

SMDJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODES

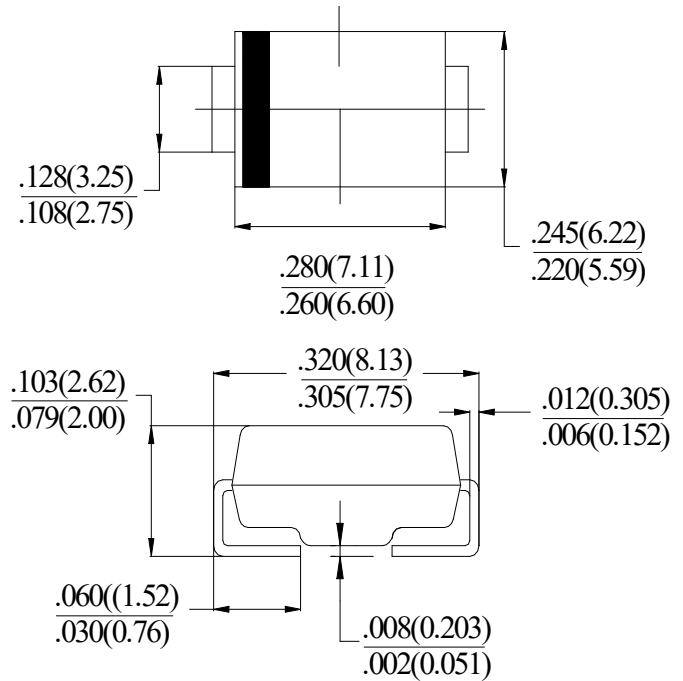
FEATURE

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction
- 3000W surge capability at 10/1000us waveform, Duty cycle:0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: Typically less than 1.0ps from 0 volts to BV min.
- Typical IR less than 1 μ A above 13V
- High temperature soldering guaranteed: 260°C/10 seconds at terminals.

MECHANICAL DATA

- Case: SMC, Transfer Molded Epoxy
- Epoxy: UL94V-0 rate flame retardant
- Terminals: MIL-STD- 202E, Method 208 guaranteed
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.230g (approximately)
- Mounting position: Any

SMC (DO-214AB)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise stated.

Single-phase, half-wave, 60HZ, resistive or inductive load.

For capacitive load, derate current by 20%

| Type Number | SYMBOL | Value | units |
|---|-----------|--------------|-------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (Note 1) | P_{PPM} | Minimum 3000 | Watts |
| Peak Pulse Current of on 10/1000us waveform. (Note1, Fig.3) | I_{PPM} | See Table | Amps |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (note 2) | P_D | 6.5 | Watts |
| Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3) | I_{FSM} | 300 | Amps |
| Storage Temperature | T_{STG} | -55 to +150 | °C |
| Operating Junction Temperature | T_J | -55 to +150 | °C |

Note:

1. Non-repetitive Current Pulse Per Fig.3 and Derated above $T_a=25^\circ\text{C}$ Per Fig.2 .
2. Mounted on Copper Pad Area of 0.3×0.3 " ($8 \times 8\text{mm}$) Per Fig.5 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types SMDJ5.0 thru Types SMDJ170.
2. Electrical Characteristics Apply in Both Directions.

ELECTRICAL CHARACTERISTICS(TA=25°C unless otherwise noted)

| Device | | Reverse Stand-Off Voltage | Breakdown Voltage VBR(volts)@IT | | Test Current | Maximum Reverse Leakage @VR | Maximum Peak Pulse Current | Maximum Clamping Voltage @IPP |
|----------|-----------|---------------------------|---------------------------------|--------|--------------|-----------------------------|----------------------------|-------------------------------|
| UNI | BI | VR(V) | VBL(V) | VBH(V) | IT(mA) | IR(μA) | IPP(A) | VCH(V) |
| SMDJ5.0A | SMDJ5.0CA | 5.0 | 6.40 | 7.00 | 10 | 800 | 326.09 | 9.2 |
| SMDJ6.0A | SMDJ6.0CA | 6.0 | 6.67 | 7.37 | 10 | 800 | 291.26 | 10.3 |
| SMDJ6.5A | SMDJ6.5CA | 6.5 | 7.22 | 7.98 | 10 | 500 | 267.86 | 11.2 |
| SMDJ7.0A | SMDJ7.0CA | 7.0 | 7.78 | 8.60 | 10 | 200 | 250 | 12 |
| SMDJ7.5A | SMDJ7.5CA | 7.5 | 8.33 | 9.21 | 1.0 | 100 | 232.56 | 12.9 |
| SMDJ8.0A | SMDJ8.0CA | 8.0 | 8.89 | 9.83 | 1.0 | 50.0 | 220.59 | 13.6 |
| SMDJ8.5A | SMDJ8.5CA | 8.5 | 9.44 | 10.4 | 1.0 | 20.0 | 208.33 | 14.4 |
| SMDJ9.0A | SMDJ9.0CA | 9.0 | 10.0 | 11.1 | 1.0 | 10.0 | 194.81 | 15.4 |
| SMDJ10A | SMDJ10CA | 10 | 11.1 | 12.3 | 1.0 | 5.0 | 176.47 | 17 |
| SMDJ11A | SMDJ11CA | 11 | 12.2 | 13.5 | 1.0 | 1.0 | 164.84 | 18.2 |
| SMDJ12A | SMDJ12CA | 12 | 13.3 | 14.7 | 1.0 | 1.0 | 150.75 | 19.9 |
| SMDJ13A | SMDJ13CA | 13 | 14.4 | 15.9 | 1.0 | 1.0 | 139.53 | 21.5 |
| SMDJ14A | SMDJ14CA | 14 | 15.6 | 17.2 | 1.0 | 1.0 | 129.31 | 23.2 |
| SMDJ15A | SMDJ15CA | 15 | 16.7 | 18.5 | 1.0 | 1.0 | 122.95 | 24.4 |
| SMDJ16A | SMDJ16CA | 16 | 17.8 | 19.7 | 1.0 | 1.0 | 115.38 | 26 |
| SMDJ17A | SMDJ17CA | 17 | 18.9 | 20.9 | 1.0 | 1.0 | 108.7 | 27.6 |
| SMDJ18A | SMDJ18CA | 18 | 20.0 | 22.1 | 1.0 | 1.0 | 102.74 | 29.2 |
| SMDJ20A | SMDJ20CA | 20 | 22.2 | 24.5 | 1.0 | 1.0 | 92.59 | 32.4 |
| SMDJ22A | SMDJ22CA | 22 | 24.4 | 26.9 | 1.0 | 1.0 | 84.51 | 35.5 |
| SMDJ24A | SMDJ24CA | 24 | 26.7 | 29.5 | 1.0 | 1.0 | 77.12 | 38.9 |
| SMDJ26A | SMDJ26CA | 26 | 28.9 | 31.9 | 1.0 | 1.0 | 71.26 | 42.1 |
| SMDJ28A | SMDJ28CA | 28 | 31.1 | 34.4 | 1.0 | 1.0 | 66.08 | 45.4 |
| SMDJ30A | SMDJ30CA | 30 | 33.3 | 36.8 | 1.0 | 1.0 | 61.98 | 48.4 |
| SMDJ33A | SMDJ33CA | 33 | 36.7 | 40.6 | 1.0 | 1.0 | 56.29 | 53.3 |
| SMDJ36A | SMDJ36CA | 36 | 40.0 | 44.2 | 1.0 | 1.0 | 51.64 | 58.1 |
| SMDJ40A | SMDJ40CA | 40 | 44.4 | 49.1 | 1.0 | 1.0 | 46.51 | 64.5 |
| SMDJ43A | SMDJ43CA | 43 | 47.8 | 52.8 | 1.0 | 1.0 | 43.23 | 69.4 |
| SMDJ45A | SMDJ45CA | 45 | 50.0 | 55.3 | 1.0 | 1.0 | 41.27 | 72.7 |
| SMDJ48A | SMDJ48CA | 48 | 53.3 | 58.9 | 1.0 | 1.0 | 38.76 | 77.4 |
| SMDJ51A | SMDJ51CA | 51 | 56.7 | 62.7 | 1.0 | 1.0 | 36.41 | 82.4 |

| | | | | | | | | |
|----------|-----------|-----|------|------|-----|-----|-------|-------|
| SMDJ54A | SMDJ54CA | 54 | 60.0 | 66.3 | 1.0 | 1.0 | 34.44 | 87.1 |
| SMDJ58A | SMDJ58CA | 58 | 64.4 | 71.2 | 1.0 | 1.0 | 32.05 | 93.6 |
| SMDJ60A | SMDJ60CA | 60 | 66.7 | 73.7 | 1.0 | 1.0 | 30.99 | 96.8 |
| SMDJ64A | SMDJ64CA | 64 | 71.1 | 78.6 | 1.0 | 1.0 | 29.13 | 103 |
| SMDJ70A | SMDJ70CA | 70 | 77.8 | 86.0 | 1.0 | 1.0 | 26.55 | 113 |
| SMDJ75A | SMDJ75CA | 75 | 83.3 | 92.1 | 1.0 | 1.0 | 24.79 | 121 |
| SMDJ78A | SMDJ78CA | 78 | 86.7 | 95.8 | 1.0 | 1.0 | 23.81 | 126 |
| SMDJ85A | SMDJ85CA | 85 | 94.4 | 104 | 1.0 | 1.0 | 21.9 | 137 |
| SMDJ90A | SMDJ90CA | 90 | 100 | 111 | 1.0 | 1.0 | 20.55 | 146 |
| SMDJ100A | SMDJ100CA | 100 | 111 | 123 | 1.0 | 1.0 | 18.52 | 162 |
| SMDJ110A | SMDJ110CA | 110 | 122 | 135 | 1.0 | 1.0 | 16.95 | 177 |
| SMDJ120A | SMDJ120CA | 120 | 133 | 147 | 1.0 | 1.0 | 15.54 | 193 |
| SMDJ130A | SMDJ130CA | 130 | 144 | 159 | 1.0 | 1.0 | 14.35 | 209 |
| SMDJ150A | SMDJ150CA | 150 | 167 | 185 | 1.0 | 1.0 | 12.35 | 243 |
| SMDJ160A | SMDJ160CA | 160 | 178 | 197 | 1.0 | 1.0 | 11.58 | 259 |
| SMDJ170A | SMDJ170CA | 170 | 189 | 209 | 1.0 | 1.0 | 10.91 | 275 |
| SMDJ180A | SMDJ180CA | 180 | 201 | 222 | 1.0 | 1.0 | 10.29 | 291.6 |
| SMDJ200A | SMDJ200CA | 200 | 224 | 247 | 1.0 | 1.0 | 9.3 | 324 |
| SMDJ220A | SMDJ220CA | 220 | 246 | 272 | 1.0 | 1.0 | 8.4 | 356 |

Note:

1. VBR measured after IT applied for 300us, IT=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. All terms and symbols are consistent with ANSI/IEEE C62.35.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER RATING CURVE

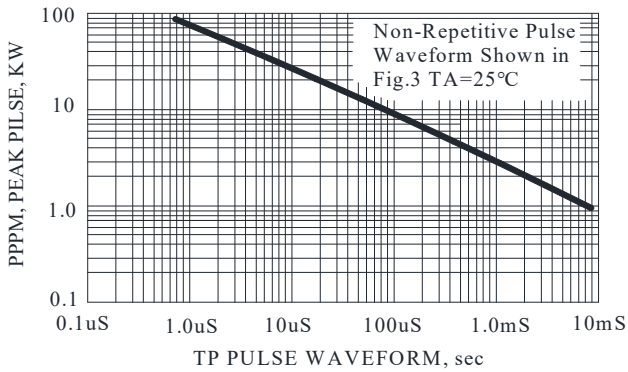


FIG.2-PULSE DERATING CURVE

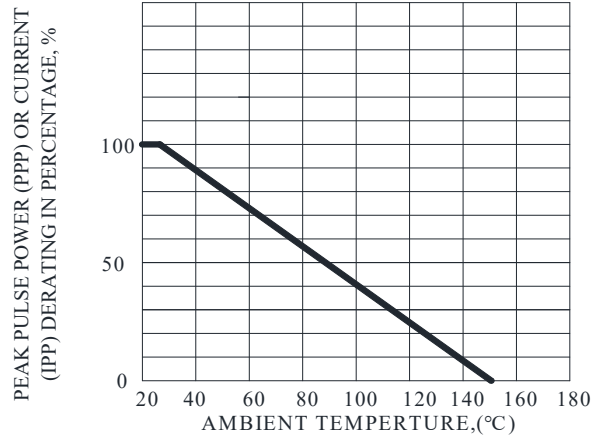


FIG.3-PULSE WAVEFORM

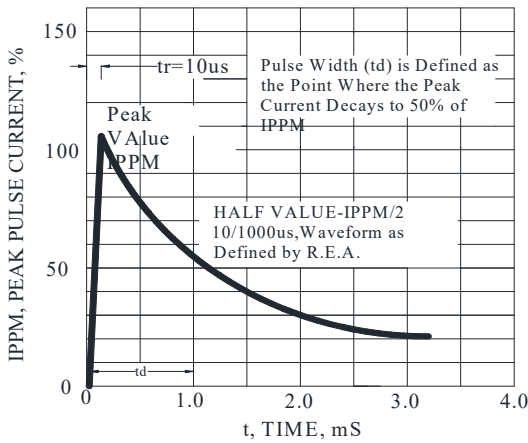


FIG.4-TYPICAL JUNCTION CAPACITANCE

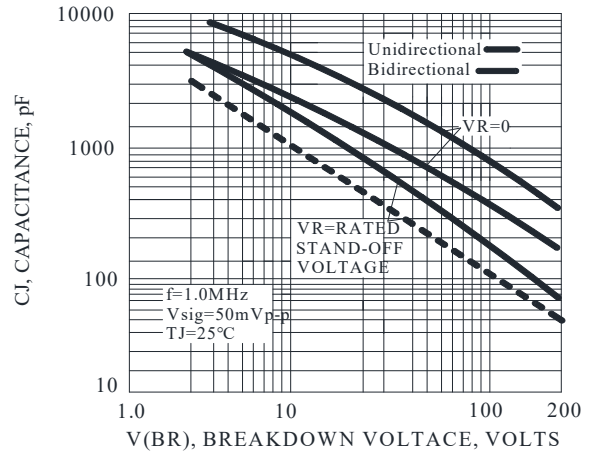


FIG.5- STEADY STATE POWER DERATING CURVE

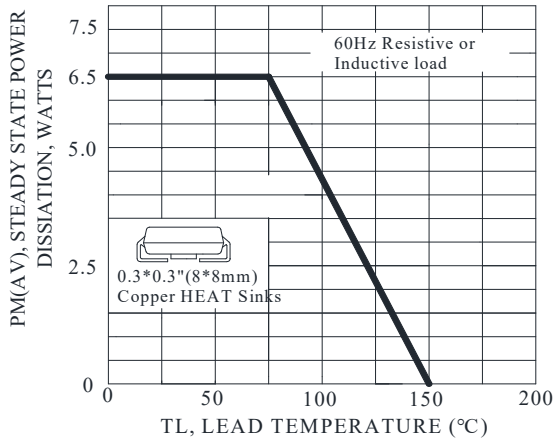
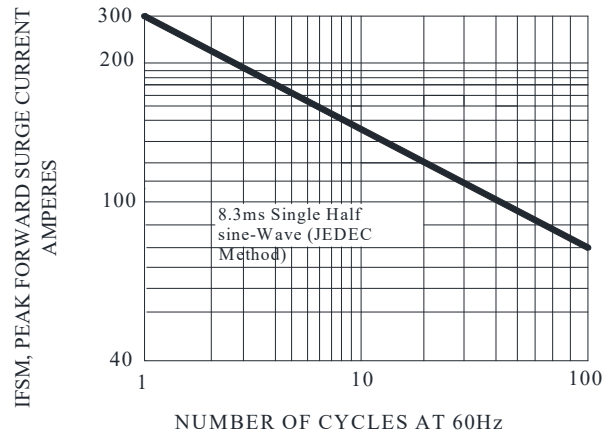
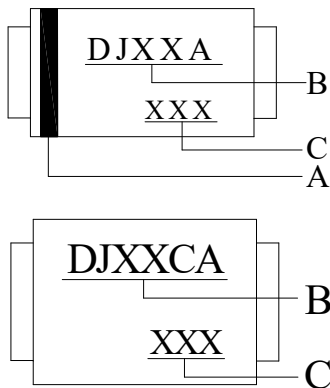


FIG.6- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



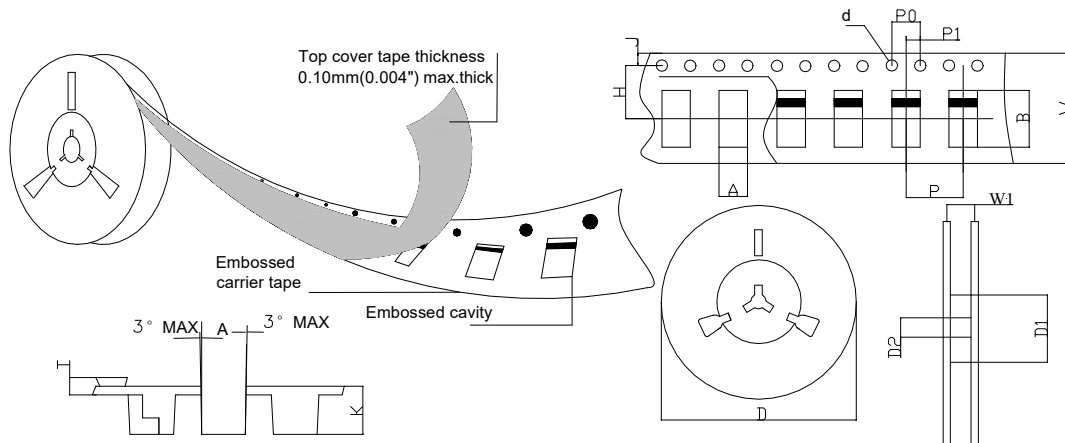
Marking and packaging illustration

1、Marking



| SYMBOL | Explanation |
|----------|----------------------------|
| A | Color Band Denotes Cathode |
| B | Product name |
| C | Date Code |

2、Packaging



| SPECIFICATIONS mm(inch) | | PACKAGE | SPECIFICATIONS mm(inch) | | PACKAGE |
|----------------------------|------------|-----------------|----------------------------|------------|-----------------|
| ITEM | SYM BOL | SMC DO-214AB | ITEM | SYM BOL | SMC DO-214AB |
| Carrier width | A | 6.15(0.242)Max | Carrier depth | K | 2.54(0.100)Typ |
| Carrier length | B | 8.41(0.331)Max | Punch hole pitch | P | 8.00(0.315)Typ |
| Sprocket hole | d | ø1.55(0.061)Typ | Sprocket hole pitch | P0 | 4.00(0.157)Typ |
| Reel outer diameter | D | 330.0(13.0)Typ | Embossment center | P1 | 2.00(0.079)Typ |
| Reel inner diameter | D1 | 74.0(2.913)Min | Overall tape thickness | T | 0.25(0.010)Typ |
| Feed hole diameter | D2 | 13.0(0.512)Typ | Tape width | W | 16.0(0.430)Typ |
| Sprocket hole position | J | 1.75(0.069)Typ | Reel width | W1 | 16.5(0.650)Min |
| Punch hole position | H | 7.50(0.295)Typ | | | |