



3.0SMCJ5.0~3.0SMCJ220CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR PEAK PULSE POWER 3000 Watt

STAND-OFF VOLTAGE

5 to 220 Volt

SMC / DO-214AB

Unit : inch(mm)

Recongized File # E210467

FEATURES

- For surface mounted applications in order to optimize board space
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- ESD IEC-61000-4-2 Air \pm 30kV, Contact \pm 30kV
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case: JEDEC DO-214AB, Molded plastic over passivated junction.
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard Packaging: 16mm tape (EIA-481)
- Approx. Weight: 0.008 ounce, 0.23 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types 3.0SMCJ5.0 thru types 3.0SMCJ220.
 Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.
 For Capacitive load derate current by 20%.

| Rating | Symbol | Value | Units |
|---|----------------|----------------------|--------|
| Peak Pulse Power Dissipation on $t_p=10/1000\mu s$ waveform (Notes 1, Fig.1) | PPP | 3000 | Watts |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (Notes 2) | IFSM | 300 | Amps |
| Peak Pulse Current on $t_p=10/1000\mu s$ waveform (Notes 1) Fig.3 | IPPM | see Table 1 | Amps |
| Typical Thermal Resistance Junction to Air | R_{JA} | 25 | °C / W |
| ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact) | VESD | ± 30 ± 30 | kV |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | °C |

NOTES :

- 1.Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ C$ per Fig. 2.
- 2.Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
- 3.A transient suppressor is selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level.



3.0SMCJ5.0~3.0SMCJ220CA

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000 μ s | Peak Pulse Current 10/1000 μ s | Marking Code | |
|---|--------------|---------------------------|-------------------|-------|--------------|-----------------|---------|---------------------------------------|---------------------------------------|--------------|-----|
| | | | $V_{BR} @ I_T$ | | | $I_R @ V_{RWM}$ | | | | | |
| UNI | BI | V | Min. | Max. | I_T mA | UNI | BI | $V_C @ I_{PP}$ V | I_{PP} A | UNI | BI |
| | | | V | V | | μ A | μ A | | | | |
| 3000W Transient Voltage Suppressor | | | | | | | | | | | |
| 3.0SMCJ5.0 | 3.0SMCJ5.0C | 5 | 6.4 | 7.55 | 10 | 1000 | 2000 | 9.6 | 312.5 | HDD | IDD |
| 3.0SMCJ5.0A | 3.0SMCJ5.0CA | 5 | 6.4 | 7.25 | 10 | 1000 | 2000 | 9.2 | 326 | HDE | IDE |
| 3.0SMCJ6.0 | 3.0SMCJ6.0C | 6 | 6.67 | 8.45 | 10 | 1000 | 2000 | 11.4 | 263.2 | HDF | IDF |
| 3.0SMCJ6.0A | 3.0SMCJ6.0CA | 6 | 6.67 | 7.67 | 10 | 1000 | 2000 | 10.3 | 291.3 | HDG | IDG |
| 3.0SMCJ6.5 | 3.0SMCJ6.5C | 6.5 | 7.22 | 9.14 | 10 | 500 | 1000 | 12.3 | 243.9 | HDH | IDH |
| 3.0SMCJ6.5A | 3.0SMCJ6.5CA | 6.5 | 7.22 | 8.3 | 10 | 500 | 1000 | 11.2 | 267.9 | HDK | IDK |
| 3.0SMCJ7.0 | 3.0SMCJ7.0C | 7 | 7.78 | 9.86 | 10 | 200 | 400 | 13.3 | 225.6 | HDL | IDL |
| 3.0SMCJ7.0A | 3.0SMCJ7.0CA | 7 | 7.78 | 8.95 | 10 | 200 | 400 | 12 | 250 | HDM | IDM |
| 3.0SMCJ7.5 | 3.0SMCJ7.5C | 7.5 | 8.33 | 10.67 | 1 | 100 | 200 | 14.3 | 209.8 | HDN | IDN |
| 3.0SMCJ7.5A | 3.0SMCJ7.5CA | 7.5 | 8.33 | 9.6 | 1 | 100 | 200 | 12.9 | 232.6 | HDP | IDP |
| 3.0SMCJ8.0 | 3.0SMCJ8.0C | 8 | 8.89 | 11.3 | 1 | 50 | 100 | 15.00 | 200 | HDQ | IDQ |
| 3.0SMCJ8.0A | 3.0SMCJ8.0CA | 8 | 8.89 | 10.23 | 1 | 50 | 100 | 13.6 | 220.6 | HDR | IDR |
| 3.0SMCJ8.5 | 3.0SMCJ8.5C | 8.5 | 9.44 | 11.92 | 1 | 25 | 50 | 15.9 | 188.8 | HDS | IDS |
| 3.0SMCJ8.5A | 3.0SMCJ8.5CA | 8.5 | 9.44 | 10.82 | 1 | 25 | 50 | 14.4 | 208.4 | HDT | IDT |
| 3.0SMCJ9.0 | 3.0SMCJ9.0C | 9 | 10 | 12.6 | 1 | 10 | 20 | 16.9 | 177.4 | HDU | IDU |
| 3.0SMCJ9.0A | 3.0SMCJ9.0CA | 9 | 10 | 11.5 | 1 | 10 | 20 | 15.4 | 194.8 | HDV | IDV |
| 3.0SMCJ10 | 3.0SMCJ10C | 10 | 11.1 | 14.1 | 1 | 3 | 3 | 18.8 | 159.6 | HDW | IDW |
| 3.0SMCJ10A | 3.0SMCJ10CA | 10 | 11.1 | 12.8 | 1 | 3 | 3 | 17 | 176.4 | HDX | IDX |
| 3.0SMCJ11 | 3.0SMCJ11C | 11 | 12.2 | 15.4 | 1 | 3 | 3 | 20.1 | 149.2 | HDY | IDY |
| 3.0SMCJ11A | 3.0SMCJ11CA | 11 | 12.2 | 14 | 1 | 3 | 3 | 18.2 | 184.8 | HDZ | IDZ |
| 3.0SMCJ12 | 3.0SMCJ12C | 12 | 13.3 | 16.9 | 1 | 3 | 3 | 22 | 136.4 | HED | IED |
| 3.0SMCJ12A | 3.0SMCJ12CA | 12 | 13.3 | 15.3 | 1 | 3 | 3 | 19.9 | 150.6 | HEE | IEE |
| 3.0SMCJ13 | 3.0SMCJ13C | 13 | 14.4 | 18.2 | 1 | 3 | 3 | 23.8 | 126 | HEF | IEF |
| 3.0SMCJ13A | 3.0SMCJ13CA | 13 | 14.4 | 16.5 | 1 | 3 | 3 | 21.5 | 139.4 | HEG | IEG |
| 3.0SMCJ14 | 3.0SMCJ14C | 14 | 15.6 | 19.8 | 1 | 3 | 3 | 25.8 | 116.2 | HEH | IEH |
| 3.0SMCJ14A | 3.0SMCJ14CA | 14 | 15.6 | 17.9 | 1 | 3 | 3 | 23.2 | 129.4 | HEK | IEK |
| 3.0SMCJ15 | 3.0SMCJ15C | 15 | 16.7 | 21.1 | 1 | 3 | 3 | 26.9 | 111.6 | HEL | IEL |
| 3.0SMCJ15A | 3.0SMCJ15CA | 15 | 16.7 | 19.2 | 1 | 3 | 3 | 24.4 | 123 | HEM | IEM |
| 3.0SMCJ16 | 3.0SMCJ16C | 16 | 17.8 | 22.6 | 1 | 3 | 3 | 28.8 | 104.2 | HEN | IEN |
| 3.0SMCJ16A | 3.0SMCJ16CA | 16 | 17.8 | 20.5 | 1 | 3 | 3 | 26 | 115.4 | HEP | IEP |
| 3.0SMCJ17 | 3.0SMCJ17C | 17 | 18.9 | 23.9 | 1 | 3 | 3 | 30.5 | 98.4 | HEQ | IEQ |
| 3.0SMCJ17A | 3.0SMCJ17CA | 17 | 18.9 | 21.7 | 1 | 3 | 3 | 27.6 | 106.6 | HER | IER |
| 3.0SMCJ18 | 3.0SMCJ18C | 18 | 20 | 25.3 | 1 | 3 | 3 | 32.2 | 93.2 | HES | IES |
| 3.0SMCJ18A | 3.0SMCJ18CA | 18 | 20 | 23.3 | 1 | 3 | 3 | 29.2 | 102.8 | HET | IET |
| 3.0SMCJ20 | 3.0SMCJ20C | 20 | 22.2 | 28.1 | 1 | 3 | 3 | 35.8 | 83.8 | HEU | IEU |
| 3.0SMCJ20A | 3.0SMCJ20CA | 20 | 22.2 | 25.5 | 1 | 3 | 3 | 32.4 | 92.6 | HEV | IEV |
| 3.0SMCJ22 | 3.0SMCJ22C | 22 | 24.4 | 30.9 | 1 | 3 | 3 | 39.4 | 76.2 | HEW | IEW |
| 3.0SMCJ22A | 3.0SMCJ22CA | 22 | 24.4 | 28 | 1 | 3 | 3 | 35.5 | 84.4 | HEX | IEX |
| 3.0SMCJ24 | 3.0SMCJ24C | 24 | 26.7 | 33.8 | 1 | 3 | 3 | 43 | 69.8 | HEY | IEY |
| 3.0SMCJ24A | 3.0SMCJ24CA | 24 | 26.7 | 30.7 | 1 | 3 | 3 | 38.9 | 77.2 | HEZ | IEZ |
| 3.0SMCJ26 | 3.0SMCJ26C | 26 | 28.9 | 36.6 | 1 | 3 | 3 | 46.6 | 64.4 | HFD | IFD |
| 3.0SMCJ26A | 3.0SMCJ26CA | 26 | 28.9 | 33.2 | 1 | 3 | 3 | 42.1 | 71.2 | HFE | IFE |
| 3.0SMCJ28 | 3.0SMCJ28C | 28 | 31.1 | 39.4 | 1 | 3 | 3 | 50 | 60 | HFF | IFF |
| 3.0SMCJ28A | 3.0SMCJ28CA | 28 | 31.1 | 35.8 | 1 | 3 | 3 | 45.4 | 66 | HFG | IFG |
| 3.0SMCJ30 | 3.0SMCJ30C | 30 | 33.3 | 42.2 | 1 | 3 | 3 | 53.5 | 56 | HFH | IFH |
| 3.0SMCJ30A | 3.0SMCJ30CA | 30 | 33.3 | 38.3 | 1 | 3 | 3 | 48.4 | 62 | HFK | IFK |
| 3.0SMCJ33 | 3.0SMCJ33C | 33 | 36.7 | 46.5 | 1 | 3 | 3 | 59 | 50.4 | HFL | IFL |
| 3.0SMCJ33A | 3.0SMCJ33CA | 33 | 36.7 | 42.2 | 1 | 3 | 3 | 53.3 | 56.2 | HFM | IFM |
| 3.0SMCJ36 | 3.0SMCJ36C | 36 | 40 | 50.7 | 1 | 3 | 3 | 64.3 | 46.6 | HFN | IFN |
| 3.0SMCJ36A | 3.0SMCJ36CA | 36 | 40 | 46 | 1 | 3 | 3 | 58.1 | 51.6 | HFP | IFP |
| 3.0SMCJ40 | 3.0SMCJ40C | 40 | 44.4 | 56.3 | 1 | 3 | 3 | 71.4 | 42 | HFQ | IFQ |
| 3.0SMCJ40A | 3.0SMCJ40CA | 40 | 44.4 | 51.1 | 1 | 3 | 3 | 64.5 | 46.4 | HFR | IFR |
| 3.0SMCJ43 | 3.0SMCJ43C | 43 | 47.8 | 60.5 | 1 | 3 | 3 | 76.7 | 39.2 | HFS | IFS |



3.0SMCJ5.0~3.0SMCJ220CA

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max Clamp Voltage 10/1000 μs | Peak Pulse Current 10/1000μs | Marking Code | |
|---|--------------|---------------------------|----------------------------------|----------------|--------------|-----------------------------------|----------------------------------|---------------------------------|---------------------------------|--------------|-----|
| | | | V _{BR} @ I _T | I _r | | I _r @ V _{RWM} | | | | | |
| V _{RWM} (Notes 3) | Min. | Max. | | | UNI | BI | V _C @ I _{PP} | I _{PP} | UNI | BI | |
| UNI | BI | V | V | V | mA | μA | μA | V | A | UNI | BI |
| 3000W Transient Voltage Suppressor | | | | | | | | | | | |
| 3.0SMCJ43A | 3.0SMCJ43CA | 43 | 47.8 | 54.9 | 1 | 3 | 3 | 69.4 | 43.2 | HFT | IFT |
| 3.0SMCJ45 | 3.0SMCJ45C | 45 | 50 | 63.3 | 1 | 3 | 3 | 80.3 | 37.4 | HFU | IFU |
| 3.0SMCJ45A | 3.0SMCJ45CA | 45 | 50 | 57.5 | 1 | 3 | 3 | 72.7 | 41.2 | HFV | IFV |
| 3.0SMCJ48 | 3.0SMCJ48C | 48 | 53.3 | 67.5 | 1 | 3 | 3 | 85.5 | 35 | HFV | IFV |
| 3.0SMCJ48A | 3.0SMCJ48CA | 48 | 53.3 | 61.3 | 1 | 3 | 3 | 77.4 | 38.8 | HFX | IFX |
| 3.0SMCJ51 | 3.0SMCJ51C | 51 | 56.7 | 71.8 | 1 | 3 | 3 | 91.1 | 37 | HFY | IFY |
| 3.0SMCJ51A | 3.0SMCJ51CA | 51 | 56.7 | 65.2 | 1 | 3 | 3 | 82.4 | 36.4 | HFZ | IFZ |
| 3.0SMCJ54 | 3.0SMCJ54C | 54 | 60 | 76 | 1 | 3 | 3 | 96.3 | 31.2 | HGD | IGD |
| 3.0SMCJ54A | 3.0SMCJ54CA | 54 | 60 | 69 | 1 | 3 | 3 | 87.1 | 34.4 | HGE | IGE |
| 3.0SMCJ58 | 3.0SMCJ58C | 58 | 64.4 | 81.6 | 1 | 3 | 3 | 103 | 39.2 | HGF | IGF |
| 3.0SMCJ58A | 3.0SMCJ58CA | 58 | 64.4 | 74.1 | 1 | 3 | 3 | 93.6 | 32 | HGG | IGG |
| 3.0SMCJ60 | 3.0SMCJ60C | 60 | 66.7 | 84.5 | 1 | 3 | 3 | 107 | 28 | HGH | IGH |
| 3.0SMCJ60A | 3.0SMCJ60CA | 60 | 66.7 | 76.7 | 1 | 3 | 3 | 96.8 | 31 | HGK | IGK |
| 3.0SMCJ64 | 3.0SMCJ64C | 64 | 71.1 | 90.1 | 1 | 3 | 3 | 114 | 26.4 | HGL | IGL |
| 3.0SMCJ64A | 3.0SMCJ64CA | 64 | 71.1 | 81.8 | 1 | 3 | 3 | 103 | 29.2 | HGM | IGM |
| 3.0SMCJ70 | 3.0SMCJ70C | 70 | 77.8 | 98.6 | 1 | 3 | 3 | 125 | 24 | HGN | IGN |
| 3.0SMCJ70A | 3.0SMCJ70CA | 70 | 77.8 | 89.5 | 1 | 3 | 3 | 113 | 26.6 | HGP | IGP |
| 3.0SMCJ75 | 3.0SMCJ75C | 75 | 83.3 | 105.7 | 1 | 3 | 3 | 134 | 22.4 | HGQ | IGQ |
| 3.0SMCJ75A | 3.0SMCJ75CA | 75 | 83.3 | 95.8 | 1 | 3 | 3 | 121 | 24.8 | HGR | IGR |
| 3.0SMCJ78 | 3.0SMCJ78C | 78 | 86.7 | 109.8 | 1 | 3 | 3 | 139 | 21.6 | HGS | IGS |
| 3.0SMCJ78A | 3.0SMCJ78CA | 78 | 86.7 | 99.7 | 1 | 3 | 3 | 126 | 22.8 | HGT | IGT |
| 3.0SMCJ85 | 3.0SMCJ85C | 85 | 94.4 | 119.2 | 1 | 3 | 3 | 151 | 19.8 | HGU | IGU |
| 3.0SMCJ85A | 3.0SMCJ85CA | 85 | 94.4 | 108.2 | 1 | 3 | 3 | 137 | 20.8 | HGV | IGV |
| 3.0SMCJ90 | 3.0SMCJ90C | 90 | 100 | 126.5 | 1 | 3 | 3 | 160 | 18.8 | HGW | IGW |
| 3.0SMCJ90A | 3.0SMCJ90CA | 90 | 100 | 115.5 | 1 | 3 | 3 | 146 | 20.6 | HGX | IGX |
| 3.0SMCJ100 | 3.0SMCJ100C | 100 | 111 | 141 | 1 | 3 | 3 | 179 | 16.6 | HGY | IGY |
| 3.0SMCJ100A | 3.0SMCJ100CA | 100 | 111 | 128 | 1 | 3 | 3 | 162 | 18.6 | HGZ | IGZ |
| 3.0SMCJ110 | 3.0SMCJ110C | 110 | 122 | 154.5 | 1 | 3 | 3 | 196 | 15.4 | HHD | IHD |
| 3.0SMCJ110A | 3.0SMCJ110CA | 110 | 122 | 140.5 | 1 | 3 | 3 | 177 | 16.8 | HHE | IHE |
| 3.0SMCJ120 | 3.0SMCJ120C | 120 | 133 | 169 | 1 | 3 | 3 | 214 | 14 | HHF | IHF |
| 3.0SMCJ120A | 3.0SMCJ120CA | 120 | 133 | 153 | 1 | 3 | 3 | 193 | 15.6 | HHG | IHG |
| 3.0SMCJ130 | 3.0SMCJ130C | 130 | 144 | 182.5 | 1 | 3 | 3 | 231 | 13 | HHH | IHH |
| 3.0SMCJ130A | 3.0SMCJ130CA | 130 | 144 | 165.5 | 1 | 3 | 3 | 209 | 14.4 | HHK | IHK |
| 3.0SMCJ150 | 3.0SMCJ150C | 150 | 167 | 211.5 | 1 | 3 | 3 | 268 | 11.2 | HHL | IHL |
| 3.0SMCJ150A | 3.0SMCJ150CA | 150 | 167 | 192.5 | 1 | 3 | 3 | 243 | 12.4 | HHM | IHM |
| 3.0SMCJ160 | 3.0SMCJ160C | 160 | 178 | 226 | 1 | 3 | 3 | 287 | 10.4 | HHN | IHN |
| 3.0SMCJ160A | 3.0SMCJ160CA | 160 | 178 | 205 | 1 | 3 | 3 | 259 | 11.6 | HHP | IHP |
| 3.0SMCJ170 | 3.0SMCJ170C | 170 | 189 | 239.5 | 1 | 3 | 3 | 304 | 9.8 | HHQ | IHQ |
| 3.0SMCJ170A | 3.0SMCJ170CA | 170 | 189 | 217.5 | 1 | 3 | 3 | 275 | 11 | HHR | IHR |
| 3.0SMCJ180 | 3.0SMCJ180C | 180 | 198 | 253.8 | 1 | 3 | 3 | 322 | 9.3 | HHS | IHS |
| 3.0SMCJ180A | 3.0SMCJ180CA | 180 | 198 | 230.4 | 1 | 3 | 3 | 292 | 10.3 | HHT | IHT |
| 3.0SMCJ190 | 3.0SMCJ190C | 190 | 209 | 267.9 | 1 | 3 | 3 | 340 | 8.8 | HHU | IHU |
| 3.0SMCJ190A | 3.0SMCJ190CA | 190 | 209 | 243.2 | 1 | 3 | 3 | 308 | 9.7 | HHV | IHV |
| 3.0SMCJ200 | 3.0SMCJ200C | 200 | 220 | 282 | 1 | 3 | 3 | 358 | 8.4 | HHW | IHW |
| 3.0SMCJ200A | 3.0SMCJ200CA | 200 | 220 | 256 | 1 | 3 | 3 | 324 | 9.3 | HHX | IHX |
| 3.0SMCJ210 | 3.0SMCJ210C | 210 | 231 | 296.1 | 1 | 3 | 3 | 376 | 7.8 | HHY | IHY |
| 3.0SMCJ210A | 3.0SMCJ210CA | 210 | 231 | 268.8 | 1 | 3 | 3 | 340 | 8.8 | HHZ | IHZ |
| 3.0SMCJ220 | 3.0SMCJ220C | 220 | 242 | 310.2 | 1 | 3 | 3 | 394 | 7.6 | HID | IID |
| 3.0SMCJ220A | 3.0SMCJ220CA | 220 | 242 | 281.6 | 1 | 3 | 3 | 356 | 8.4 | HIE | IIE |



3.0SMCJ5.0~3.0SMCJ220CA



Fig.1 Peak Pulse Power Rating



Fig.2 Derating Curve



Fig.3 10/1000us Pulse Waveform



Fig.4 Typical Capacitance



3.0SMCJ5.0~3.0SMCJ220CA

MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
T/R - 3K per 13" plastic Reel
T/R - 0.8K per 7" plastic Reel



3.0SMCJ5.0~3.0SMCJ220CA

Part No._packing code_Version

3.0SMCJ5.0A_R1_00001

3.0SMCJ5.0A_R2_00001

For example :

RB500V-40_R2_00001



| Packing Code XX | | | | Version Code XXXXX | | |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type | 1 st Code | Packing size code | 2 nd Code | HF or RoHS | 1 st Code | 2 nd ~5 th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |