

5.0SMLJ11A THRU 5.0SMLJ400A

Transient Voltage Suppressor 11 to 400 Volts 5000 Watt

Features

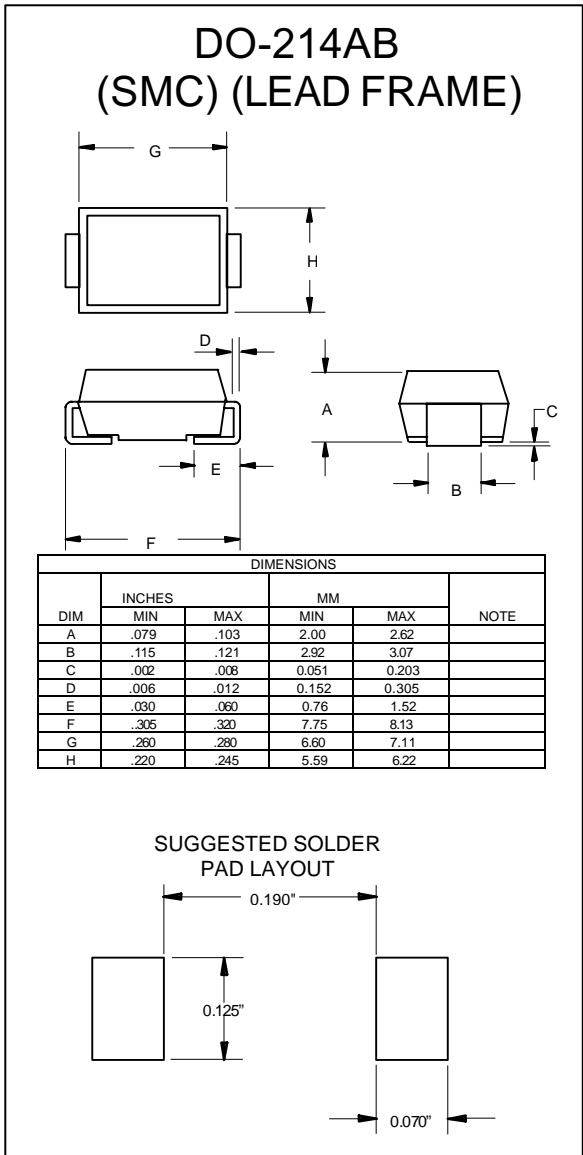
- Halogen free available upon request by adding suffix "-HF"
- For surface mount application in order to optimize board space
- Low profile package
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate(duty cycle): 0.01%
- Fast response time: typical less than 1ps from 0V to BV min
- Typical I_D less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Low Inductance
- Built in strain relief
- UL Recognized File # E480232

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end(cathode) except Bi-directional types.
- Standard packaging: 16mm tape per (EIA 481).
- Weight: 0.007 ounce, 0.21 gram

Maximum Ratings @ 25°C Unless Otherwise Specified

| | | | |
|---|-----------------------------------|-----------------|-------|
| Peak Pulse Current on 10/1000us waveform(Note2) | I _{PPM} | See page 2,3 | Amps |
| Peak Pulse Power Dissipation on 10/1000us waveform(Note2,3) | P _{PPM} | Minimum 5000 | Watts |
| Power Dissipation on infinite heat sink at T _L =75°C | P _D | 6.5 | Watts |
| Operation And Storage Temperature Range | T _J , T _{STG} | -55°C to +175°C | |



Note:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse and derated above T_A=25°C
3. Mounted on 8.0mm² copper pads to each terminal.
4. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.

5.0SMLJ11A~ 5.0SMLJ400A

| PART NUMBER | REVERSE STAND- OFF VOLTAGE $V_{RWM}(V)$ | BREAKDOWN VOLTAGE $V_{BR}(V)$ MIN.@IT | BREAKDOWN VOLTAGE $V_{BR}(V)$ MAX.@IT | TEST CURRENT I_T (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ V_{RWM} | DEVICE MARKING CODE |
|--------------|--|--|--|-------------------------------|--|----------------------------------|-----------------------------------|---------------------------|
| | | | | | $V_c(V)$ | | $I_D(\mu A)$ | |
| 5.0SMLJ 11A | 11 | 12.2 | 13.5 | 10 | 18.2 | 275 | 800 | 5PEN |
| 5.0SMLJ 12A | 12 | 13.3 | 14.7 | 10 | 19.9 | 252 | 800 | 5PEP |
| 5.0SMLJ 13A | 13 | 14.4 | 15.9 | 10 | 21.5 | 233 | 500 | 5PEQ |
| 5.0SMLJ 14A | 14 | 15.6 | 17.2 | 10 | 23.2 | 216 | 200 | 5PER |
| 5.0SMLJ 15A | 15 | 16.7 | 18.5 | 1 | 24.4 | 205 | 100 | 5PES |
| 5.0SMLJ 16A | 16 | 17.8 | 19.7 | 1 | 26 | 193 | 50 | 5PET |
| 5.0SMLJ 17A | 17 | 18.9 | 20.9 | 1 | 27.6 | 181 | 20 | 5PEU |
| 5.0SMLJ 18A | 18 | 20 | 22.1 | 1 | 29.2 | 172 | 10 | 5PEV |
| 5.0SMLJ 20A | 20 | 22.2 | 24.5 | 1 | 32.4 | 155 | 5 | 5PEW |
| 5.0SMLJ 22A | 22 | 24.4 | 26.9 | 1 | 35.5 | 141 | 5 | 5PEX |
| 5.0SMLJ 24A | 24 | 26.7 | 29.5 | 1 | 38.9 | 129 | 5 | 5PEZ |
| 5.0SMLJ 26A | 26 | 28.9 | 31.9 | 1 | 42.1 | 119 | 5 | 5PFE |
| 5.0SMLJ 28A | 28 | 31.1 | 34.4 | 1 | 45.4 | 110 | 5 | 5PFG |
| 5.0SMLJ 30A | 30 | 33.3 | 36.8 | 1 | 48.4 | 103 | 5 | 5PFK |
| 5.0SMLJ 33A | 33 | 36.7 | 40.6 | 1 | 53.3 | 93.9 | 5 | 5PFM |
| 5.0SMLJ 36A | 36 | 40 | 44.2 | 1 | 58.1 | 86.1 | 5 | 5PFP |
| 5.0SMLJ 40A | 40 | 44.4 | 49.1 | 1 | 64.5 | 77.6 | 5 | 5PFR |
| 5.0SMLJ 43A | 43 | 47.8 | 52.8 | 1 | 69.4 | 72.1 | 5 | 5PFT |
| 5.0SMLJ 45A | 45 | 50 | 55.3 | 1 | 72.7 | 68.8 | 5 | 5PFV |
| 5.0SMLJ 48A | 48 | 53.3 | 58.9 | 1 | 77.4 | 64.7 | 5 | 5PFX |
| 5.0SMLJ 51A | 51 | 56.7 | 62.7 | 1 | 82.4 | 60.7 | 5 | 5PFZ |
| 5.0SMLJ 54A | 54 | 60 | 66.3 | 1 | 87.1 | 57.5 | 5 | 5RGE |
| 5.0SMLJ 58A | 58 | 64.4 | 71.2 | 1 | 93.6 | 53.5 | 5 | 5PGG |
| 5.0SMLJ 60A | 60 | 66.7 | 73.7 | 1 | 96.8 | 51.7 | 5 | 5PGK |
| 5.0SMLJ 64A | 64 | 71.1 | 78.6 | 1 | 103 | 48.6 | 5 | 5PGM |
| 5.0SMLJ 70A | 70 | 77.8 | 86 | 1 | 113 | 44.3 | 5 | 5PGP |
| 5.0SMLJ 75A | 75 | 83.3 | 92.1 | 1 | 121 | 41.4 | 5 | 5PGR |
| 5.0SMLJ 78A | 78 | 86.7 | 95.8 | 1 | 126 | 39.7 | 5 | 5PGT |
| 5.0SMLJ 85A | 85 | 94.4 | 104 | 1 | 137 | 36.5 | 5 | 5PGV |
| 5.0SMLJ 90A | 90 | 100 | 111 | 1 | 146 | 34.3 | 5 | 5PGX |
| 5.0SMLJ 100A | 100 | 111 | 123 | 1 | 162 | 30.9 | 5 | 5PGZ |
| 5.0SMLJ 110A | 110 | 122 | 135 | 1 | 177 | 28.3 | 5 | 5PHE |
| 5.0SMLJ 120A | 120 | 133 | 147 | 1 | 193 | 26 | 5 | 5PHG |
| 5.0SMLJ 130A | 130 | 144 | 159 | 1 | 209 | 24 | 5 | 5PHK |
| 5.0SMLJ 150A | 150 | 167 | 185 | 1 | 243 | 20.6 | 5 | 5PHM |
| 5.0SMLJ 160A | 160 | 178 | 197 | 1 | 259 | 19.3 | 5 | 5PHP |
| 5.0SMLJ 170A | 170 | 189 | 209 | 1 | 275 | 18.2 | 5 | 5PHR |
| 5.0SMLJ 180A | 180 | 200 | 220 | 1 | 292 | 17.1 | 5 | 5PHT |
| 5.0SMLJ 190A | 190 | 211 | 258 | 1 | 308 | 16.2 | 5 | 5PHV |
| 5.0SMLJ 200A | 200 | 224 | 247 | 1 | 324 | 15.4 | 5 | 5PHW |
| 5.0SMLJ 220A | 220 | 246 | 272 | 1 | 356 | 14.0 | 5 | 5PHX |
| 5.0SMLJ 250A | 250 | 279 | 309 | 1 | 405 | 12.3 | 5 | 5PHZ |
| 5.0SMLJ 300A | 300 | 335 | 371 | 1 | 486 | 10.3 | 5 | 5PJE |
| 5.0SMLJ 350A | 350 | 391 | 432 | 1 | 567 | 8.8 | 5 | 5PJG |
| 5.0SMLJ 400A | 400 | 447 | 494 | 1 | 648 | 7.7 | 5 | 5PJK |

5.0SMLJ11CA~5.0SMLJ170CA

| PART NUMBER | REVERSE STAND- OFF VOLTAGE $V_{RWM}(V)$ | BREAKDOWN VOLTAGE $V_{BR}(V)$ MIN.@IT | BREAKDOWN VOLTAGE $V_{BR}(V)$ MAX.@IT | TEST CURRENT I_T (mA) | MAXIMUM CLAMPING VOLTAGE | PEAK PULSE CURRENT I_{pp} (A) | REVERSE LEAKAGE | DEVICE MARKING CODE |
|---------------|--|--|--|-------------------------------|--------------------------------|---------------------------------------|-----------------------------|---------------------------|
| | | | | | @ I_{pp} $V_c(V)$ | | @ V_{RWM} $I_D(\mu A)$ | |
| 5.0SMLJ 11CA | 11 | 12.2 | 13.5 | 10 | 18.2 | 275 | 800 | 5BEN |
| 5.0SMLJ 12CA | 12 | 13.3 | 14.7 | 10 | 19.9 | 252 | 800 | 5BEP |
| 5.0SMLJ 13CA | 13 | 14.4 | 15.9 | 10 | 21.5 | 233 | 500 | 5BEQ |
| 5.0SMLJ 14CA | 14 | 15.6 | 17.2 | 10 | 23.2 | 216 | 200 | 5BER |
| 5.0SMLJ 15CA | 15 | 16.7 | 18.5 | 1 | 24.4 | 205 | 100 | 5BES |
| 5.0SMLJ 16CA | 16 | 17.8 | 19.7 | 1 | 26 | 193 | 50 | 5BET |
| 5.0SMLJ 17CA | 17 | 18.9 | 20.9 | 1 | 27.6 | 181 | 20 | 5BEU |
| 5.0SMLJ 18CA | 18 | 20 | 22.1 | 1 | 29.2 | 172 | 10 | 5BEV |
| 5.0SMLJ 20CA | 20 | 22.2 | 24.5 | 1 | 32.4 | 155 | 5 | 5BEW |
| 5.0SMLJ 22CA | 22 | 24.4 | 26.9 | 1 | 35.5 | 141 | 5 | 5BEX |
| 5.0SMLJ 24CA | 24 | 26.7 | 29.5 | 1 | 38.9 | 129 | 5 | 5BEZ |
| 5.0SMLJ 26CA | 26 | 28.9 | 31.9 | 1 | 42.1 | 119 | 5 | 5BFE |
| 5.0SMLJ 28CA | 28 | 31.1 | 34.4 | 1 | 45.4 | 110 | 5 | 5BFG |
| 5.0SMLJ 30CA | 30 | 33.3 | 36.8 | 1 | 48.4 | 103 | 5 | 5BFK |
| 5.0SMLJ 33CA | 33 | 36.7 | 40.6 | 1 | 53.3 | 93.9 | 5 | 5BFM |
| 5.0SMLJ 36CA | 36 | 40 | 44.2 | 1 | 58.1 | 86.1 | 5 | 5BFP |
| 5.0SMLJ 40CA | 40 | 44.4 | 49.1 | 1 | 64.5 | 77.6 | 5 | 5BFR |
| 5.0SMLJ 43CA | 43 | 47.8 | 52.8 | 1 | 69.4 | 72.1 | 5 | 5BFT |
| 5.0SMLJ 45CA | 45 | 50 | 55.3 | 1 | 72.7 | 68.8 | 5 | 5BFV |
| 5.0SMLJ 48CA | 48 | 53.3 | 58.9 | 1 | 77.4 | 64.7 | 5 | 5BFX |
| 5.0SMLJ 51CA | 51 | 56.7 | 62.7 | 1 | 82.4 | 60.7 | 5 | 5BFZ |
| 5.0SMLJ 54CA | 54 | 60 | 66.3 | 1 | 87.1 | 57.5 | 5 | 5BGE |
| 5.0SMLJ 58CA | 58 | 64.4 | 71.2 | 1 | 93.6 | 53.5 | 5 | 5BGG |
| 5.0SMLJ 60CA | 60 | 66.7 | 73.7 | 1 | 96.8 | 51.7 | 5 | 5BGK |
| 5.0SMLJ 64CA | 64 | 71.1 | 78.6 | 1 | 103 | 48.6 | 5 | 5BGM |
| 5.0SMLJ 70CA | 70 | 77.8 | 86 | 1 | 113 | 44.3 | 5 | 5BGP |
| 5.0SMLJ 75CA | 75 | 83.3 | 92.1 | 1 | 121 | 41.4 | 5 | 5BGR |
| 5.0SMLJ 78CA | 78 | 86.7 | 95.8 | 1 | 126 | 39.7 | 5 | 5BGT |
| 5.0SMLJ 85CA | 85 | 94.4 | 104 | 1 | 137 | 36.5 | 5 | 5BGV |
| 5.0SMLJ 90CA | 90 | 100 | 111 | 1 | 146 | 34.3 | 5 | 5BGX |
| 5.0SMLJ 100CA | 100 | 111 | 123 | 1 | 162 | 30.9 | 5 | 5BGZ |
| 5.0SMLJ 110CA | 110 | 122 | 135 | 1 | 177 | 28.3 | 5 | 5BHE |
| 5.0SMLJ 120CA | 120 | 133 | 147 | 1 | 193 | 26 | 5 | 5BHG |
| 5.0SMLJ 130CA | 130 | 144 | 159 | 1 | 209 | 24 | 5 | 5BHK |
| 5.0SMLJ 150CA | 150 | 167 | 185 | 1 | 243 | 20.6 | 5 | 5BHM |
| 5.0SMLJ 160CA | 160 | 178 | 197 | 1 | 259 | 19.3 | 5 | 5BHP |
| 5.0SMLJ 170CA | 170 | 189 | 209 | 1 | 275 | 18.2 | 5 | 5BHR |

For Bidirectional type having V_{rwm} of 20 volts and less, the I_r limit is double.

5.0SMLJ11A~5.0SMLJ400A

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

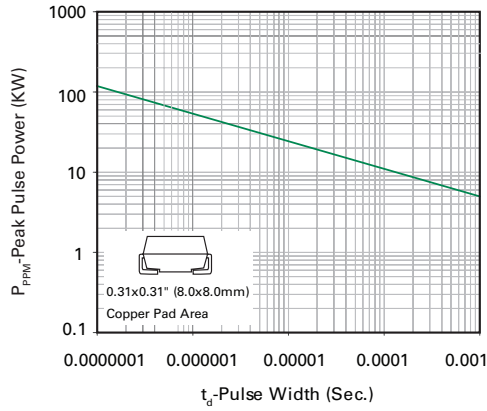


Figure 2 - Peak Pulse Power or Current Derating Curve vs Initial Junction Temperature

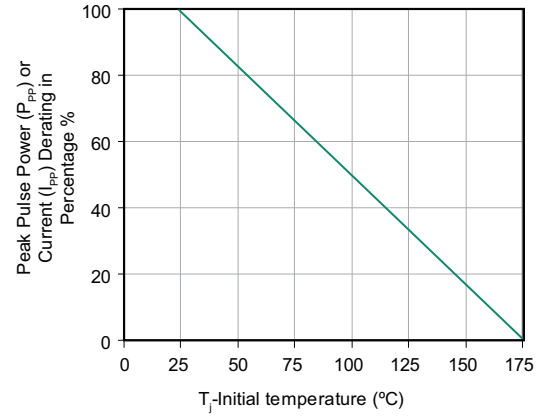


Figure 3 - Pulse Waveform

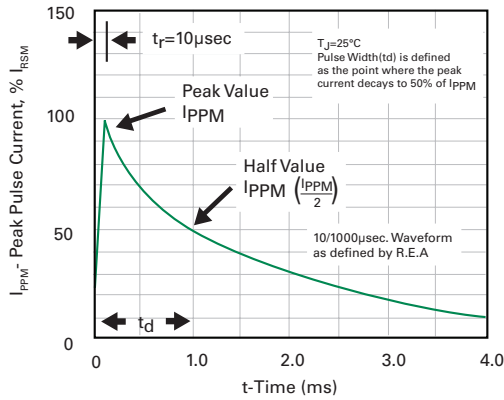


Figure 4 - Typical Junction Capacitance

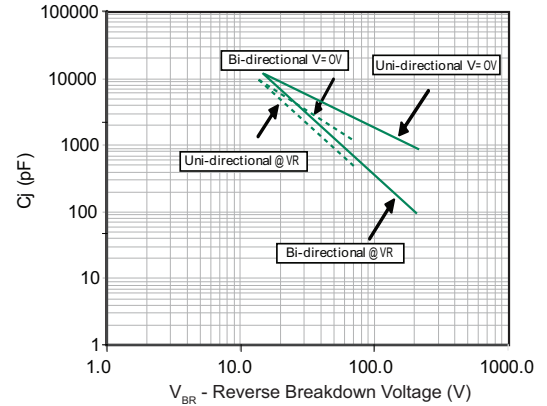


Figure 5 - Steady State Power Derating Curve

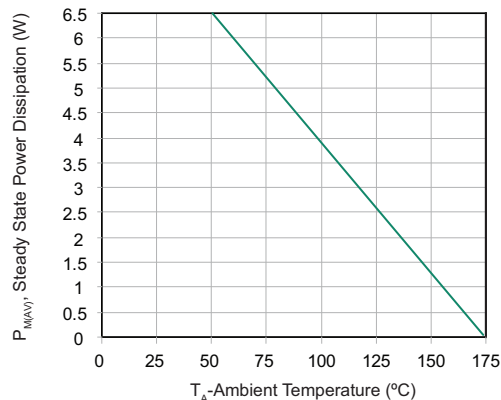
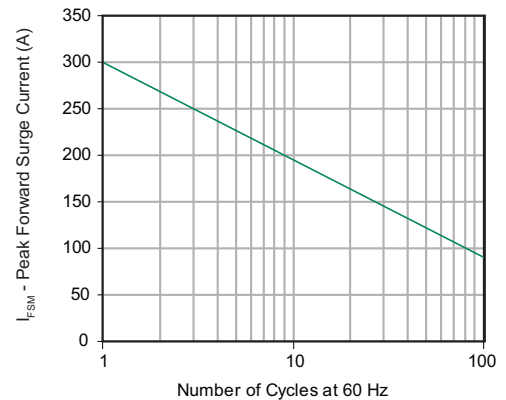


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only





Micro Commercial Components

Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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