## / Absolute Maximum Ratings(Ta=25 )

| Parameter | | Symbol | Rating | 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 |
| ESD Voltage per IEC6100-4-2 | Contact | $V_{ESD1}$ | 30 | KV |
| | Air | $V_{ESD2}$ | 30 | KV |
| Typical Thermal Resistance (Note 5) | | $R_{\theta JA}$ | 90 | /W |
| | | $R_{\theta JC}$ | 18 | /W |
| | | $R_{\theta JL}$ | 22 | /W |
| Operating Junction Temperature and Storage Temperature Range | | $T_j$, $T_{stg}$ | -55 ~ +150 | |

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig. 2.
2. Mounted on 5 mm 2(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.
5. P.C.B. mounted with 0.2" X 0.2" (5 X 5 mm) copper pad areas.

## / Electrical Characteristics(Ta=25 )

| Type | | Device Marking Ccode | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Max. Clamp Voltage | Peak Pulse Current | Maximum Reverse Leakage |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $V_{BR}$ @ $I_T$ | | | | | |
| | | | | $V_{RMW}$ | Min | Max | $I_T$ | $V_C$ @ $I_{PP}$ | $I_{PP}$ | |
| UNI | BI | UNI | BI | V | V | V | mA | V | A | uA |
| BRSMBJ5.0AQ | | KEQ | | 5 | 6.4 | 7 | 10 | 9.2 | 65.3 | 800 |
| BRSMBJ6.0AQ | | KGQ | | 6 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| BRSMBJ6.5AQ | BRSMBJ6.5CAQ | KKQ | AKQ | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| BRSMBJ7.0AQ | BRSMBJ7.0CAQ | KMQ | AMQ | 7 | 7.78 | 8.6 | 10 | 12.0 | 50.0 | 200 |
| BRSMBJ7.5AQ | BRSMBJ7.5CAQ | KPQ | APQ | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.6 | 100 |
| BRSMBJ8.0AQ | BRSMBJ8.0CAQ | KRQ | ARQ | 8 | 8.89 | 9.83 | 1 | 13.6 | 44.2 | 50 |
| BRSMBJ8.5AQ | BRSMBJ8.5CAQ | KTQ | ATQ | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 41.7 | 20 |
| BRSMBJ9.0AQ | BRSMBJ9.0CAQ | KVQ | AVQ | 9 | 10 | 11.1 | 1 | 15.4 | 39.0 | 10 |
| BRSMBJ10AQ | BRSMBJ10CAQ | KXQ | AXQ | 10 | 11.1 | 12.3 | 1 | 17.0 | 35.3 | 5 |
| BRSMBJ11AQ | BRSMBJ11CAQ | KZQ | AZQ | 11 | 12.2 | 13.5 | 1 | 18.2 | 33.0 | 1 |
| BRSMBJ12AQ | BRSMBJ12CAQ | LEQ | BEQ | 12 | 13.3 | 14.7 | 1 | 19.9 | 30.2 | 1 |
| BRSMBJ13AQ | BRSMBJ13CAQ | LGQ | BGQ | 13 | 14.4 | 15.9 | 1 | 21.5 | 28.0 | 1 |
| BRSMBJ14AQ | BRSMBJ14CAQ | LKQ | BKQ | 14 | 15.6 | 17.2 | 1 | 23.2 | 25.9 | 1 |
| BRSMBJ15AQ | BRSMBJ15CAQ | LMQ | BMQ | 15 | 16.7 | 18.5 | 1 | 24.4 | 24.6 | 1 |
| BRSMBJ16AQ | BRSMBJ16CAQ | LPQ | BPQ | 16 | 17.8 | 19.7 | 1 | 26.0 | 23.1 | 1 |
| BRSMBJ17AQ | BRSMBJ17CAQ | LRQ | BRQ | 17 | 18.9 | 20.9 | 1 | 27.6 | 21.8 | 1 |
| BRSMBJ18AQ | BRSMBJ18CAQ | LTQ | BTQ | 18 | 20 | 22.1 | 1 | 29.2 | 20.6 | 1 |
| BRSMBJ20AQ | BRSMBJ20CAQ | LVQ | BVQ | 20 | 22.2 | 24.5 | 1 | 32.4 | 18.6 | 1 |
| BRSMBJ22AQ | BRSMBJ22CAQ | LXQ | BXQ | 22 | 24.4 | 26.9 | 1 | 35.5 | 16.9 | 1 |
| BRSMBJ24AQ | BRSMBJ24CAQ | LZQ | BZQ | 24 | 26.7 | 29.5 | 1 | 38.9 | 15.5 | 1 |
| BRSMBJ26AQ | BRSMBJ26CAQ | MEQ | CEQ | 26 | 28.9 | 31.9 | 1 | 42.1 | 14.3 | 1 |
| BRSMBJ28AQ | BRSMBJ28CAQ | MGQ | CGQ | 28 | 31.1 | 34.4 | 1 | 45.4 | 13.3 | 1 |
| BRSMBJ30AQ | BRSMBJ30CAQ | MKQ | CKQ | 30 | 33.3 | 36.8 | 1 | 48.4 | 12.4 | 1 |
| BRSMBJ33AQ | BRSMBJ33CAQ | MMQ | CMQ | 33 | 36.7 | 40.6 | 1 | 53.3 | 11.3 | 1 |
| BRSMBJ36AQ | BRSMBJ36CAQ | MPQ | CPQ | 36 | 40 | 44.2 | 1 | 58.1 | 10.4 | 1 |
| BRSMBJ40AQ | BRSMBJ40CAQ | MRQ | CRQ | 40 | 44.4 | 49.1 | 1 | 64.5 | 9.3 | 1 |
| BRSMBJ43AQ | BRSMBJ43CAQ | MTQ | CTQ | 43 | 47.8 | 52.8 | 1 | 69.4 | 8.7 | 1 |

| Type | | Device Marking Ccode | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Max. Clamp Voltage | Peak Pulse Current | Maximum Reverse Leakage |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $V_{BR}$ @ $I_T$ | | | | | |
| | | | | $V_{RMW}$ | Min | Max | $I_T$ | $V_C$ @ $I_{PP}$ | $I_{PP}$ $V_{RMW}$ | |
| UNI | BI | UNI | BI | V | V | V | mA | V | A | uA |
| BRSMBJ45AQ | BRSMBJ45CAQ | MVQ | CVQ | 45 | 50 | 55.3 | 1 | 72.7 | 8.3 | 1 |
| BRSMBJ48AQ | BRSMBJ48CAQ | MXQ | CXQ | 48 | 53.3 | 58.9 | 1 | 77.4 | 7.8 | 1 |
| BRSMBJ51AQ | BRSMBJ51CAQ | MZQ | CZQ | 51 | 56.7 | 62.7 | 1 | 82.4 | 7.3 | 1 |
| BRSMBJ54AQ | BRSMBJ54CAQ | NEQ | DEQ | 54 | 60 | 66.3 | 1 | 87.1 | 6.9 | 1 |
| BRSMBJ58AQ | BRSMBJ58CAQ | NGQ | DGQ | 58 | 64.4 | 71.2 | 1 | 93.6 | 6.5 | 1 |
| BRSMBJ60AQ | BRSMBJ60CAQ | NKQ | DKQ | 60 | 66.7 | 73.7 | 1 | 96.8 | 6.2 | 1 |
| BRSMBJ64AQ | BRSMBJ64CAQ | NMQ | DMQ | 64 | 71.1 | 78.6 | 1 | 103.0 | 5.9 | 1 |
| BRSMBJ70AQ | BRSMBJ70CAQ | NPQ | DPQ | 70 | 77.8 | 86 | 1 | 113.0 | | |

## / Electrical Characteristic Curve

Fig.1 Peak Pulse Power Rating Curve

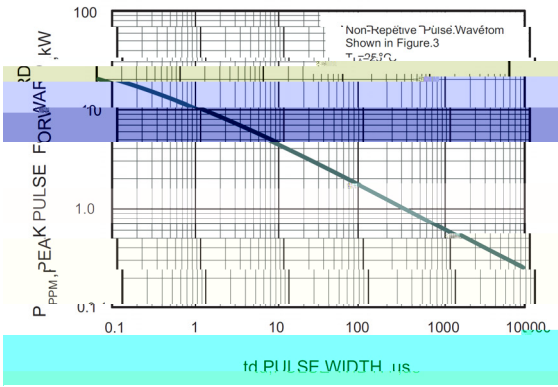



Fig.2 Forward Current Derating Curve

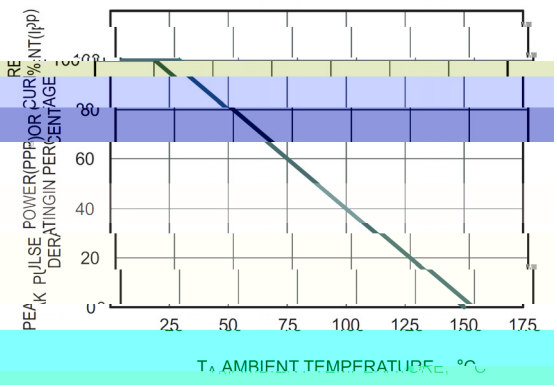



Fig.3 Pulse Waveform

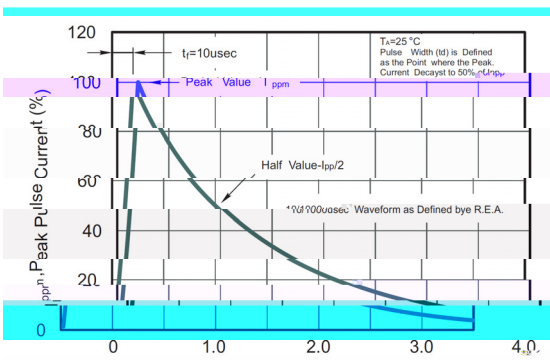
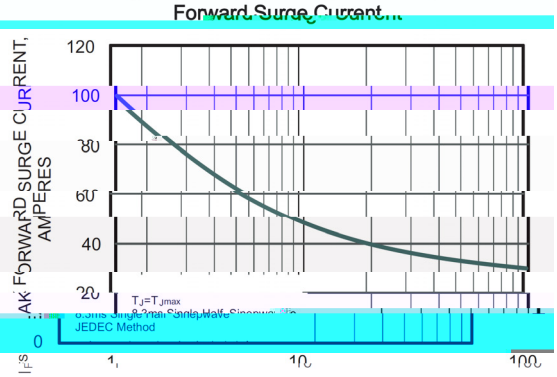
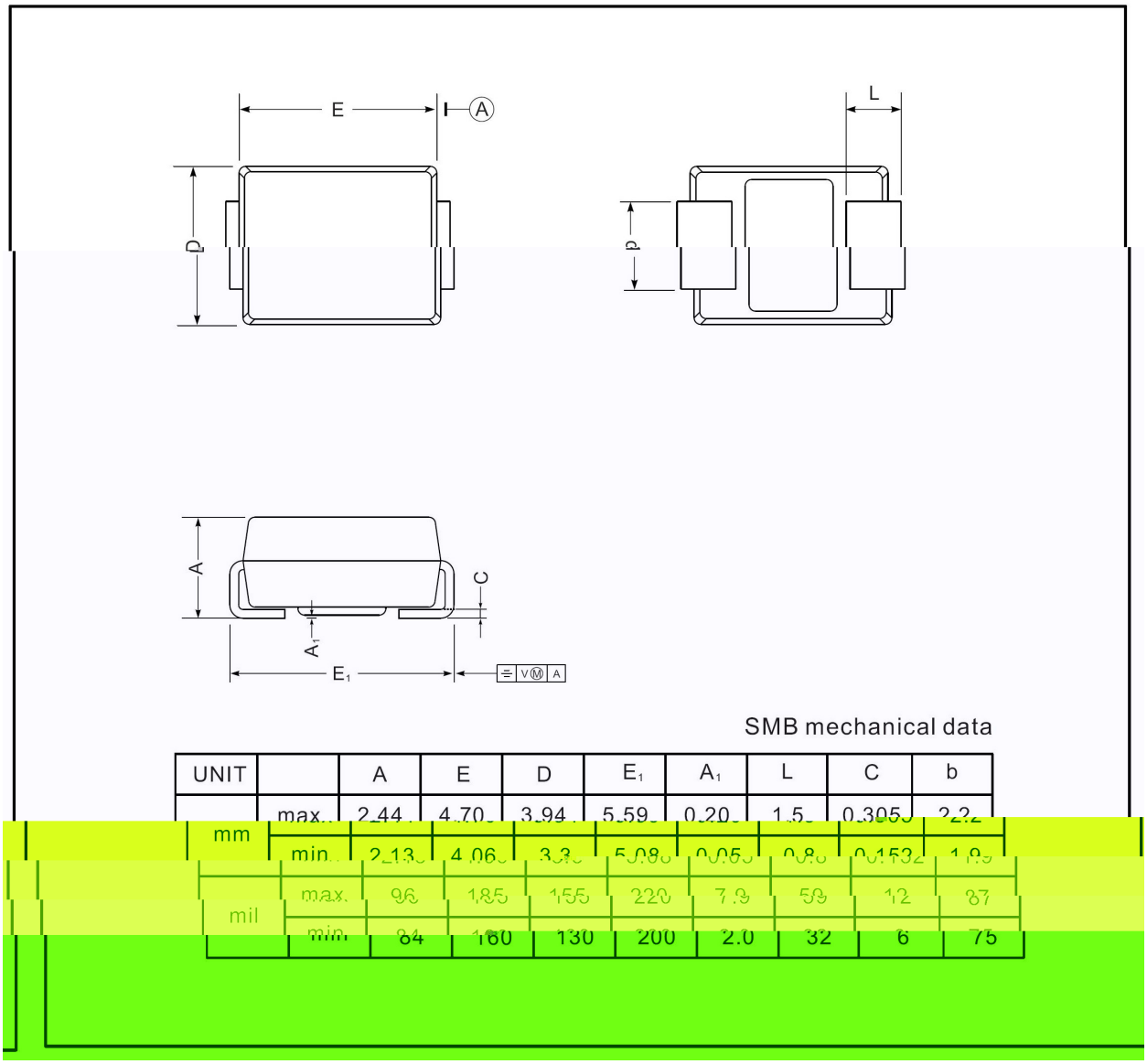



Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



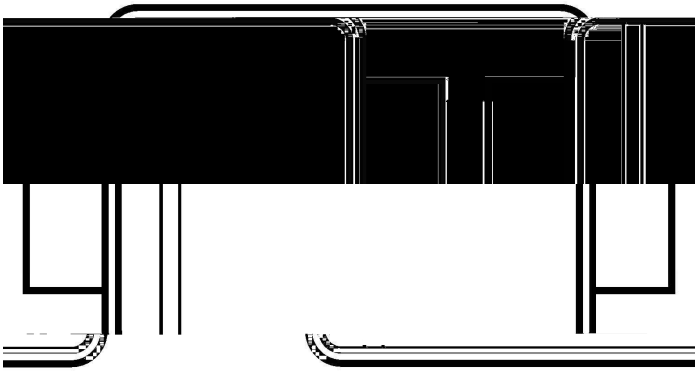
## / Package Dimensions

SMB




SMB mechanical data

| UNIT | | A | E | D | $E_1$ | $A_1$ | L | C | b |
|---|---|---|---|---|---|---|---|---|---|
| mm | max. | 2.44 | 4.70 | 3.94 | 5.59 | 0.20 | 1.5 | 0.305 | 2.2 |
| | min. | 2.13 | 4.06 | 3.3 | 5.08 | 0.05 | 0.8 | 0.152 | 1.9 |
| mil | max. | 96 | 185 | 155 | 220 | 7.9 | 59 | 12 | 87 |
| | min. | 84 | 160 | 130 | 200 | 2.0 | 32 | 6 | 75 |



## / Marking Instructions


AK

Q

****

Note:

| | |
|---|---|
| AK | Product Type Code |
| Q: | Automobile halogen-free product Code |
| **** | Lot No. Code, code change with Lot No. |

# BRSMBJ SeriesQ

Rev.B Jun.-2025

**DATA SHEET**