

# BRSMBJ SeriesQ

Rev.B Jun.-2025

## 描述 / Descriptions

表面贴装瞬态电压抑制器功率：600W,反向浪涌电压：5.0V~90V，SMB 封装。

Surface mount transient voltage suppressor power 600 watts,Stand-Off Voltage：5.0V~90V ,SMB package.

## 特征 / Features

玻璃钝化，低电感，适用表面贴装，符合 AEC-Q101 标准高可靠性要求，无卤产品。

Glass passivated junction, Low inductance, For surface mounted applications, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

## 用途 / Applications

一般用途，满足汽车应用的严格要求。

General purpose, Meet the stringent requirements of automotive applications.

## 内部等效电路 / Equivalent Circuit

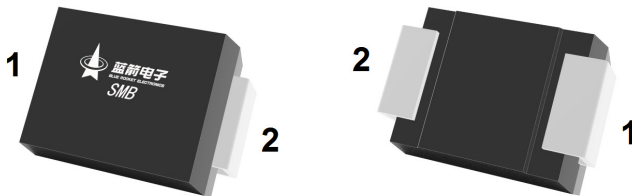


Unipolar



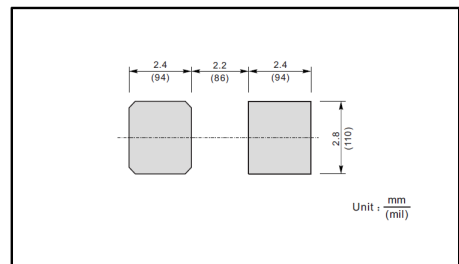
Bipolar

## 引脚排列 / Pinning



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

The recommended mounting pad size



## 印章代码 / Marking

见印章说明。

See Marking Instructions.

## 极限参数 / Absolute Maximum Ratings(Ta=25°C)

| 参数<br>Parameter                                                                                                   |         | 符号<br>Symbol                      | 数值<br>Rating | 单位<br>Unit |
|-------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------|--------------|------------|
| Peak Pulse Power Dissipation on 10/1000 us waveform (Note1,Note2, Fig.1).                                         |         | P <sub>PPM</sub>                  | 600          | W          |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3, Fig4). |         | I <sub>FSM</sub><br>(UNI)         | 100          | A          |
| Peak Pulse Current on 10/1000 us waveform (Note 1, Fig 3)                                                         |         | I <sub>PPM</sub>                  | see Table 1  | A          |
| ESD Voltage per IEC6100-4-2                                                                                       | Contact | V <sub>ESD1</sub>                 | ±30          | KV         |
|                                                                                                                   | Air     | V <sub>ESD2</sub>                 | ±30          | KV         |
| Typical Thermal Resistance (Note 5)                                                                               |         | R <sub>θJA</sub>                  | 90           | °C/W       |
|                                                                                                                   |         | R <sub>θJC</sub>                  | 18           | °C/W       |
|                                                                                                                   |         | R <sub>θJL</sub>                  | 22           | °C/W       |
| Operating Junction Temperature and Storage Temperature Range                                                      |         | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150   | °C         |

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.

## 电性能参数 / Electrical Characteristics(Ta=25°C)

| Type        |              | Device Marking Ccode |     | Reverse Stand-off Voltage | Breakdown Voltage                |      | Test Current | Max. Clamp Voltage | Peak Pulse Current               | Maximum Reverse Leakage |
|-------------|--------------|----------------------|-----|---------------------------|----------------------------------|------|--------------|--------------------|----------------------------------|-------------------------|
|             |              |                      |     |                           | V <sub>BR</sub> @ I <sub>T</sub> |      |              |                    |                                  |                         |
|             |              |                      |     |                           | V <sub>RMW</sub>                 | Min  | Max          | I <sub>T</sub>     | V <sub>C</sub> @ I <sub>PP</sub> |                         |
| 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                       |


**电性能参数 / Electrical Characteristics(Ta=25°C)**

| Type       |             | Device Marking Ccode |     | Reverse Stand-off Voltage | Breakdown Voltage                |      | Test Current | Max. Clamp Voltage | Peak Pulse Current               | Maximum Reverse Leakage |
|------------|-------------|----------------------|-----|---------------------------|----------------------------------|------|--------------|--------------------|----------------------------------|-------------------------|
|            |             |                      |     |                           | V <sub>BR</sub> @ I <sub>T</sub> |      |              |                    |                                  |                         |
|            |             |                      |     |                           | V <sub>RMW</sub>                 | Min  | Max          | I <sub>T</sub>     | V <sub>C</sub> @ I <sub>PP</sub> |                         |
| 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              | 5.3                              | 1                       |
| BRSMBJ75AQ | BRSMBJ75CAQ | NRQ                  | DRQ | 75                        | 83.3                             | 92.1 | 1            | 121.0              | 5.0                              | 1                       |
| BRSMBJ78AQ | BRSMBJ78CAQ | NTQ                  | DTQ | 78                        | 86.7                             | 95.8 | 1            | 126.0              | 4.8                              | 1                       |
| BRSMBJ85AQ | BRSMBJ85CAQ | NVQ                  | DVQ | 85                        | 94.4                             | 104  | 1            | 137.0              | 4.4                              | 1                       |
| BRSMBJ90AQ | BRSMBJ90CAQ | NXQ                  | DXQ | 90                        | 100                              | 111  | 1            | 146.0              | 4.1                              | 1                       |

## 电参数曲线图 / Electrical Characteristic Curve

Fig.1 Peak Pulse Power Rating Curve

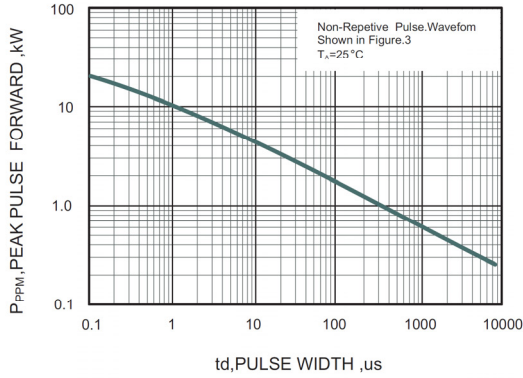


Fig.2 Forward Current Derating Curve

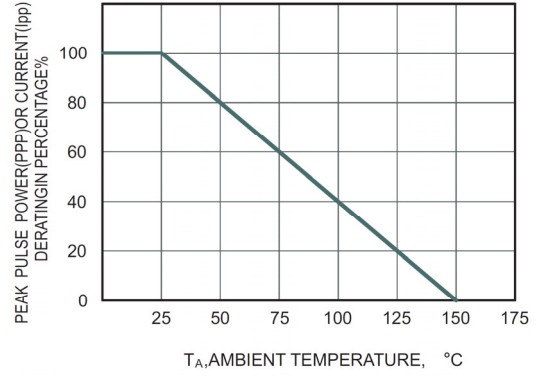


Fig.3 Pulse Waveform

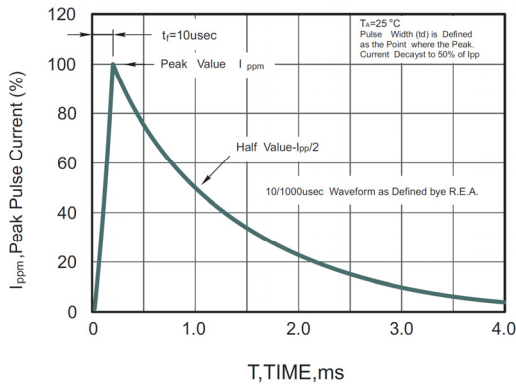
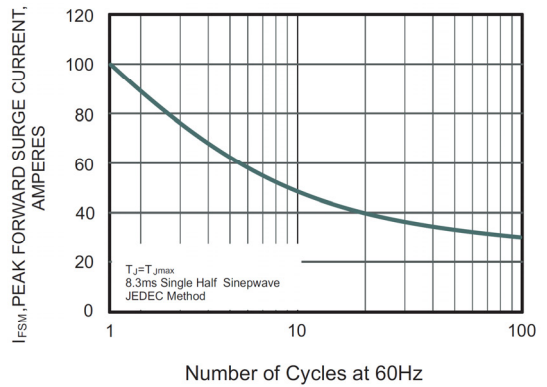
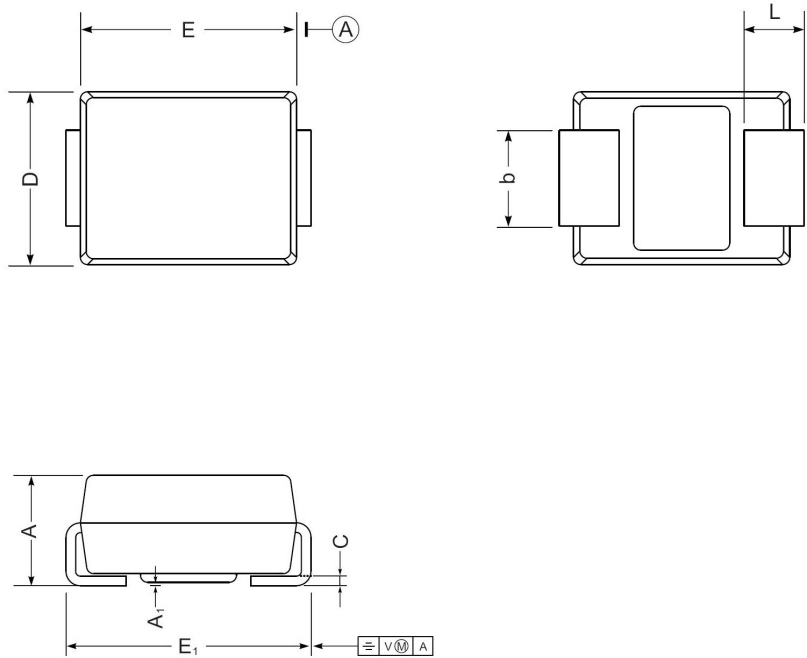


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



外形尺寸图 / Package Dimensions

SMB



SMB mechanical data

| UNIT |     | A    | E    | D    | E <sub>1</sub> | A <sub>1</sub> | 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  |



## 印章说明 / Marking Instructions



说明：

KE : 为型号代码

Q : 为汽车无卤产品标识

\*\*\*\* : 为生产批号代码，随生产批号变化

Note:

KE : Product Type Code

Q: Automobile halogen-free product Code

\*\*\*\* : Lot No. Code, code change with Lot No.

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AK : 为型号代码

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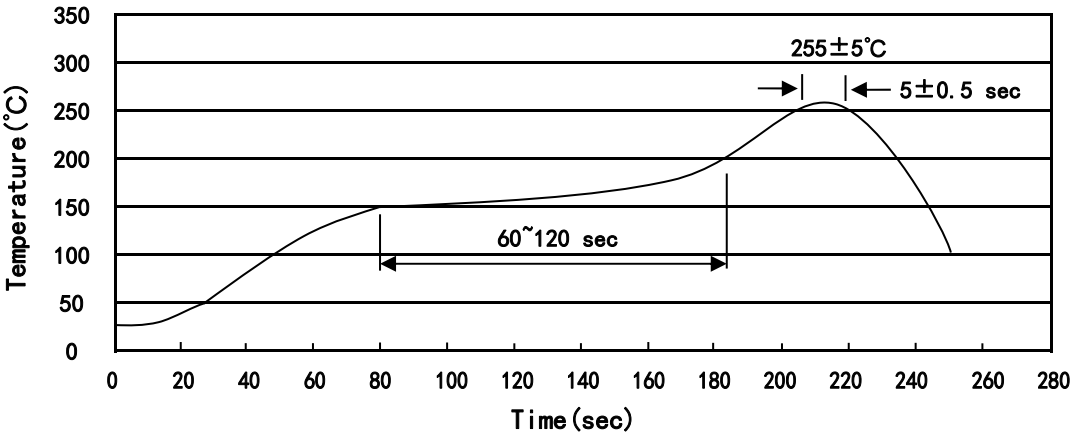
Note:

AK : Product Type Code

Q: Automobile halogen-free product Code

\*\*\*\* : Lot No. Code, code change with Lot No.

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



- 说明：

  - 1、预热温度 150 ~ 200℃，时间 60 ~ 120sec;
  - 2、峰值温度 255±5℃，时间持续为 5±0.5sec;
  - 3、焊接制程冷却速度为 2 ~ 10℃/sec.
- Note:

  - 1.Preheating:150~200℃, Time:60~120sec.
  - 2.Peak Temp.:255±5℃, Duration:5±0.5sec.
  - 3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃      时间：10±1 sec.      Temp.:260±5℃      Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                                    | Inner Box 盒 | Outer Box 箱 |
| SMB                  | 3,000              | 2                       | 6,000                  | 7                            | 42,000                 | 13" ×12                                 | 336X336X40  | 380X335X366 |

使用说明 / Notices