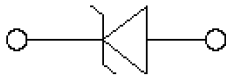
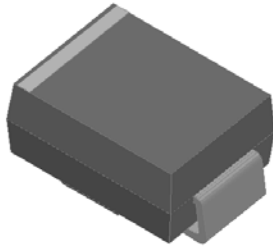
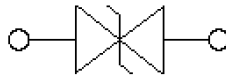
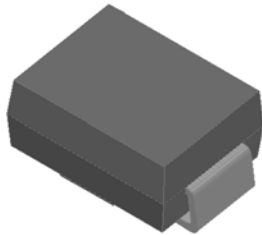


Surface Mount Transient Voltage Suppressors

Uni-directional



Bi-directional



Features

- UL recognition, file # E517074
- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500 W peak pulse power capability with a 10/1000 μ s waveform
- Low incremental surge resistance, excellent clamping Capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

Mechanical Data

- **Package:** DO-214AA (SMB)
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
- **Polarity:** For uni-directional types the band denotes anode end, no marking on bi-directional types

■Maximum Ratings (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | Max |
|---|-----------------------------------|------|----------------|
| Peak power dissipation, with a 10/1000us waveform ⁽¹⁾ ⁽²⁾ (Fig.1) | P _{PPM} | W | 1500 |
| Peak pulse current, with a 10/1000us waveform ⁽¹⁾ | I _{PPM} | A | See Next Table |
| Power dissipation, on infinite heat sink at T _L =75°C | P _D | W | 5.0 |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I _{FSM} | A | 100 |
| Operating junction and storage temperature range | T _J , T _{STG} | °C | -55 to +150 |



SMB15J SERIES

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|---|----------------|------|-------|
| Maximum instantaneous forward voltage @ at 25A for unidirectional only | V _F | V | 3.5 |

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

■Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| SMB15J SERIES | F1 | Approximate 0.0975 | 3000 | / | 48000 | 13" reel |
| SMB15J SERIES | F2 | Approximate 0.0975 | 750 | 3000 | 24000 | 7" reel |
| SMB15J SERIES | F3 | Approximate 0.0975 | 500 | 2000 | 16000 | 7" reel |

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

| Part Number (Uni) | Part Number (Bi) | Breakdown Voltage V _{BR@IT} | | | Maximum Reverse Leakage I _{R@V_{RWM}} (μA) | Working Peak Reverse Voltage V _{RWM} (V) | Maximum Reverse Surge Current I _{PP} ⁽⁴⁾ (A) | Maximum Clamping Voltage V _c @ I _{PP} (V) |
|-------------------|------------------|--------------------------------------|---------|------------------------------------|---|---|--|---|
| | | Min(V) | Max (V) | I _T ⁽³⁾ (mA) | | | | |
| SMB15J8.0A | SMB15J8.0CA | 8.89 | 9.83 | 1 | 50 | 8 | 110.29 | 13.6 |
| SMB15J8.5A | SMB15J8.5CA | 9.44 | 10.4 | 1 | 20 | 8.5 | 104.17 | 14.4 |
| SMB15J9.0A | SMB15J9.0CA | 10 | 11.1 | 1 | 10 | 9 | 97.4 | 15.4 |
| SMB15J10A | SMB15J10CA | 11.1 | 12.3 | 1 | 5 | 10 | 88.24 | 17 |
| SMB15J11A | SMB15J11CA | 12.2 | 13.5 | 1 | 5 | 11 | 82.42 | 18.2 |
| SMB15J12A | SMB15J12CA | 13.3 | 14.7 | 1 | 5 | 12 | 75.38 | 19.9 |
| SMB15J13A | SMB15J13CA | 14.4 | 15.9 | 1 | 5 | 13 | 69.77 | 21.5 |
| SMB15J14A | SMB15J14CA | 15.6 | 17.2 | 1 | 5 | 14 | 64.66 | 23.2 |
| SMB15J15A | SMB15J15CA | 16.70 | 18.50 | 1 | 5 | 15.0 | 61.48 | 24.4 |
| SMB15J16A | SMB15J16CA | 17.80 | 19.70 | 1 | 5 | 16.0 | 57.69 | 26.0 |
| SMB15J17A | SMB15J17CA | 18.90 | 20.90 | 1 | 5 | 17.0 | 54.35 | 27.6 |
| SMB15J18A | SMB15J18CA | 20.00 | 22.10 | 1 | 5 | 18.0 | 51.37 | 29.2 |
| SMB15J19A | SMB15J19CA | 21.10 | 23.30 | 1 | 5 | 19.0 | 48.73 | 30.8 |
| SMB15J20A | SMB15J20CA | 22.20 | 24.50 | 1 | 5 | 20.0 | 46.30 | 32.4 |
| SMB15J22A | SMB15J22CA | 24.40 | 26.90 | 1 | 5 | 22.0 | 42.25 | 35.5 |
| SMB15J24A | SMB15J24CA | 26.70 | 29.50 | 1 | 5 | 24.0 | 38.56 | 38.9 |
| SMB15J26A | SMB15J26CA | 28.90 | 31.90 | 1 | 5 | 26.0 | 35.63 | 42.1 |
| SMB15J28A | SMB15J28CA | 31.10 | 34.40 | 1 | 5 | 28.0 | 33.04 | 45.4 |
| SMB15J30A | SMB15J30CA | 33.30 | 36.80 | 1 | 5 | 30.0 | 30.99 | 48.4 |
| SMB15J33A | SMB15J33CA | 36.70 | 40.60 | 1 | 5 | 33.0 | 28.14 | 53.3 |
| SMB15J36A | SMB15J36CA | 40.00 | 44.20 | 1 | 5 | 36.0 | 25.82 | 58.1 |
| SMB15J40A | SMB15J40CA | 44.40 | 49.10 | 1 | 5 | 40.0 | 23.26 | 64.5 |
| SMB15J43A | SMB15J43CA | 47.80 | 52.80 | 1 | 5 | 43.0 | 21.61 | 69.4 |
| SMB15J45A | SMB15J45CA | 50.00 | 55.30 | 1 | 5 | 45.0 | 20.63 | 72.7 |
| SMB15J48A | SMB15J48CA | 53.30 | 58.90 | 1 | 5 | 48.0 | 19.38 | 77.4 |
| SMB15J51A | SMB15J51CA | 56.70 | 62.70 | 1 | 5 | 51.0 | 18.20 | 82.4 |



SMB15J SERIES

| Part Number (Uni) | Part Number (Bi) | Breakdown Voltage $V_{BR}@I_T$ | | | Maximum Reverse Leakage $I_R@V_{RWM}$ (μA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current $I_{PP}^{(4)}$ (A) | Maximum Clamping Voltage V_c @ I_{PP} (V) |
|-------------------|------------------|--------------------------------|---------|------------------|---|--|--|---|
| | | Min(V) | Max (V) | $I_T^{(3)}$ (mA) | | | | |
| SMB15J54A | SMB15J54CA | 60.00 | 66.30 | 1 | 5 | 54.0 | 17.22 | 87.1 |
| SMB15J58A | SMB15J58CA | 64.40 | 71.20 | 1 | 5 | 58.0 | 16.03 | 93.6 |
| SMB15J60A | SMB15J60CA | 66.7 | 73.7 | 1 | 5 | 60 | 15.5 | 96.8 |
| SMB15J64A | SMB15J64CA | 71.1 | 78.6 | 1 | 5 | 64 | 14.56 | 103 |
| SMB15J70A | SMB15J70CA | 77.8 | 86 | 1 | 5 | 70 | 13.27 | 113 |
| SMB15J75A | SMB15J75CA | 83.3 | 92.1 | 1 | 5 | 75 | 12.4 | 121 |
| SMB15J78A | SMB15J78CA | 86.7 | 95.8 | 1 | 5 | 78 | 11.9 | 126 |
| SMB15J80A | SMB15J80CA | 88.8 | 97.6 | 1 | 5 | 80 | 11.57 | 129.6 |
| SMB15J85A | SMB15J85CA | 94.4 | 104 | 1 | 5 | 85 | 10.95 | 137 |

Notes:

(3) Pulse test: $t_p \leq 50ms$.

(4) Surge current waveform per Fig. 3 and derated per Fig.2.

■ Characteristics (Typical)

FIG1: Peak Pulse Power Rating Curve

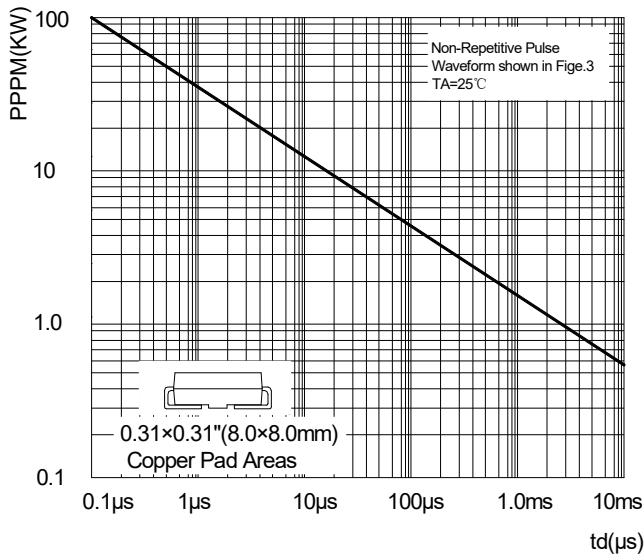


FIG2: Pulse Power or Current vs. Initial Junction Temperature

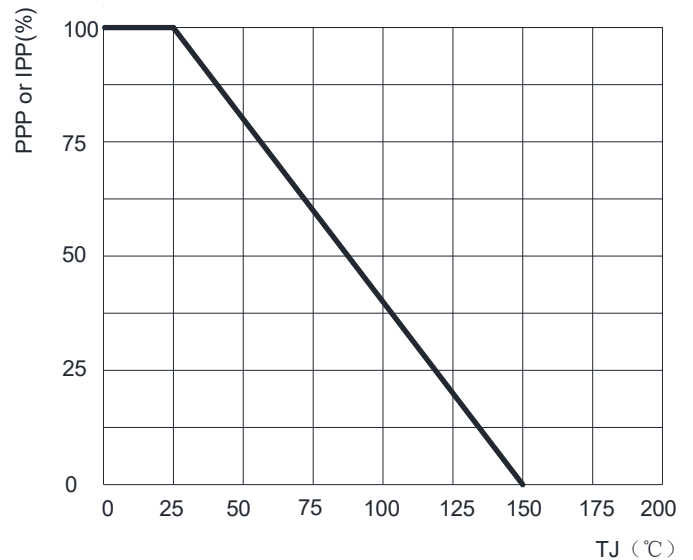


FIG3: Pulse Waveform

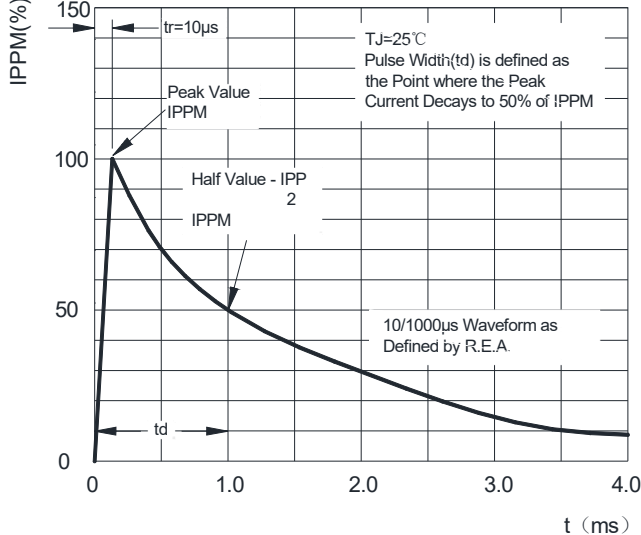
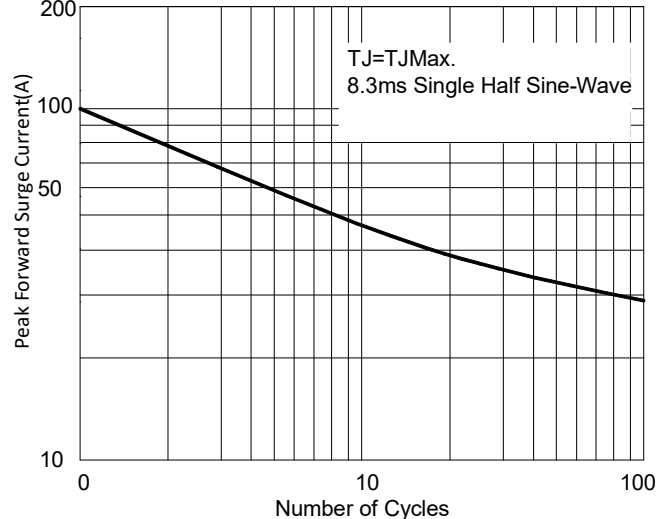


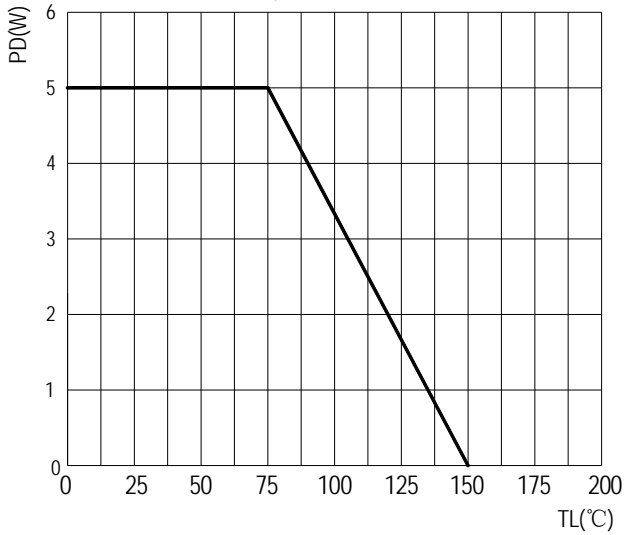
FIG4: Maximum Non-Repetitive Surge Current



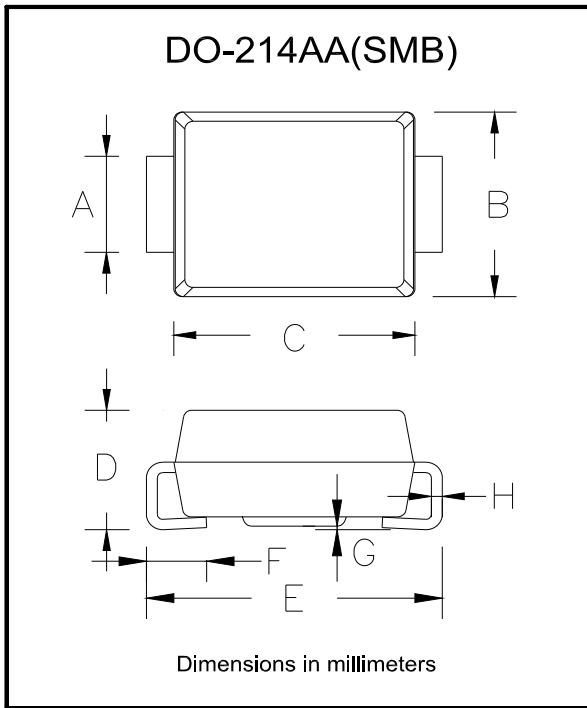


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FIG5: Steady State Power Dissipation

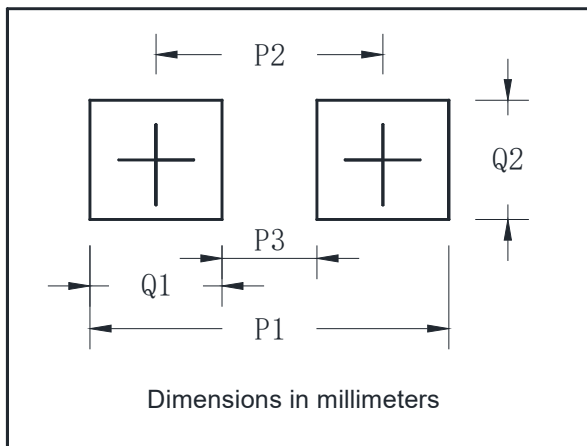


■ Outline Dimensions



| DO-214AA(SMB) | | |
|---------------|------|------|
| Dim | Min | Max |
| A | 1.85 | 2.15 |
| B | 3.30 | 3.94 |
| C | 4.05 | 4.75 |
| D | 1.99 | 2.61 |
| E | 5.21 | 5.59 |
| F | 0.90 | 1.41 |
| G | 0.05 | 0.20 |
| H | 0.15 | 0.31 |

■ Suggested pad layout



| DO-214AA(SMB) | |
|---------------|-------------|
| Dim | Millimeters |
| P1 | 6.8 |
| P2 | 4.3 |
| P3 | 1.8 |
| Q1 | 2.5 |
| Q2 | 2.3 |



SMB15J SERIES

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