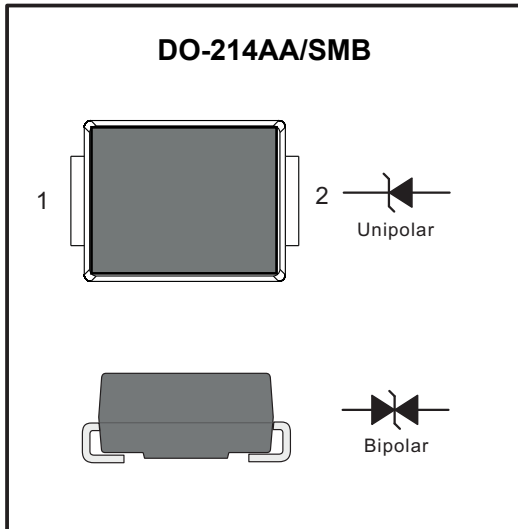


SMBJ5.0 THRU SMBJ440CA

Surface mount transient voltage suppressor power 600 watts
Stand-Off Voltage : 5.0V~440V

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Cathode |
| 2 | Anode |



Features

- ◆ For surface mounted applications in order to optimize board space.
- ◆ Low profile package
- ◆ Glass passivated junction
- ◆ Low inductance
- ◆ Plastic package has Underwriters Laboratory Flammability

Mechanical Data

- ◆ Case: SMB
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.1g / 0.0034oz

Maximum Ratings and Electrical characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|-------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------|------|
| Peak Pulse Power Dissipation on 10/1000 us waveform (Note1,Note2, Fig.1). | P_{PPM} | 600 | W |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3, Fig4). | I_{FSM} (UNI) | 100 | A |
| Peak Pulse Current on 10/1000 us waveform (Note 1, Fig 3) | I_{PPM} | see Table 1 | A |
| Typical Junction capacitance at VR=4V, f=1MHz | C_J | 390 | pF |
| ESD Voltage per IEC6100-4-2 | V_{ESD1} V_{ESD2} | ± 30 ± 30 | kV |
| Typical Thermal Resistance Junction to Ambient(Note 2) | $R_{\theta JA}$ | 100 | °C/W |
| Operating Junction Temperature and Storage Temperature Range | T_j, T_{stg} | -65 ~ +150 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2.
2. Mounted on 5 mm² (0.13mm thick) land areas.
3. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
4. Peak pulse power waveform is 10/1000µS.



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Stand-Off Voltage : 5.0V~440V

Electrical Characteristics (TA=25°C)

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @I _r | 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 | 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 |
| 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 |

Surface mount transient voltage suppressor power 600 watts
Stand-Off Voltage : 5.0V~440V

Electrical Characteristics (TA=25°C)

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @IT | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|----------------|---------------|---------------------|----|---------------------------|-----------------------|--------------|-------------------------------|--------------------|-----------------------|
| Unidirectional | Bidirectional | UNI | BI | VRWM(V) | VBR(V) | IT(mA) | VC(V) | IPP(A) | IR(μA) |
| 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 | 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 |

Fig.1 Peak Pulse Power Rating Curve

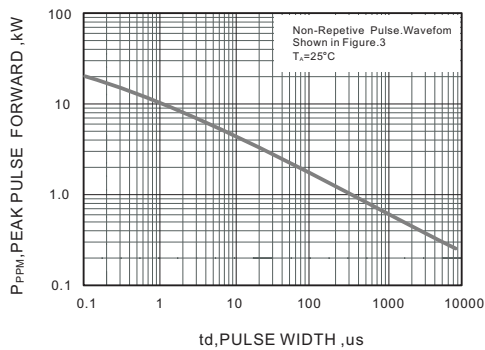


Fig.2 Forward Current Derating Curve

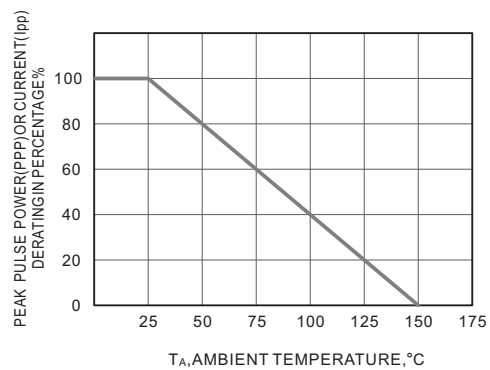


Fig.3 Pulse Waveform

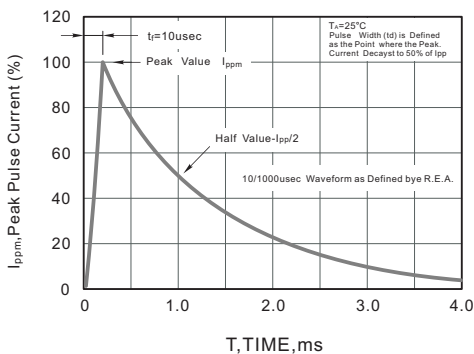
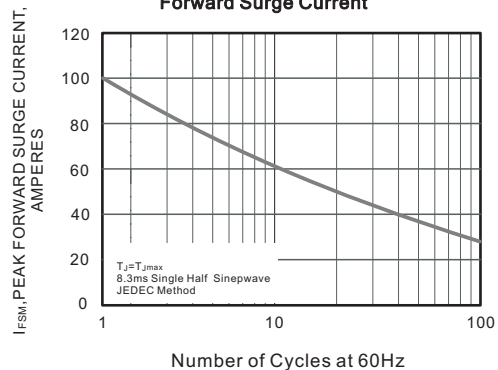


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



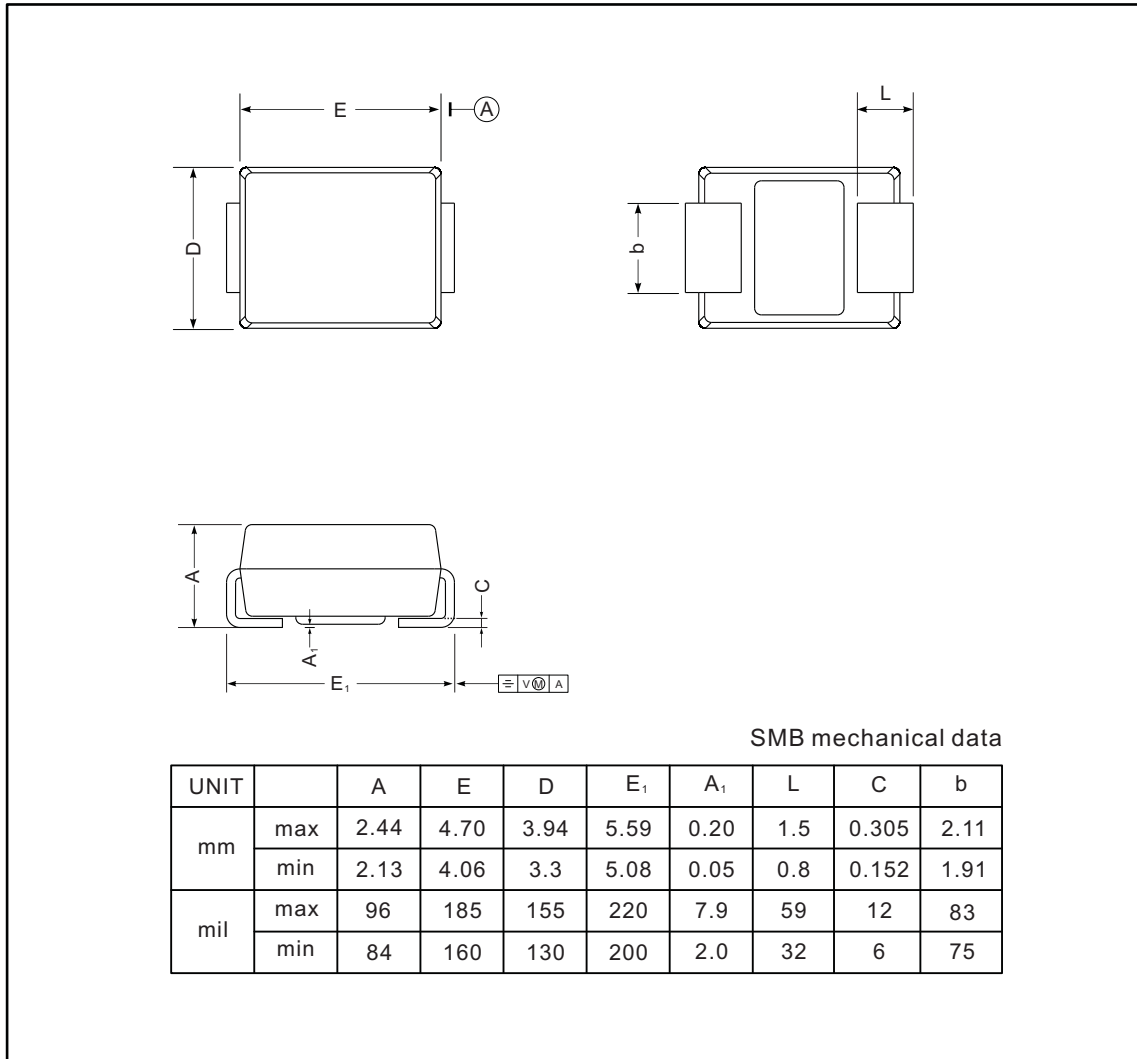
SMBJ5.0 THRU SMBJ440CA

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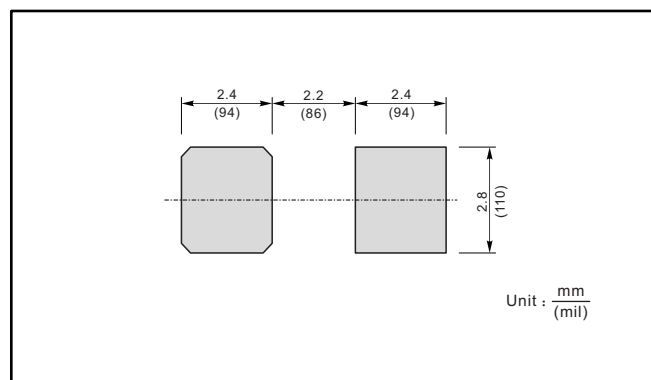
PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMB



The recommended mounting pad size



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