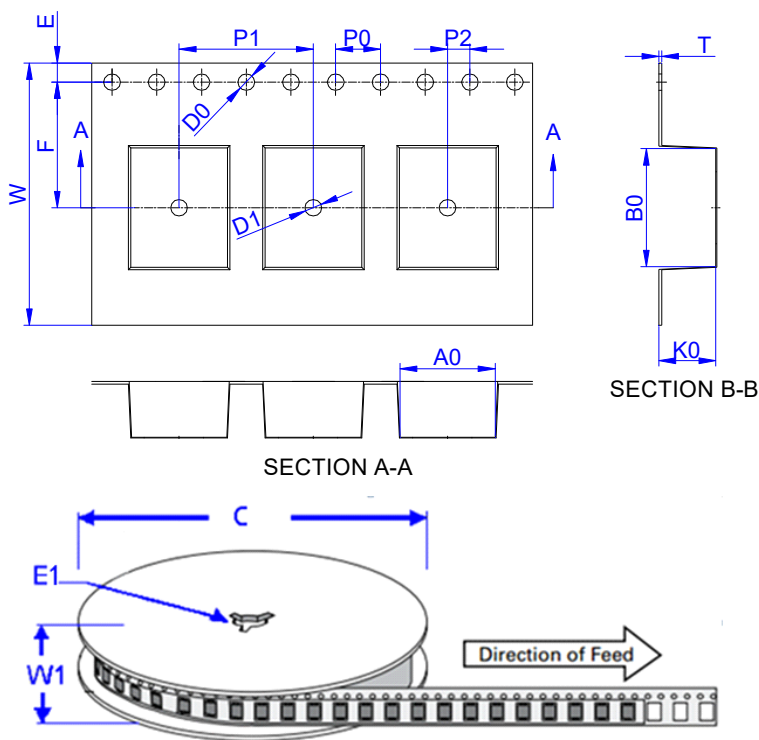


PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| l | 10.10 | | 10.70 | 0.398 | | 0.421 |
| w | 7.70 | | 8.30 | 0.303 | | 0.327 |
| h | 4.20 | | 5.00 | 0.165 | | 0.197 |
| d | 1.20 | | 1.80 | 0.047 | | 0.071 |
| e | 0 | | 0.30 | 0 | | 0.012 |
| f | 6.20 | | 6.60 | 0.244 | | 0.260 |
| g | 2.40 | | 2.60 | 0.094 | | 0.102 |
| j | 5.90 | | 6.10 | 0.232 | | 0.240 |
| k | 9.70 | | 10.1 | 0.382 | | 0.398 |
| A | | | 2.00 | | | 0.079 |
| B | 2.00 | | | 0.079 | | |
| C | | | 7.00 | | | 0.276 |
| D | 2.50 | | | 0.098 | | |

TAPE AND REEL SPECIFICATION-SMT-4



| Ref. | Dimensions | |
|------|-------------|-------------|
| | Millimeters | Inches |
| A0 | 8.50±0.10 | 0.335±0.004 |
| B0 | 10.80±0.10 | 0.425±0.004 |
| C | 330.0 | 13.0 |
| D0 | 1.50±0.10 | 0.059±0.004 |
| D1 | 1.50±0.10 | 0.059±0.004 |
| E | 1.75±0.10 | 0.069±0.004 |
| E1 | 13.3±0.3 | 0.524±0.012 |
| F | 11.50±0.10 | 0.453±0.004 |
| K0 | 5.10±0.10 | 0.201±0.004 |
| P0 | 4.00±0.10 | 0.157±0.004 |
| P1 | 12.00±0.10 | 0.472±0.004 |
| P2 | 2.00±0.10 | 0.079±0.004 |
| T | 0.30±0.05 | 0.012±0.002 |
| W | 24.00±0.30 | 0.945±0.012 |
| W1 | 28.5±2.0 | 1.122±0.079 |

| PART No. | PACKAGE TYPE | REEL (PCS) | PER CARTON (PCS) | DESCRIPTION |
|-------------|--------------|------------|------------------|-------------------|
| SMTJxxCAT-Z | SMT-4 | 1,000 | 4,000 | 13 inch reel pack |

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