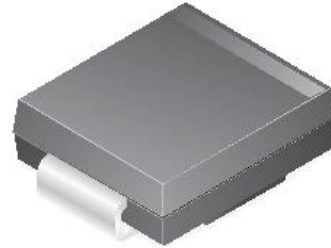


1500W Transient Voltage Suppressor

FEATURES

- Glass passivated junction
- 1500W peak pulse power capability on 10/1000 μ s waveform
- Excellent clamping capability
- Low-Incremental surge resistance
- Fast response time: Typically less than 1.0ps from 0V to BV minimum for unidirectional and 5.0ns for bidirectional
- Typical I_R less than 1 μ A above 10V
- UL certificate #E258596
- UL94V-0 flammability classification



SMC/DO-214AB

Band denotes cathode on unidirectional devices only.
 No band on bi-directional devices. Bi-directional types have CA suffix where electrical characteristics apply in both directions suitable for bi-directional applications.

ABSOLUTE MAXIMUM RATINGS

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|-----------|-------------|------------------|
| Peak pulse power dissipation $t_p=1\text{ms}$ | P_{PPM} | 1500 | W |
| Peak pulse current on 10/1000 μ s waveform | I_{PPM} | see table | A |
| Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method) ⁽¹⁾ | I_{FSM} | 200 | A |
| Junction temperature | T_J | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature | T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note:

1. Measured on 8.3ms single half-sine wave; duty cycle = 4 pulses per minute maximum.

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|--------------------------------|---|---|------|----------------------------------|--|--|---|
| Uni-directional Bi-directional (C) Device | Part Marking ⁽²⁾ | Reverse Stand-Off Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} (V) | | Test Current I_T (mA) | Clamping Voltage at I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage Current at V_{RWM} I_R (μA) ⁽³⁾ |
| | | | Min. | Max. | | | | |
| SMCJ5V0(C)A | GDE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 163.0 | 1000 |
| SMCJ6V0(C)A | GDG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 145.6 | 1000 |
| SMCJ6V5(C)A | GDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 133.9 | 500 |
| SMCJ7V0(C)A | GDM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 125.0 | 200 |
| SMCJ7V5(C)A | GDP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 116.3 | 100 |
| SMCJ8V0(C)A | GDR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 110.3 | 50 |
| SMCJ8V5(C)A | GDT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 104.2 | 20 |
| SMCJ9V0(C)A | GDV | 9.0 | 10.0 | 11.1 | 1 | 15.4 | 97.4 | 10 |
| SMCJ10(C)A | GDX | 10 | 11.1 | 12.3 | 1 | 17.0 | 88.2 | 5 |
| SMCJ11(C)A | GDZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 82.4 | 5 |
| SMCJ12(C)A | GEE | 12 | 13.3 | 14.7 | 1 | 19.9 | 75.3 | 5 |
| SMCJ13(C)A | GEG | 13 | 14.4 | 15.9 | 1 | 21.5 | 69.8 | 5 |
| SMCJ14(C)A | GEK | 14 | 15.6 | 17.2 | 1 | 23.2 | 64.7 | 5 |
| SMCJ15(C)A | GEM | 15 | 16.7 | 18.5 | 1 | 24.4 | 61.5 | 5 |
| SMCJ16(C)A | GEP | 16 | 17.8 | 19.7 | 1 | 26.0 | 57.7 | 5 |
| SMCJ17(C)A | GER | 17 | 18.9 | 20.9 | 1 | 27.6 | 54.3 | 5 |
| SMCJ18(C)A | GET | 18 | 20.0 | 22.1 | 1 | 29.2 | 51.4 | 5 |
| SMCJ20(C)A | GEV | 20 | 22.2 | 24.5 | 1 | 32.4 | 46.3 | 5 |
| SMCJ22(C)A | GEX | 22 | 24.4 | 26.9 | 1 | 35.5 | 42.3 | 5 |
| SMCJ24(C)A | GEZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 38.6 | 5 |
| SMCJ26(C)A | GFE | 26 | 28.9 | 31.9 | 1 | 42.1 | 35.6 | 5 |
| SMCJ28(C)A | GFG | 28 | 31.1 | 34.4 | 1 | 45.4 | 33.0 | 5 |
| SMCJ30(C)A | GFK | 30 | 33.3 | 36.8 | 1 | 48.4 | 31.0 | 5 |
| SMCJ33(C)A | GFM | 33 | 36.7 | 40.6 | 1 | 53.3 | 28.1 | 5 |
| SMCJ36(C)A | GFP | 36 | 40.0 | 44.2 | 1 | 58.1 | 25.8 | 5 |
| SMCJ40(C)A | GFR | 40 | 44.4 | 49.1 | 1 | 64.5 | 23.3 | 5 |
| SMCJ43(C)A | GFT | 43 | 47.8 | 52.8 | 1 | 69.4 | 21.6 | 5 |
| SMCJ45(C)A | GFV | 45 | 50.0 | 55.3 | 1 | 72.7 | 20.6 | 5 |
| SMCJ48(C)A | GFX | 48 | 53.3 | 58.9 | 1 | 77.4 | 19.4 | 5 |
| SMCJ51(C)A | GFZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 18.2 | 5 |
| SMCJ54(C)A | GGE | 54 | 60.0 | 66.3 | 1 | 87.1 | 17.2 | 5 |
| SMCJ58(C)A | GGG | 58 | 64.4 | 71.2 | 1 | 93.6 | 16.0 | 5 |
| SMCJ60(C)A | GGK | 60 | 66.7 | 73.7 | 1 | 96.8 | 15.5 | 5 |
| SMCJ64(C)A | GGM | 64 | 71.1 | 78.6 | 1 | 103.0 | 14.6 | 5 |
| SMCJ70(C)A | GGP | 70 | 77.8 | 86.0 | 1 | 113.0 | 13.3 | 5 |
| SMCJ75(C)A | GGR | 75 | 83.3 | 92.1 | 1 | 121.0 | 12.4 | 5 |
| SMCJ78(C)A | GGT | 78 | 86.7 | 95.8 | 1 | 126.0 | 11.9 | 5 |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|--------------------------------|---|---|-------|----------------------------------|--|--|---|
| Uni-directional Bi-directional (C) Device | Part Marking ⁽²⁾ | Reverse Stand-Off Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} (V) | | Test Current I_T (mA) | Clamping Voltage at I_{PPM} V_C (V) | Peak Pulse Current I_{PPM} (A) | Reverse Leakage Current at V_{RWM} I_R (μA) ⁽³⁾ |
| | | | Min. | Max. | | | | |
| SMCJ85(C)A | GGV | 85 | 94.4 | 104.0 | 1 | 137.0 | 10.9 | 5 |
| SMCJ90(C)A | GGX | 90 | 100.0 | 111.0 | 1 | 146.0 | 10.3 | 5 |
| SMCJ100(C)A | GGZ | 100 | 111.0 | 123.0 | 1 | 162.0 | 9.3 | 5 |
| SMCJ110(C)A | GHE | 110 | 122.0 | 135.0 | 1 | 177.0 | 8.5 | 5 |
| SMCJ120(C)A | GHG | 120 | 133.0 | 147.0 | 1 | 193.0 | 7.8 | 5 |
| SMCJ130(C)A | GHK | 130 | 144.0 | 159.0 | 1 | 209.0 | 7.2 | 5 |
| SMCJ150(C)A | GHM | 150 | 167.0 | 185.0 | 1 | 243.0 | 6.2 | 5 |
| SMCJ160(C)A | GHP | 160 | 178.0 | 197.0 | 1 | 259.0 | 5.8 | 5 |
| SMCJ170(C)A | GHR | 170 | 189.0 | 209.0 | 1 | 275.0 | 5.5 | 5 |

Notes:

2. Color band denotes cathode on unidirectional devices only. No color band on bidirectional devices.
3. For bidirectional parts with $V_{RWM} < 10$ V, the I_R max limit is doubled.

CHARACTERISTICS CURVES

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

Fig1. Peak Pulse Power rating Curve

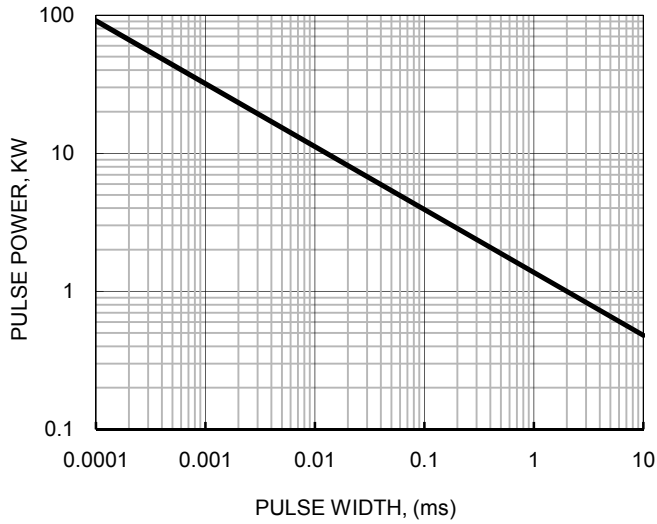


Fig2. Pulse Derating Curve

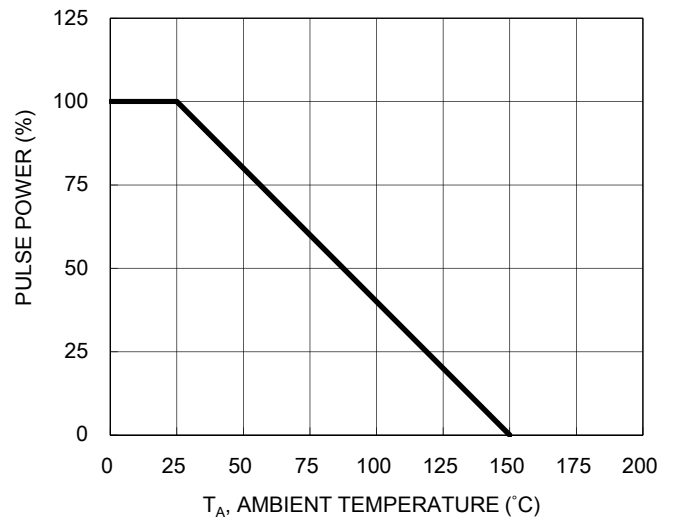


Fig3. Pulse Waveform

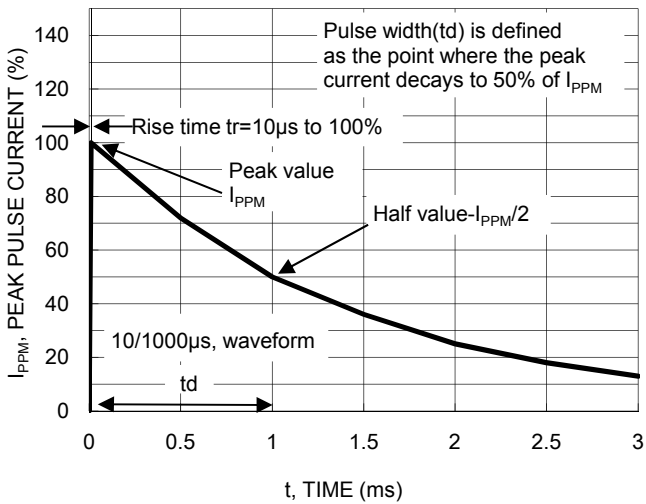


Fig4. Junction Capacitance

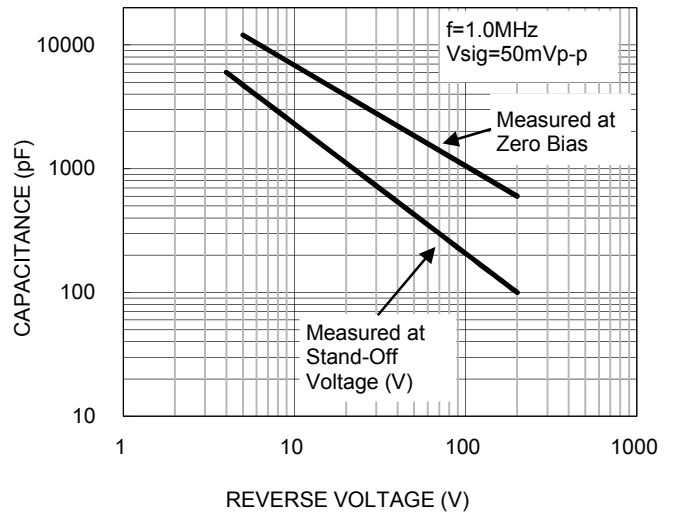
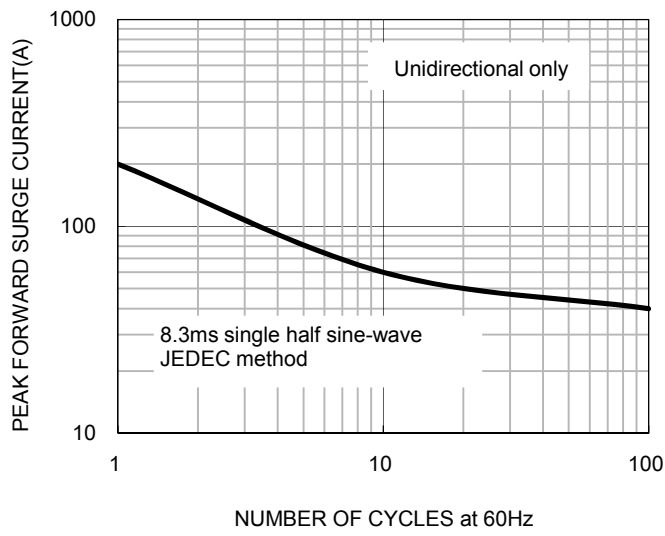
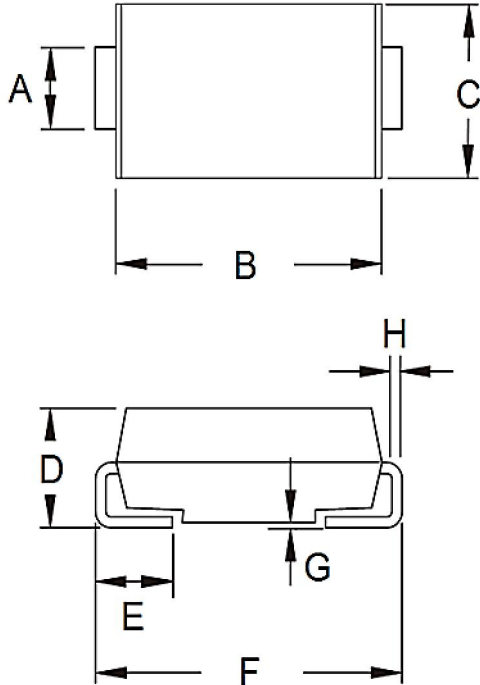


Fig5. Non-repetitive surge current



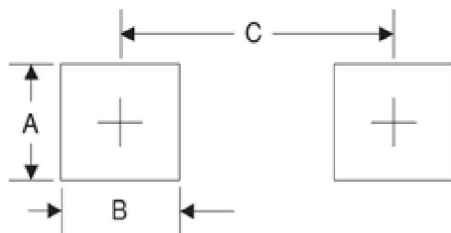
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



| DIM. | Unit (mm) | |
|------|-----------|-------|
| | Min | Max |
| A | 3.27 | 2.75 |
| B | 6.60 | 7.15 |
| C | 5.55 | 6.25 |
| D | - | 2.65 |
| E | 0.75 | 1.60 |
| F | 7.75 | 8.15 |
| G | 0.05 | 0.203 |
| H | 0.15 | 0.41 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) |
|--------|-----------|
| A | 2.6 |
| B | 3.2 |
| C | 7.2 |

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