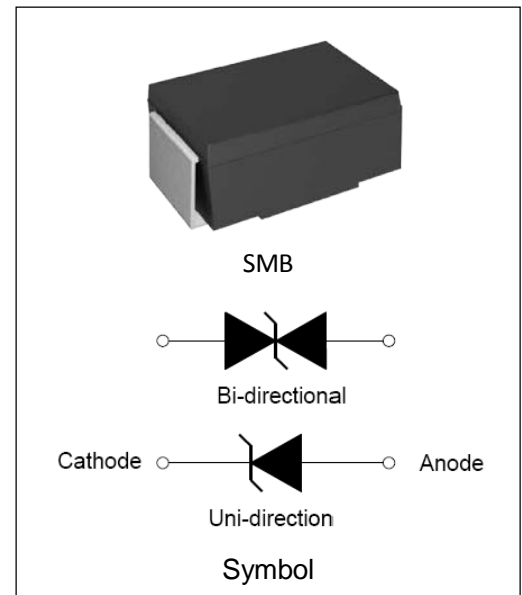


DESCRIPTION:

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
- ✧ 600W 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 $T_L=75^\circ C$ | $P_{M(AV)}$ | 5.0 | W |
| Peak pulse power dissipation on 10/1000 μs waveform | P_{PP} | 600 | W |
| Maximum Instantaneous Forward Voltage at 50A for Unidirectional | V_F | 5.0 | V |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

| Part Number | | V_R | $I_R@V_R$ | $V_{BR}@I_T$ | | I_T | $V_C@I_{PP}$ | $I_{PP}^{\text{①}}$ |
|-------------|-----------|-------|---------------|--------------|--------|-------|--------------|---------------------|
| Uni-Polar | Bi-Polar | V | μA | min(V) | max(V) | mA | max(V) | A |
| SMBJ5.0A | SMBJ5.0CA | 5.0 | 50 | 6.40 | 7.00 | 10 | 9.2 | 65.2 |
| SMBJ6.0A | SMBJ6.0CA | 6.0 | 50 | 6.67 | 7.37 | 10 | 10.3 | 58.3 |
| SMBJ6.5A | SMBJ6.5CA | 6.5 | 50 | 7.22 | 7.98 | 10 | 11.2 | 53.6 |
| SMBJ7.0A | SMBJ7.0CA | 7.0 | 50 | 7.78 | 8.60 | 10 | 12.0 | 50.0 |
| SMBJ7.5A | SMBJ7.5CA | 7.5 | 50 | 8.33 | 9.21 | 1 | 12.9 | 46.5 |
| SMBJ8.0A | SMBJ8.0CA | 8.0 | 20 | 8.89 | 9.83 | 1 | 13.6 | 44.1 |
| SMBJ8.5A | SMBJ8.5CA | 8.5 | 10 | 9.44 | 10.40 | 1 | 14.4 | 41.7 |
| SMBJ9.0A | SMBJ9.0CA | 9.0 | 5 | 10.00 | 11.10 | 1 | 15.4 | 39.0 |
| SMBJ10A | SMBJ10CA | 10 | 2 | 11.10 | 12.30 | 1 | 17.0 | 35.3 |
| SMBJ11A | SMBJ11CA | 11 | 1 | 12.20 | 13.50 | 1 | 18.2 | 33.0 |
| SMBJ12A | SMBJ12CA | 12 | 1 | 13.30 | 14.70 | 1 | 19.9 | 30.2 |
| SMBJ13A | SMBJ13CA | 13 | 1 | 14.40 | 15.90 | 1 | 21.5 | 27.9 |
| SMBJ14A | SMBJ14CA | 14 | 1 | 15.60 | 17.20 | 1 | 23.2 | 25.9 |
| SMBJ15A | SMBJ15CA | 15 | 1 | 16.70 | 18.50 | 1 | 24.4 | 24.6 |
| SMBJ16A | SMBJ16CA | 16 | 1 | 17.80 | 19.70 | 1 | 26.0 | 23.1 |
| SMBJ17A | SMBJ17CA | 17 | 1 | 18.90 | 20.90 | 1 | 27.6 | 21.8 |
| SMBJ18A | SMBJ18CA | 18 | 1 | 20.00 | 22.10 | 1 | 29.2 | 20.6 |
| SMBJ20A | SMBJ20CA | 20 | 1 | 22.20 | 24.50 | 1 | 32.4 | 18.6 |
| SMBJ22A | SMBJ22CA | 22 | 1 | 24.40 | 26.90 | 1 | 35.5 | 16.9 |
| SMBJ24A | SMBJ24CA | 24 | 1 | 26.70 | 29.50 | 1 | 38.9 | 15.4 |
| SMBJ26A | SMBJ26CA | 26 | 1 | 28.90 | 31.90 | 1 | 42.1 | 14.3 |
| SMBJ28A | SMBJ28CA | 28 | 1 | 31.10 | 34.40 | 1 | 45.4 | 13.2 |
| SMBJ30A | SMBJ30CA | 30 | 1 | 33.30 | 36.80 | 1 | 48.4 | 12.4 |
| SMBJ33A | SMBJ33CA | 33 | 1 | 36.70 | 40.60 | 1 | 53.3 | 11.3 |
| SMBJ36A | SMBJ36CA | 36 | 1 | 40.00 | 44.20 | 1 | 58.1 | 10.4 |
| SMBJ40A | SMBJ40CA | 40 | 1 | 44.40 | 49.10 | 1 | 64.5 | 9.3 |
| SMBJ43A | SMBJ43CA | 43 | 1 | 47.80 | 52.80 | 1 | 69.4 | 8.7 |
| SMBJ45A | SMBJ45CA | 45 | 1 | 50.00 | 55.30 | 1 | 72.7 | 8.3 |
| SMBJ48A | SMBJ48CA | 48 | 1 | 53.30 | 58.90 | 1 | 77.4 | 7.8 |
| SMBJ51A | SMBJ51CA | 51 | 1 | 56.70 | 62.70 | 1 | 82.4 | 7.3 |

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, 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 |
| SMBJ54A | SMBJ54CA | 54 | 1 | 60.00 | 66.30 | 1 | 87.1 | 6.9 |
| SMBJ58A | SMBJ58CA | 58 | 1 | 64.40 | 71.20 | 1 | 93.6 | 6.4 |
| SMBJ60A | SMBJ60CA | 60 | 1 | 66.70 | 73.70 | 1 | 96.8 | 6.2 |
| SMBJ64A | SMBJ64CA | 64 | 1 | 71.10 | 78.60 | 1 | 103.0 | 5.8 |
| SMBJ70A | SMBJ70CA | 70 | 1 | 77.80 | 86.00 | 1 | 113.0 | 5.3 |
| SMBJ75A | SMBJ75CA | 75 | 1 | 83.30 | 92.10 | 1 | 121.0 | 5.0 |
| SMBJ78A | SMBJ78CA | 78 | 1 | 86.70 | 95.80 | 1 | 126.0 | 4.8 |
| SMBJ85A | SMBJ85CA | 85 | 1 | 94.40 | 104.0 | 1 | 137.0 | 4.4 |
| SMBJ90A | SMBJ90CA | 90 | 1 | 100.0 | 111.0 | 1 | 146.0 | 4.1 |
| SMBJ100A | SMBJ100CA | 100 | 1 | 111.0 | 123.0 | 1 | 162.0 | 3.7 |
| SMBJ110A | SMBJ110CA | 110 | 1 | 122.0 | 135.0 | 1 | 177.0 | 3.4 |
| SMBJ120A | SMBJ120CA | 120 | 1 | 133.0 | 147.0 | 1 | 193.0 | 3.1 |
| SMBJ130A | SMBJ130CA | 130 | 1 | 144.0 | 159.0 | 1 | 209.0 | 2.9 |
| SMBJ150A | SMBJ150CA | 150 | 1 | 167.0 | 185.0 | 1 | 243.0 | 2.5 |
| SMBJ160A | SMBJ160CA | 160 | 1 | 178.0 | 197.0 | 1 | 259.0 | 2.3 |
| SMBJ170A | SMBJ170CA | 170 | 1 | 189.0 | 209.0 | 1 | 275.0 | 2.2 |
| SMBJ180A | SMBJ180CA | 180 | 1 | 201.0 | 222.0 | 1 | 292.0 | 2.1 |
| SMBJ190A | SMBJ190CA | 190 | 1 | 211.0 | 234.0 | 1 | 307.0 | 2.0 |
| SMBJ200A | SMBJ200CA | 200 | 1 | 224.0 | 247.0 | 1 | 324.0 | 1.9 |
| SMBJ210A | SMBJ210CA | 210 | 1 | 233.0 | 258.0 | 1 | 337.0 | 1.8 |
| SMBJ220A | SMBJ220CA | 220 | 1 | 246.0 | 272.0 | 1 | 356.0 | 1.7 |
| SMBJ250A | SMBJ250CA | 250 | 1 | 279.0 | 309.0 | 1 | 405.0 | 1.5 |
| SMBJ300A | SMBJ300CA | 300 | 1 | 335.0 | 371.0 | 1 | 486.0 | 1.3 |
| SMBJ350A | SMBJ350CA | 350 | 1 | 391.0 | 432.0 | 1 | 567.0 | 1.1 |
| SMBJ400A | SMBJ400CA | 400 | 1 | 447.0 | 494.0 | 1 | 648.0 | 0.9 |
| SMBJ440A | SMBJ440CA | 440 | 1 | 492.0 | 543.0 | 1 | 713.0 | 0.8 |

 ① Surge waveform: 10/1000 μs
 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 ($T_A=25^{\circ}C$, unless otherwise noted)

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

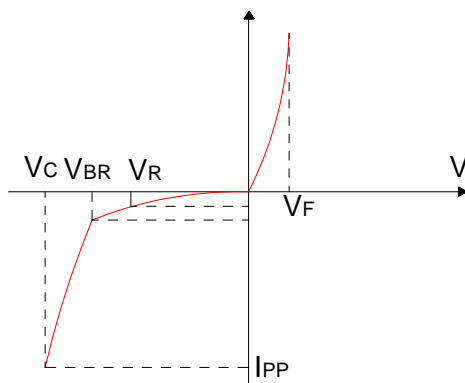


FIG.2: V- I curve characteristics (Bi-directional)



FIG.3: Pulse waveform

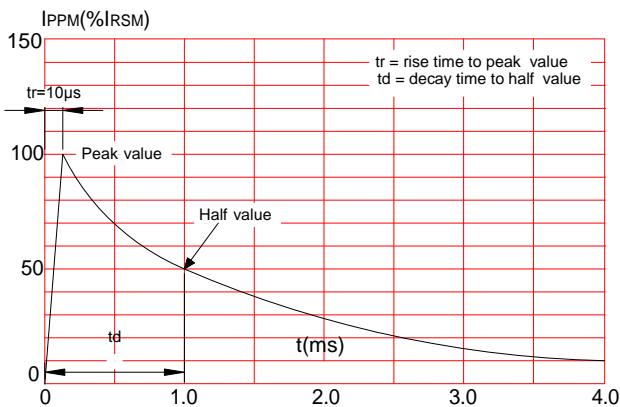


FIG.4: Pulse derating curve

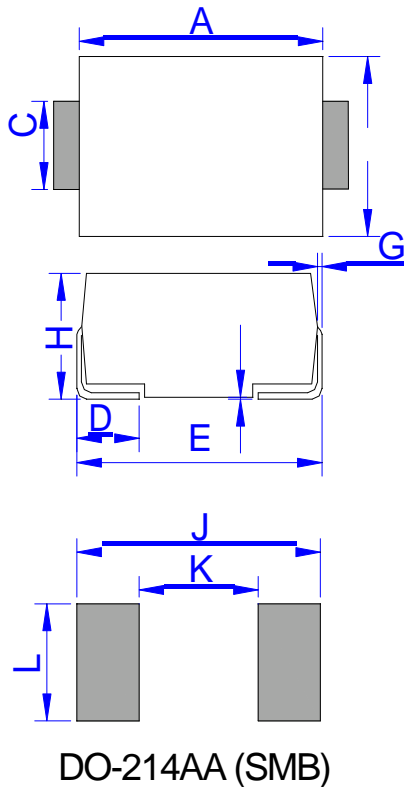


SOLDERING PARAMETERS

| | | |
|---|-----------------------------------|---------------------------------|
| 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 | 4.25 | 4.75 | 0.167 | 0.187 |
| B | 3.30 | 3.94 | 0.130 | 0.155 |
| C | 1.85 | 2.21 | 0.073 | 0.087 |
| D | 0.76 | 1.52 | 0.030 | 0.060 |
| E | 5.08 | 5.59 | 0.200 | 0.220 |
| F | 0.051 | 0.203 | 0.002 | 0.008 |
| G | 0.15 | 0.31 | 0.006 | 0.012 |
| H | 2.11 | 2.44 | 0.083 | 0.096 |
| J | 6.80 | | 0.270 | |
| K | | 2.60 | | 0.100 |
| L | 2.40 | | 0.090 | |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:

Click to view products by [Bourne](#) manufacturer:

Other Similar products are found below :

[NTE4902](#) [P4SMAJ15A](#) [P4SMAJ26A](#) [SMAJ400CA-TP](#) [TGL34-47CA](#) [ESDAULC45-1BF4](#) [SM1605E3/TR13](#) [SMF20A-TP](#) [P4SMAJ12A](#)
[CPDUR24V-HF](#) [CPDQC5V0USP-HF](#) [CPDQC5V0-HF](#) [MPLAD30KP45CAE3](#) [MMBZ27VCLQ-7-F](#) [MMAD1108/TR13](#) [MPLAD30KP24A](#)
[ACPDQC5V0R-HF](#) [DFLT170A-7](#) [NTE4900](#) [NTE4926](#) [NTE4938](#) [SMF22A-TP](#) [SMF12A-TP](#) [SLVU2.8-TP](#) [SMLJ6.5CA-TP](#) [SMAJ6.5CA-](#)
[TP](#) [MMAD1108E3/TR13](#) [D5V0M1U2LP3-7](#) [SMAJ400A-TP](#) [AOZ8811DT-03](#) [AOZ8831DI-05](#) [AOZ8831DT-03](#) [SMAJ188CA](#) [3SMC33CA](#)
[BK](#) [CPDQC3V3C-HF](#) [CPDQC12VE-HF](#) [MPLAD30KP170CA](#) [82357120100](#) [5.0SMLJ15CA-TP](#) [5KP18A-TP](#) [P6KE8.2A-TP](#)
[MPLAD30KP43CAE3](#) [SMAJ43A-TP](#) [D5V0F6U8LP33-7](#) [TVS5501V10MUT5G](#) [5.0SMLJ24CA-TP](#) [SMAJ110CA-TP](#) [MPLAD15KP75CAE3](#)
[MMAD1103e3/TR13](#) [DFLT40AQ-7](#)