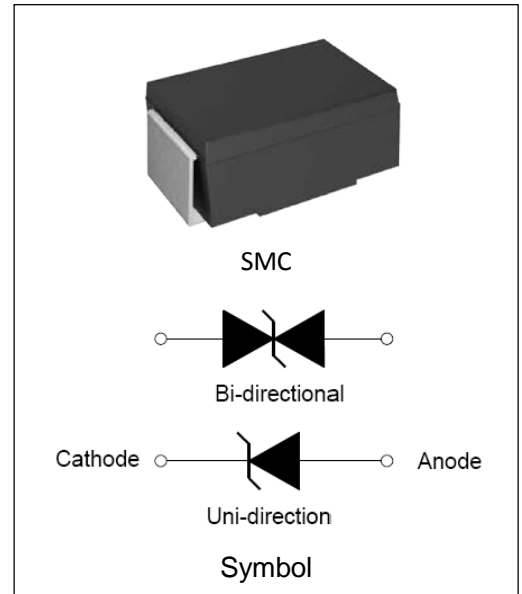


DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

FEATURES:

- ✧ Glass passivated or planar junction
- ✧ Excellent clamping capability
- ✧ Repetition rate (duty cycle): 0.01%
- ✧ Typical I_R less than $1\mu A$ above 10V.
- ✧ Low profile package and low inductance
- ✧ 5000 W Peak Pulse power capability at $10 \times 1000\mu s$ waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: $260^\circ C/10s$ at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ C$, RH=45%-75%, unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-------------|-------------|------------|
| Storage temperature range | T_{stg} | -55 to +150 | $^\circ C$ |
| Operating junction temperature range | T_j | -55 to +150 | $^\circ C$ |
| Steady state power dissipation at $T_L=75^\circ C$ | $P_{M(AV)}$ | 10 | W |
| Peak pulse power dissipation on 10/1000 μs waveform | P_{PP} | 5000 | W |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional | V_F | 5.0 | V |

ELECTRICAL CHARACTERISTICS (TA=25°C)

| Part Number | | V _R | I _R @V _R | V _{BR} @I _T | | I _T | V _C @I _{PP} | I _{PP} ^① |
|-------------|-------------|----------------|--------------------------------|---------------------------------|--------|----------------|---------------------------------|------------------------------|
| Uni-Polar | Bi-Polar | V | μA | min(V) | max(V) | mA | max(V) | A |
| 5.0SMDJ11A | 5.0SMDJ11CA | 11 | 800 | 12.20 | 13.50 | 10 | 18.2 | 275.0 |
| 5.0SMDJ12A | 5.0SMDJ12CA | 12 | 800 | 13.30 | 14.70 | 10 | 19.9 | 252.0 |
| 5.0SMDJ13A | 5.0SMDJ13CA | 13 | 500 | 14.40 | 15.90 | 10 | 21.5 | 233.0 |
| 5.0SMDJ14A | 5.0SMDJ14CA | 14 | 200 | 15.60 | 17.20 | 10 | 23.2 | 216.0 |
| 5.0SMDJ15A | 5.0SMDJ15CA | 15 | 100 | 16.70 | 18.50 | 1 | 24.4 | 205.0 |
| 5.0SMDJ16A | 5.0SMDJ16CA | 16 | 50 | 17.80 | 19.70 | 1 | 26.0 | 193.0 |
| 5.0SMDJ17A | 5.0SMDJ17CA | 17 | 20 | 18.90 | 20.90 | 1 | 27.6 | 181.0 |
| 5.0SMDJ18A | 5.0SMDJ18CA | 18 | 10 | 20.00 | 22.10 | 1 | 29.2 | 172.0 |
| 5.0SMDJ20A | 5.0SMDJ20CA | 20 | 5 | 22.20 | 24.50 | 1 | 32.4 | 155.0 |
| 5.0SMDJ22A | 5.0SMDJ22CA | 22 | 1 | 24.40 | 26.90 | 1 | 35.5 | 141.0 |
| 5.0SMDJ24A | 5.0SMDJ24CA | 24 | 1 | 26.70 | 29.50 | 1 | 38.9 | 129.0 |
| 5.0SMDJ26A | 5.0SMDJ26CA | 26 | 1 | 28.90 | 31.90 | 1 | 42.1 | 119.0 |
| 5.0SMDJ28A | 5.0SMDJ28CA | 28 | 1 | 31.10 | 34.40 | 1 | 45.4 | 110.0 |
| 5.0SMDJ30A | 5.0SMDJ30CA | 30 | 1 | 33.30 | 36.80 | 1 | 48.4 | 103.0 |
| 5.0SMDJ33A | 5.0SMDJ33CA | 33 | 1 | 36.70 | 40.60 | 1 | 53.3 | 93.9 |
| 5.0SMDJ36A | 5.0SMDJ36CA | 36 | 1 | 40.00 | 44.20 | 1 | 58.1 | 86.1 |
| 5.0SMDJ40A | 5.0SMDJ40CA | 40 | 1 | 44.40 | 49.10 | 1 | 64.5 | 77.6 |
| 5.0SMDJ43A | 5.0SMDJ43CA | 43 | 1 | 47.80 | 52.80 | 1 | 69.4 | 72.1 |
| 5.0SMDJ45A | 5.0SMDJ45CA | 45 | 1 | 50.00 | 55.30 | 1 | 72.7 | 68.8 |
| 5.0SMDJ48A | 5.0SMDJ48CA | 48 | 1 | 53.30 | 58.90 | 1 | 77.4 | 64.7 |
| 5.0SMDJ51A | 5.0SMDJ51CA | 51 | 1 | 56.70 | 62.70 | 1 | 82.4 | 60.7 |
| 5.0SMDJ54A | 5.0SMDJ54CA | 54 | 1 | 60.00 | 66.30 | 1 | 87.1 | 57.5 |
| 5.0SMDJ58A | 5.0SMDJ58CA | 58 | 1 | 64.40 | 71.20 | 1 | 93.6 | 53.5 |
| 5.0SMDJ60A | 5.0SMDJ60CA | 60 | 1 | 66.70 | 73.70 | 1 | 96.8 | 51.7 |
| 5.0SMDJ64A | 5.0SMDJ64CA | 64 | 1 | 71.10 | 78.60 | 1 | 103.0 | 48.6 |
| 5.0SMDJ70A | 5.0SMDJ70CA | 70 | 1 | 77.80 | 86.00 | 1 | 113.0 | 44.3 |
| 5.0SMDJ75A | 5.0SMDJ75CA | 75 | 1 | 83.30 | 92.10 | 1 | 121.0 | 41.4 |
| 5.0SMDJ78A | 5.0SMDJ78CA | 78 | 1 | 86.70 | 95.80 | 1 | 126.0 | 39.7 |
| 5.0SMDJ85A | 5.0SMDJ85CA | 85 | 1 | 94.40 | 104.0 | 1 | 137.0 | 36.5 |
| 5.0SMDJ90A | 5.0SMDJ90CA | 90 | 1 | 100.0 | 111.0 | 1 | 146.0 | 34.3 |

ELECTRICAL CHARACTERISTICS (TA=25°C, continued)

| Part Number | | V _R | I _R @V _R | V _{BR} @I _T | | I _T | V _C @I _{PP} | I _{PP} ^① |
|-------------|--------------|----------------|--------------------------------|---------------------------------|--------|----------------|---------------------------------|------------------------------|
| Uni-Polar | Bi-Polar | V | μA | min(V) | max(V) | mA | max(V) | A |
| 5.0SMDJ100A | 5.0SMDJ100CA | 100 | 1 | 111.0 | 123.0 | 1 | 162.0 | 30.9 |
| 5.0SMDJ110A | 5.0SMDJ110CA | 110 | 1 | 122.0 | 135.0 | 1 | 177.0 | 28.3 |
| 5.0SMDJ120A | 5.0SMDJ120CA | 120 | 1 | 133.0 | 147.0 | 1 | 193.0 | 26.0 |
| 5.0SMDJ130A | 5.0SMDJ130CA | 130 | 1 | 144.0 | 159.0 | 1 | 209.0 | 24.0 |
| 5.0SMDJ150A | 5.0SMDJ150CA | 150 | 1 | 167.0 | 185.0 | 1 | 243.0 | 20.6 |
| 5.0SMDJ160A | 5.0SMDJ160CA | 160 | 1 | 178.0 | 197.0 | 1 | 259.0 | 19.3 |
| 5.0SMDJ170A | 5.0SMDJ170CA | 170 | 1 | 189.0 | 209.0 | 1 | 275.0 | 18.2 |

① Surge waveform: 10/1000μs

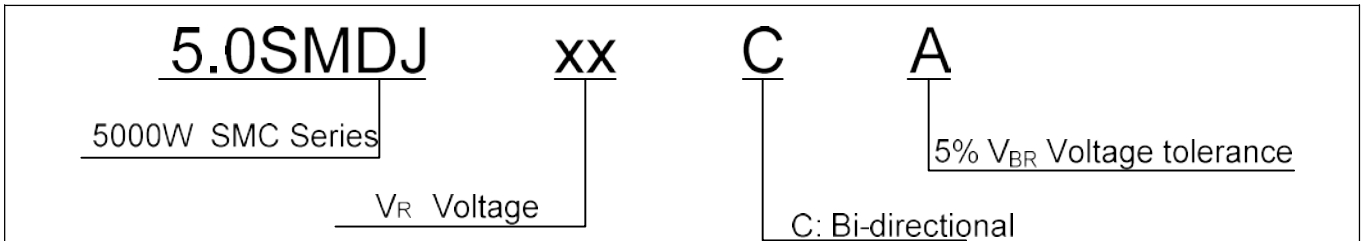
V_R: Stand-off Voltage -- Maximum voltage that can be applied V_{BR}:

Breakdown Voltage

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

Reverse Leakage Current

ORDERING INFORMATION



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

FIG.1:V- I curve characteristics (Uni-directional)

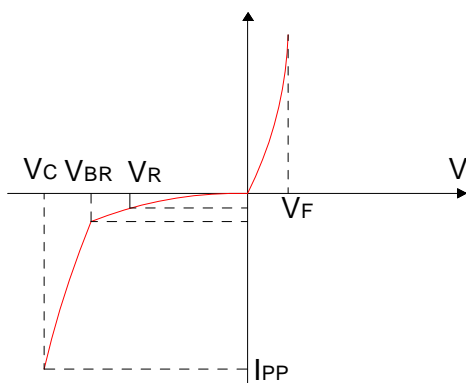


FIG.2:V- I curve characteristics (Bi-directional)

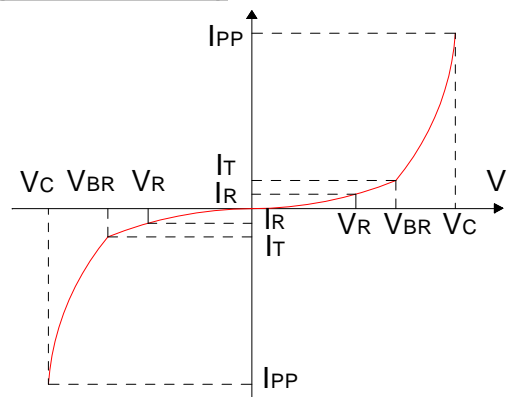


FIG.3: Pulse waveform

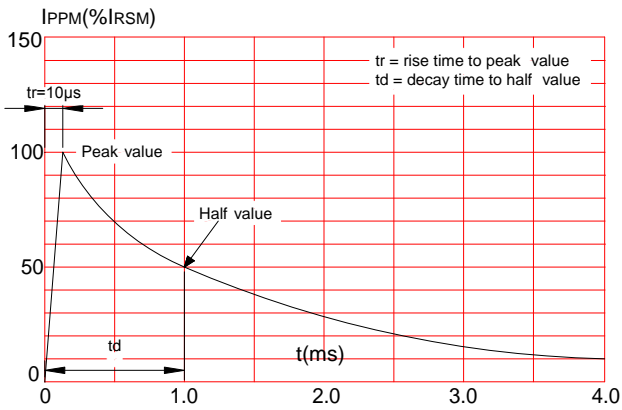
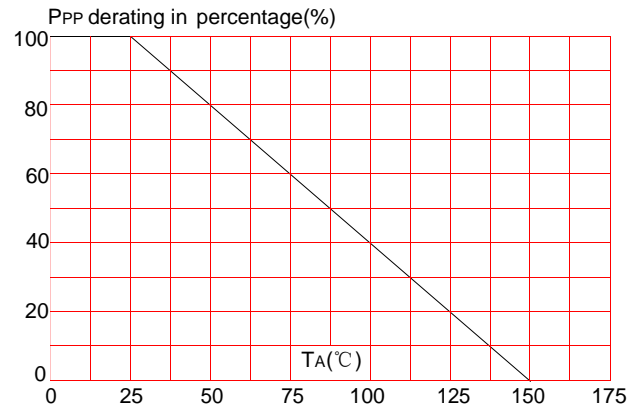
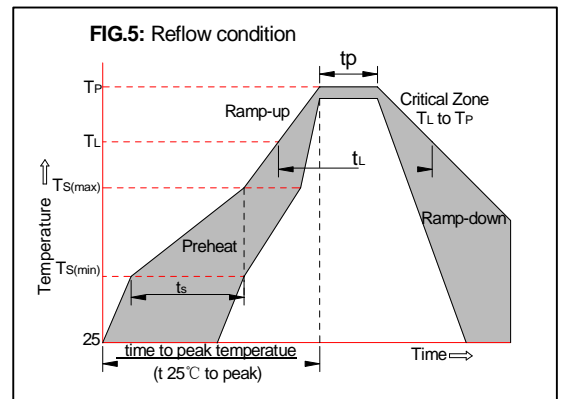


FIG.4: Pulse derating curve

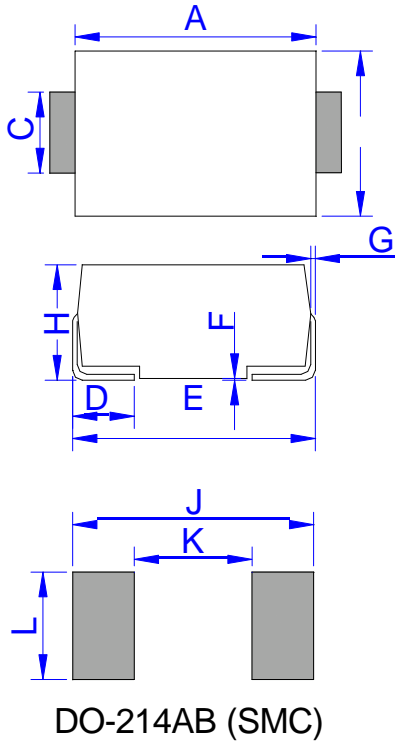


SOLDERING PARAMETERS

| | | |
|---|-----------------------------------|---------------------------------|
| Reflow Condition | | Pb-Free assembly (see FIG.5) |
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us 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)(Liquid us) | +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) | | 30 secs. Max |
| 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. | Max. | Min. | Max. |
| A | 6.60 | 7.11 | 0.260 | 0.280 |
| B | 5.59 | 6.20 | 0.220 | 0.244 |
| C | 2.75 | 3.20 | 0.108 | 0.126 |
| D | 0.76 | 1.52 | 0.030 | 0.060 |
| E | 7.74 | 8.13 | 0.305 | 0.320 |
| F | 0.051 | 0.203 | 0.002 | 0.008 |
| G | 0.15 | 0.31 | 0.006 | 0.012 |
| H | 2.15 | 2.62 | 0.085 | 0.103 |
| J | 8.12 | | 0.320 | |
| K | | 4.69 | | 0.185 |
| L | 3.07 | | 0.121 | |