



Features

For surface mounted applications in order to optimize board space Low profile package
Built-in strain relief
Glass passivated junction
Low inductance
Excellent clamping capability
600W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
Fast response time
Typical IR less than 1 μ A above 10V
High Temperature soldering: 260 $^{\circ}$ C/10 seconds at terminals
Plastic package has underwriters laboratory flammability 94V-0

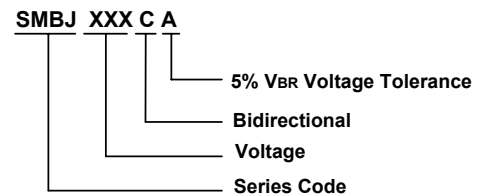


SMB

Mechanical Data

Case : JEDEC DO-214AA/SMB molded plastic body
Terminals : Solderable per MIL-STD-750,Method 2026
Polarity : Polarity symbol marking on body
Mounting Position : Any
Weight : 0.003 ounce, 0.095 grams
Standard Packaging: 12mm tape (EIA STD RS-481)

Part Number Code



Applications

- ◆ I/O interface
- ◆ AC/DC power supply
- ◆ Low frequency signal transmission line (RS232, RS485, etc.)

MAXIMUM RATINGS AND CHARACTERISTICS

| Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified. | | | |
|---|------------------------------------|-------------|----------------|
| Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Note2, Fig.1) | P _{PPM} | Minimum 600 | W |
| Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3) | I _{PPM} | See Table | A |
| Steady state power dissipation at T _A =50 $^{\circ}$ C (Fig.5) | P _{M(AV)} | 5.0 | W |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6) | I _{FSM} | 100 | A |
| Operating junction and Storage Temperature Range. | T _J , T _{STG} | -65 to +150 | $^{\circ}$ C |
| Typical thermal resistance junction to lead | R _{θJL} | 20 | $^{\circ}$ C/W |
| Typical thermal resistance junction to ambient | R _{θJA} | 100 | $^{\circ}$ C/W |

Notes:1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25 $^{\circ}$ C per Fig.2.
2. Mounted on 5.0mm \times 5.0mm (0.03mm thick) copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.



Electrical Characteristics (T_A=25°C)

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|----|---------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| SMBJ5.0A | SMBJ5.0CA | KE | KE | 5.0 | 6.40~7.00 | 10 | 9.2 | 65.3 | 800 |
| SMBJ6.0A | SMBJ6.0CA | KG | KG | 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 | KM | 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 | KZ | 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 | LG | 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 | LM | 16.0 | 17.80~19.70 | 1 | 26.0 | 23.1 | 1 |
| SMBJ17A | SMBJ17CA | LR | LR | 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 | LV | 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 |



| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|----|---------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| SMBJ26A | SMBJ26CA | ME | CE | 26.0 | 28.90~31.90 | 1 | 42.1 | 14.3 | 1 |
| SMBJ28A | SMBJ28CA | MG | MG | 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 | MV | 45.0 | 50.00~55.30 | 1 | 72.7 | 8.3 | 1 |
| SMBJ48A | SMBJ48CA | MX | MX | 48.0 | 53.30~58.90 | 1 | 77.4 | 7.8 | 1 |
| SMBJ51A | SMBJ51CA | MZ | MZ | 51.0 | 56.70~62.70 | 1 | 82.4 | 7.3 | 1 |
| SMBJ54A | SMBJ54CA | NE | NE | 54.0 | 60.00~66.30 | 1 | 87.1 | 6.9 | 1 |
| SMBJ58A | SMBJ58CA | NG | NG | 58.0 | 64.40~71.20 | 1 | 93.6 | 6.5 | 1 |
| SMBJ60A | SMBJ60CA | NK | NK | 60.0 | 66.70~73.70 | 1 | 96.8 | 6.2 | 1 |
| SMBJ64A | SMBJ64CA | NM | NM | 64.0 | 71.10~78.60 | 1 | 103.0 | 5.9 | 1 |
| SMBJ70A | SMBJ70CA | NP | NP | 70.0 | 77.80~86.00 | 1 | 113.0 | 5.3 | 1 |
| SMBJ75A | SMBJ75CA | NR | NR | 75.0 | 83.30~92.10 | 1 | 121.0 | 5.0 | 1 |
| SMBJ78A | SMBJ78CA | NT | NT | 78.0 | 86.70~95.80 | 1 | 126.0 | 4.8 | 1 |
| SMBJ85A | SMBJ85CA | NV | NV | 85.0 | 94.40~104.00 | 1 | 137.0 | 4.4 | 1 |
| SMBJ90A | SMBJ90CA | NX | NX | 90.0 | 100.00~111.00 | 1 | 146.0 | 4.1 | 1 |
| SMBJ100A | SMBJ100CA | NZ | NZ | 100.0 | 111.00~123.00 | 1 | 162.0 | 3.7 | 1 |
| SMBJ110A | SMBJ110CA | PE | PE | 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 | PK | 130.0 | 144.00~159.00 | 1 | 209.0 | 2.9 | 1 |
| SMBJ150A | SMBJ150CA | PM | PM | 150.0 | 167.00~185.00 | 1 | 243.0 | 2.5 | 1 |
| SMBJ160A | SMBJ160CA | PP | PP | 160.0 | 178.00~197.00 | 1 | 259.0 | 2.3 | 1 |
| SMBJ170A | SMBJ170CA | PR | PR | 170.0 | 189.00~209.00 | 1 | 275.0 | 2.2 | 1 |
| SMBJ188A | SMBJ188CA | PS | PS | 180.0 | 201.00~222.00 | 1 | 292.0 | 2.1 | 1 |
| SMBJ190A | SMBJ190CA | PA | EC | 190.0 | 211.00~233.00 | 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 | 237.00~263.00 | 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 | 0.9 | 1 |

Notes: For bidirectional type having V_{RWM} of 10V and less, the I_R limit is double.



Figure 1. Peak Pulse Power Rating Curve



Figure 2. Pulse Derating Curve

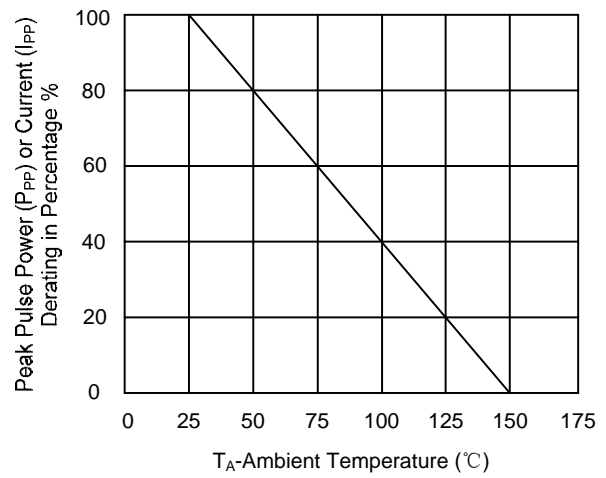


Figure 3. Pulse Waveform



Figure 4. Typical Junction Capacitance



Figure 5. Steady State Power Dissipation Derating Curve

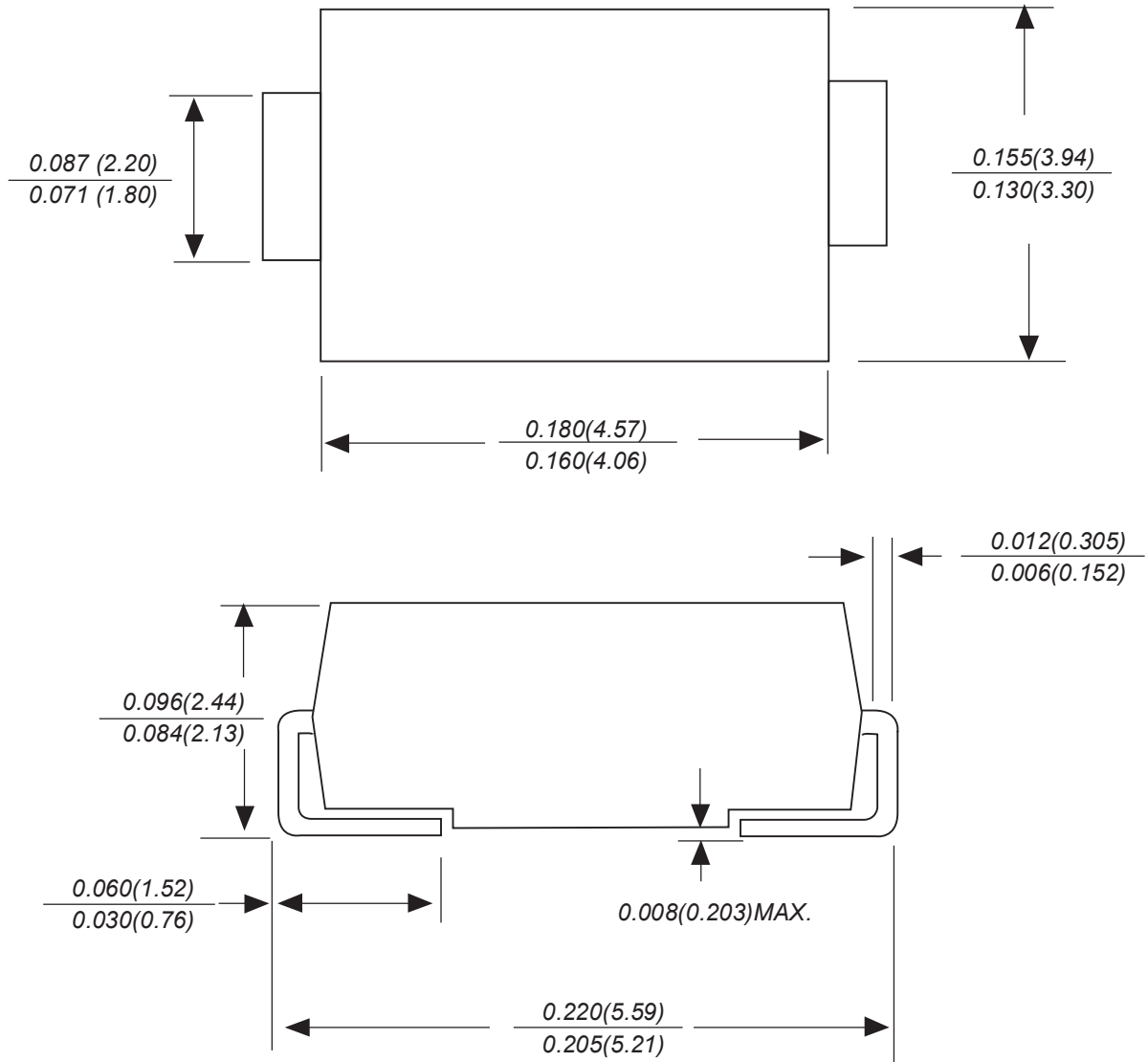


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only





SMB Package Outline Dimensions



Dimensions in inches and (millimeters)



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