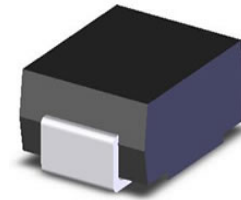


600Watts Transient Voltage Suppressor SMBJ5.0(C)A - SMBJ550(C)A

Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard



**SMB
DO-214AA**



Mechanical Characteristics

- JEDEC DO-214AA(SMB) package
- Molding compound flammability rating:
UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481

Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computers & Consumer Electronics
- Industrial Electronics

| Absolute Maximum Rating | | | |
|---|-----------------------------------|----------------|-------|
| Rating | Symbol | Value | Units |
| Peak power dissipation with a 10/1000 us waveform ⁽¹⁾ | P _{PPM} | 600 | W |
| Peak pulse current with a 10/1000 us waveform ⁽¹⁾ | I _{PPM} | See Next Table | A |
| Power dissipation on infinite heatsink at T _L = 75 °C | P _D | 5.0 | W |
| Peak forward surge current, 8.3 ms single half sine wave unidirectional only ⁽²⁾ | I _{FSM} | 100 | A |
| Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽³⁾ | V _F | 3.5/6.5 | V |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

1) Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °C per Fig.1 ;

2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;

3) V_F<3.5V for devices of V_{BR}<200V and V_F<6.5V for devices of V_{BR}>201V.

600Watts

Transient Voltage Suppressor

SMBJ5.0(C)A - SMBJ550(C)A

Electrical Characteristics

| Part Number | | Marking | | Reverse Stand Off Voltage | Breakdown Voltage | | Test Current | Maximum Clamping Voltage | Maximum Peak Pulse Current | Maximum Reverse Leakage |
|-------------|-----------|---------|----|---------------------------|----------------------|-------|--------------|--------------------------|----------------------------|--------------------------|
| Uni | Bi | Uni | Bi | V_R (V) | V_{BR} (V) @ I_T | | I_T (mA) | V_C (V) @ I_{PP} | I_{PP} (A) | I_R (μ A) @ V_R |
| | | | | | Min. | Max. | | | | |
| SMBJ5.0A | SMBJ5.0CA | KE | AE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 65.3 | 800 |
| SMBJ6.0A | SMBJ6.0CA | KG | AG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| SMBJ6.5A | SMBJ6.5CA | KK | AK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| SMBJ7.0A | SMBJ7.0CA | KM | AM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 50.0 | 200 |
| SMBJ7.5A | SMBJ7.5CA | KP | AP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.6 | 100 |
| SMBJ8.0A | SMBJ8.0CA | KR | AR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 44.2 | 50 |
| SMBJ8.5A | SMBJ8.5CA | KT | AT | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 41.7 | 20 |
| SMBJ9.0A | SMBJ9.0CA | KV | AV | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 39.0 | 10 |
| SMBJ10A | SMBJ10CA | KX | AX | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 35.3 | 5 |
| SMBJ11A | SMBJ11CA | KZ | AZ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 33.0 | 1 |
| SMBJ12A | SMBJ12CA | LE | BE | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 30.2 | 1 |
| SMBJ13A | SMBJ13CA | LG | BG | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 28.0 | 1 |
| SMBJ14A | SMBJ14CA | LK | BK | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 25.9 | 1 |
| SMBJ15A | SMBJ15CA | LM | BM | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 24.6 | 1 |
| SMBJ16A | SMBJ16CA | LP | BP | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 23.1 | 1 |
| SMBJ17A | SMBJ17CA | LR | BR | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 21.8 | 1 |
| SMBJ18A | SMBJ18CA | LT | BT | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 20.6 | 1 |
| SMBJ20A | SMBJ20CA | LV | BV | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 18.6 | 1 |
| SMBJ22A | SMBJ22CA | LX | BX | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 16.9 | 1 |
| SMBJ24A | SMBJ24CA | LZ | BZ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 15.5 | 1 |
| SMBJ26A | SMBJ26CA | ME | CE | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 14.3 | 1 |
| SMBJ28A | SMBJ28CA | MG | CG | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 13.3 | 1 |
| SMBJ30A | SMBJ30CA | MK | CK | 30.0 | 33.30 | 36.80 | 1 | 48.4 | 12.4 | 1 |
| SMBJ33A | SMBJ33CA | MM | CM | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 11.3 | 1 |
| SMBJ36A | SMBJ36CA | MP | CP | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 10.4 | 1 |
| SMBJ40A | SMBJ40CA | MR | CR | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 9.3 | 1 |
| SMBJ43A | SMBJ43CA | MT | CT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 8.7 | 1 |
| SMBJ45A | SMBJ45CA | MV | CV | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 8.3 | 1 |
| SMBJ48A | SMBJ48CA | MX | CX | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 7.8 | 1 |
| SMBJ51A | SMBJ51CA | MZ | CZ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 7.3 | 1 |
| SMBJ54A | SMBJ54CA | NE | DE | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 6.9 | 1 |
| SMBJ58A | SMBJ58CA | NG | DG | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 6.5 | 1 |
| SMBJ60A | SMBJ60CA | NK | DK | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 6.2 | 1 |
| SMBJ64A | SMBJ64CA | NM | DM | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 5.9 | 1 |
| SMBJ70A | SMBJ70CA | NP | DP | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 5.3 | 1 |

600Watts
Transient Voltage Suppressor
SMBJ5.0(C)A - SMBJ550(C)A

Electrical Characteristics (continued)

| Part Number | | Marking | | Reverse Stand Off Voltage | Breakdown Voltage | | Test Current | Maximum Clamping Voltage | Maximum Peak Pulse Current | Maximum Reverse Leakage |
|-------------|-----------|---------|----|---------------------------|----------------------|--------|--------------|--------------------------|----------------------------|--------------------------|
| Uni | Bi | Uni | Bi | V_R (V) | V_{BR} (V) @ I_T | | I_T (mA) | V_C (V) @ I_{PP} | I_{PP} (A) | I_R (μ A) @ V_R |
| | | | | | Min. | Max. | | | | |
| SMBJ75A | SMBJ75CA | NR | DR | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 5.0 | 1 |
| SMBJ78A | SMBJ78CA | NT | DT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 4.8 | 1 |
| SMBJ85A | SMBJ85CA | NV | DV | 85.0 | 94.40 | 104.00 | 1 | 137.0 | 4.4 | 1 |
| SMBJ90A | SMBJ90CA | NX | DX | 90.0 | 100.00 | 111.00 | 1 | 146.0 | 4.1 | 1 |
| SMBJ100A | SMBJ100CA | NZ | DZ | 100.0 | 111.00 | 123.00 | 1 | 162.0 | 3.7 | 1 |
| SMBJ110A | SMBJ110CA | PE | EE | 110.0 | 122.00 | 135.00 | 1 | 177.0 | 3.4 | 1 |
| SMBJ120A | SMBJ120CA | PG | EG | 120.0 | 133.00 | 147.00 | 1 | 193.0 | 3.1 | 1 |
| SMBJ130A | SMBJ130CA | PK | EK | 130.0 | 144.00 | 159.00 | 1 | 209.0 | 2.9 | 1 |
| SMBJ150A | SMBJ150CA | PM | EM | 150.0 | 167.00 | 185.00 | 1 | 243.0 | 2.5 | 1 |
| SMBJ160A | SMBJ160CA | PP | EP | 160.0 | 178.00 | 197.00 | 1 | 259.0 | 2.3 | 1 |
| SMBJ170A | SMBJ170CA | PR | ER | 170.0 | 189.00 | 209.00 | 1 | 275.0 | 2.2 | 1 |
| SMBJ180A | SMBJ180CA | PT | ET | 180.0 | 201.00 | 222.00 | 1 | 292.0 | 2.1 | 1 |
| SMBJ190A | SMBJ190CA | PA | EC | 190.0 | 209.00 | 243.00 | 1 | 308.0 | 2.0 | 1 |
| SMBJ200A | SMBJ200CA | PV | EV | 200.0 | 224.00 | 247.00 | 1 | 324.0 | 1.9 | 1 |
| SMBJ210A | SMBJ210CA | PB | ED | 210.0 | 231.00 | 268.00 | 1 | 340.0 | 1.8 | 1 |
| SMBJ220A | SMBJ220CA | PX | EX | 220.0 | 246.00 | 272.00 | 1 | 356.0 | 1.7 | 1 |
| SMBJ250A | SMBJ250CA | PZ | EZ | 250.0 | 279.00 | 309.00 | 1 | 405.0 | 1.5 | 1 |
| SMBJ300A | SMBJ300CA | QE | FE | 300.0 | 335.00 | 371.00 | 1 | 486.0 | 1.3 | 1 |
| SMBJ350A | SMBJ350CA | QG | FG | 350.0 | 391.00 | 432.00 | 1 | 567.0 | 1.1 | 1 |
| SMBJ400A | SMBJ400CA | QK | FK | 400.0 | 447.00 | 494.00 | 1 | 648.0 | 0.9 | 1 |
| SMBJ440A | SMBJ440CA | QM | FM | 440.0 | 492.00 | 543.00 | 1 | 713.0 | 1.8 | 1 |
| SMBJ480A | SMBJ480CA | QP | FP | 480.0 | 536.00 | 593.00 | 1 | 750.0 | 1.7 | 1 |
| SMBJ500A | SMBJ500CA | QV | FV | 500.0 | 558.00 | 618.00 | 1 | 762.0 | 1.5 | 1 |
| SMBJ510A | SMBJ510CA | QX | FX | 510.0 | 570.00 | 630.00 | 1 | 762.0 | 1.3 | 1 |
| SMBJ520A | SMBJ520CA | QR | FR | 520.0 | 578.00 | 640.00 | 1 | 762.0 | 1.1 | 1 |
| SMBJ550A | SMBJ550CA | QT | FT | 550.00 | 615.00 | 680.00 | 1 | 860.0 | 0.7 | 1 |

600Watts Transient Voltage Suppressor SMBJ5.0(C)A - SMBJ550(C)A

Ratings and Characteristics Curves (TA=25°C unless otherwise noted)

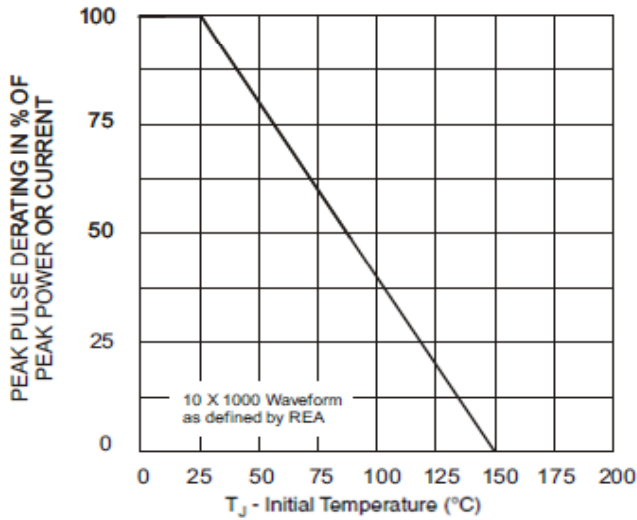


Fig. 1 - Pulse Derating Curve

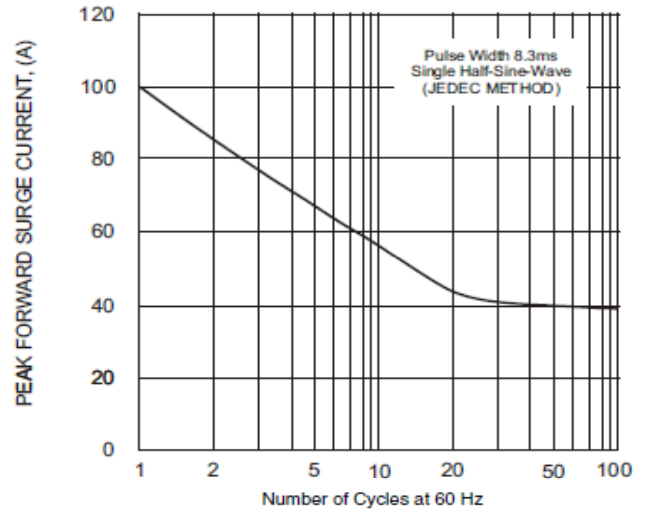


Fig. 2 - Maximum Non-Repetitive Surge Current

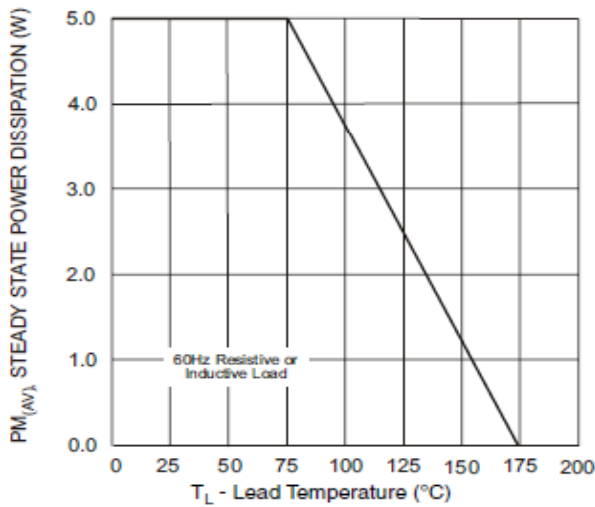


Fig. 3 - Steady State Power Derating Curve

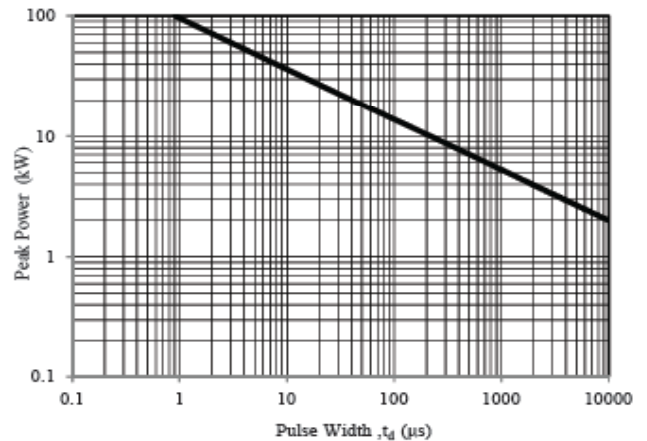


Fig. 4 - Peak Pulse Power Rating Curve

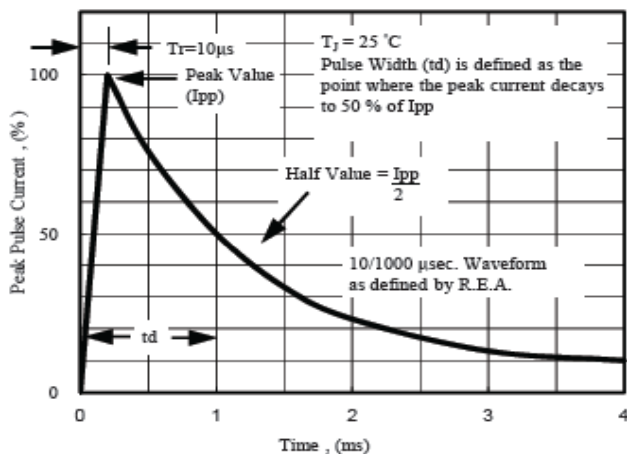


Fig. 5 - Pulse Waveform

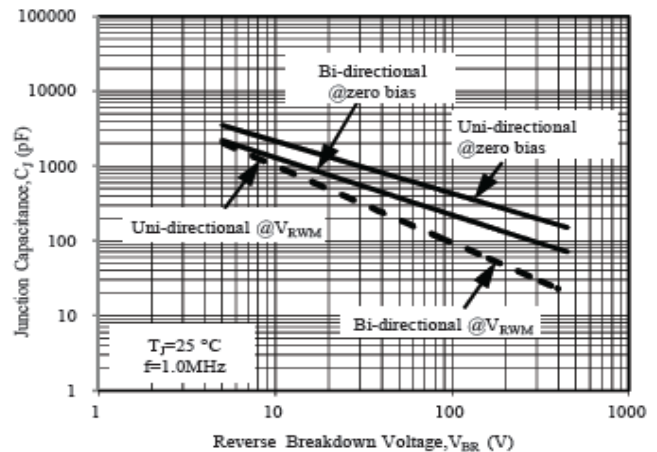
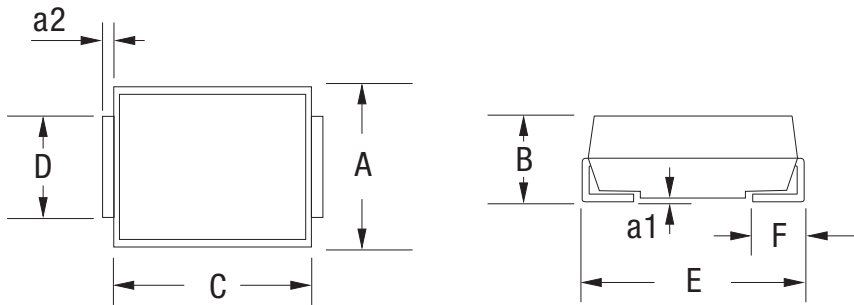


Fig. 6 - Typical Junction Capacitance

600Watts
Transient Voltage Suppressor
SMBJ5.0(C)A - SMBJ550(C)A

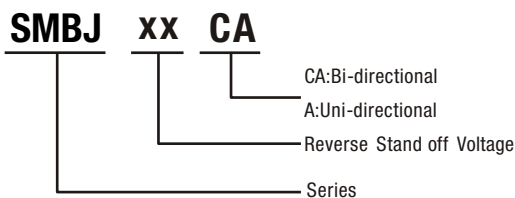
Dimension (Unit: mm)



| A | | B | | C | | D | | E | | F | | a1 | | a2 | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 3.300 | 3.940 | 2.050 | 2.450 | 4.050 | 4.650 | 1.800 | 2.200 | 5.210 | 5.590 | 0.760 | 1.520 | - | 0.203 | 0.152 | 0.305 |

Packaging: 3,000/Tape & Reel

Part Marking System



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[D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [DRTR5V0U4SL-7](#) [SCM1293A-04SO](#) [ESD200-B1-CSP0201 E6327](#) [SM12-7](#) [SM1605E3/TR13](#)
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