



# P6SMBJ-AU SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

**STAND-OFF VOLTAGE**

**5 to 70 Volt**

**SMB / DO-214AA**

Unit : inch(mm)

**Recongnized File # E210467**

### FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ESD IEC-61000-4-2 Air  $\pm$  30kV, Contact  $\pm$  30kV
- For surface mounted applications in order to optimize board space
- Low inductance
- High temperature soldering : 260°C /10 seconds at terminals
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AA, Molded plastic over passivated junction.
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard Packaging: 12mm tape (EIA-481)
- Weight: 0.003 ounces, 0.092 grams



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6SMBJ5.0 thru types P6SMBJ70.  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.  
For Capacitive load derate current by 20%.

| Rating  | Symbol          | Value                | Units          |
|---|-----------------|----------------------|----------------|
| Peak Pulse Power Dissipation on $t_p=10/1000\mu s$ waveform (Notes 1,2, Fig.1)                | $P_{PP}$        | 600                  | Watts          |
| Power Dissipation on Infinite Heat Sink at $T_L=50^\circ C$                                   | $P_D$           | 5                    | Watts          |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (Notes 2,3) | $I_{FSM}$       | 100                  | Amps           |
| Peak Pulse Current on $t_p=10/1000\mu s$ waveform (Notes 1) Fig.3                             | $I_{PPM}$       | see Table 1          | Amps           |
| Typical Thermal Resistance Junction to Air (Notes 2)  | $R_{\theta JA}$ | 60                   | $^\circ C / W$ |
| ESD IEC-61000-4-2 (Air)<br>ESD IEC-61000-4-2 (Contact)  | $V_{ESD}$       | $\pm 30$<br>$\pm 30$ | kV             |
| Operating Junction and Storage Temperature Range  | $T_J, T_{STG}$  | -55 to +150          | $^\circ C$     |

#### NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^\circ C$  per Fig. 2.
2. Mounted on 5mm<sup>2</sup> (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. A transient suppressor is selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal to or greater than the DC or continuous peak operating voltage level.



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| Part Number                              |                | Reverse Stand-off Voltage | Breakdown Voltage |      | Test Current | Reverse Leakage |      | Max. Clamp Voltage<br>10/1000µs | Peak Pulse Current<br>10/1000µs | Marking Code |    |
|--|----------------|---------------------------|-------------------|------|--------------|-----------------|------|---------------------------------|---------------------------------|--------------|----|
|  |                |                           | $V_{BR} @ I_T$    |      |              | $I_R @ V_{RWM}$ |      |                                 |                                 |              |    |
|  |                | $V_{RWM}$<br>(Notes 4)    | Min.              | Max. | $I_T$        | UNI             | BI   | $V_C @ I_{PP}$                  | $I_{PP}$                        |              |    |
| UNI                                      | BI             | V                         | V                 | V    | mA           | µA              | µA   | V                               | A                               | UNI          | BI |
| <b>600W Transient Voltage Suppressor</b> |                |                           |                   |      |              |                 |      |                                 |                                 |              |    |
| P6SMBJ5.0A-AU                            | P6SMBJ5.0CA-AU | 5                         | 6.4               | 7.07 | 10           | 800             | 1600 | 9.2                             | 65.2                            | KE           | AE |
| P6SMBJ6.0A-AU                            | P6SMBJ6.0CA-AU | 6                         | 6.67              | 7.37 | 10           | 800             | 1600 | 10.3                            | 58.3                            | KG           | AG |
| P6SMBJ6.5A-AU                            | P6SMBJ6.5CA-AU | 6.5                       | 7.22              | 7.98 | 10           | 500             | 1000 | 11.2                            | 53.6                            | KK           | AK |
| P6SMBJ7.0A-AU                            | P6SMBJ7.0CA-AU | 7                         | 7.78              | 8.6  | 10           | 200             | 400  | 12.0                            | 50                              | KM           | AM |
| P6SMBJ7.5A-AU                            | P6SMBJ7.5CA-AU | 7.5                       | 8.33              | 9.21 | 1            | 100             | 200  | 12.9                            | 46.5                            | KP           | AP |
| P6SMBJ8.0A-AU                            | P6SMBJ8.0CA-AU | 8                         | 8.89              | 9.83 | 1            | 50              | 100  | 13.6                            | 44.1                            | KR           | AR |
| P6SMBJ8.5A-AU                            | P6SMBJ8.5CA-AU | 8.5                       | 9.44              | 10.4 | 1            | 10              | 20   | 14.4                            | 41.7                            | KT           | AT |
| P6SMBJ9.0A-AU                            | P6SMBJ9.0CA-AU | 9                         | 10                | 11.1 | 1            | 5               | 5    | 15.4                            | 39                              | KV           | AV |
| P6SMBJ10A-AU                             | P6SMBJ10CA-AU  | 10                        | 11.1              | 12.3 | 1            | 5               | 5    | 17                              | 35.3                            | KX           | AX |
| P6SMBJ11A-AU                             | P6SMBJ11CA-AU  | 11                        | 12.2              | 13.5 | 1            | 1               | 1    | 18.2                            | 33                              | KZ           | AZ |
| P6SMBJ12A-AU                             | P6SMBJ12CA-AU  | 12                        | 13.3              | 14.7 | 1            | 1               | 1    | 19.9                            | 30.2                            | LE           | BE |
| P6SMBJ13A-AU                             | P6SMBJ13CA-AU  | 13                        | 14.4              | 15.9 | 1            | 1               | 1    | 21.5                            | 27.9                            | LG           | BG |
| P6SMBJ14A-AU                             | P6SMBJ14CA-AU  | 14                        | 15.6              | 17.2 | 1            | 1               | 1    | 23.2                            | 25.8                            | LK           | BK |
| P6SMBJ15A-AU                             | P6SMBJ15CA-AU  | 15                        | 16.7              | 18.5 | 1            | 1               | 1    | 24.4                            | 24                              | LM           | BM |
| P6SMBJ16A-AU                             | P6SMBJ16CA-AU  | 16                        | 17.8              | 19.7 | 1            | 1               | 1    | 26                              | 23.1                            | LP           | BP |
| P6SMBJ17A-AU                             | P6SMBJ17CA-AU  | 17                        | 18.9              | 20.9 | 1            | 1               | 1    | 27.6                            | 21.7                            | LR           | BR |
| P6SMBJ18A-AU                             | P6SMBJ18CA-AU  | 18                        | 20                | 22.1 | 1            | 1               | 1    | 29.2                            | 20.5                            | LT           | BT |
| P6SMBJ20A-AU                             | P6SMBJ20CA-AU  | 20                        | 22.2              | 24.5 | 1            | 1               | 1    | 32.4                            | 18.5                            | LV           | BV |
| P6SMBJ22A-AU                             | P6SMBJ22CA-AU  | 22                        | 24.4              | 27   | 1            | 1               | 1    | 35.5                            | 16.9                            | LX           | BX |
| P6SMBJ24A-AU                             | P6SMBJ24CA-AU  | 24                        | 26.7              | 29.5 | 1            | 1               | 1    | 38.9                            | 15.4                            | LZ           | BZ |
| P6SMBJ26A-AU                             | P6SMBJ26CA-AU  | 26                        | 28.9              | 31.9 | 1            | 1               | 1    | 42.1                            | 14.2                            | ME           | CE |
| P6SMBJ28A-AU                             | P6SMBJ28CA-AU  | 28                        | 31.1              | 34.4 | 1            | 1               | 1    | 45.4                            | 13.2                            | MG           | CG |
| P6SMBJ30A-AU                             | P6SMBJ30CA-AU  | 30                        | 33.3              | 36.8 | 1            | 1               | 1    | 48.4                            | 12.4                            | MK           | CK |
| P6SMBJ33A-AU                             | P6SMBJ33CA-AU  | 33                        | 36.7              | 40.6 | 1            | 1               | 1    | 53.3                            | 11.3                            | MM           | CM |
| P6SMBJ36A-AU                             | P6SMBJ36CA-AU  | 36                        | 40                | 44.2 | 1            | 1               | 1    | 58.1                            | 10.3                            | MP           | CP |
| P6SMBJ40A-AU                             | P6SMBJ40CA-AU  | 40                        | 44.4              | 49.1 | 1            | 1               | 1    | 64.5                            | 9.3                             | MR           | CR |
| P6SMBJ43A-AU                             | P6SMBJ43CA-AU  | 43                        | 47.8              | 52.8 | 1            | 1               | 1    | 69.4                            | 8.6                             | MT           | CT |
| P6SMBJ45A-AU                             | P6SMBJ45CA-AU  | 45                        | 50                | 55.3 | 1            | 1               | 1    | 72.7                            | 8.3                             | MV           | CV |
| P6SMBJ48A-AU                             | P6SMBJ48CA-AU  | 48                        | 53.3              | 58.9 | 1            | 1               | 1    | 77.4                            | 7.7                             | MX           | CX |
| P6SMBJ51A-AU                             | P6SMBJ51CA-AU  | 51                        | 56.7              | 62.7 | 1            | 1               | 1    | 82.4                            | 7.3                             | MZ           | CZ |
| P6SMBJ54A-AU                             | P6SMBJ54CA-AU  | 54                        | 60                | 66.3 | 1            | 1               | 1    | 87.1                            | 6.9                             | NE           | DE |
| P6SMBJ58A-AU                             | P6SMBJ58CA-AU  | 58                        | 64.4              | 71.2 | 1            | 1               | 1    | 93.6                            | 6.4                             | NG           | DG |
| P6SMBJ60A-AU                             | P6SMBJ60CA-AU  | 60                        | 66.7              | 73.7 | 1            | 1               | 1    | 96.8                            | 6.2                             | NK           | DK |
| P6SMBJ64A-AU                             | P6SMBJ64CA-AU  | 64                        | 71.1              | 78.6 | 1            | 1               | 1    | 103                             | 5.8                             | NM           | DM |
| P6SMBJ70A-AU                             | P6SMBJ70CA-AU  | 70                        | 77.8              | 86   | 1            | 1               | 1    | 113                             | 5.3                             | NP           | DP |



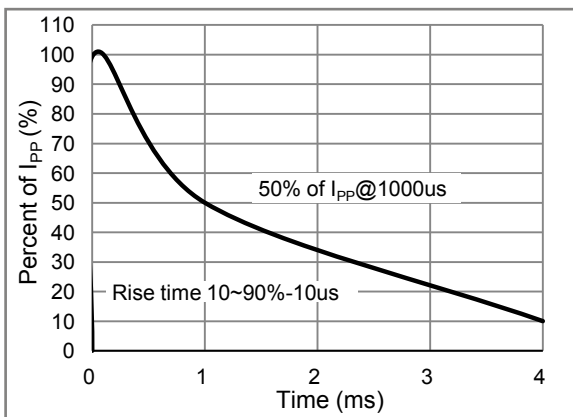
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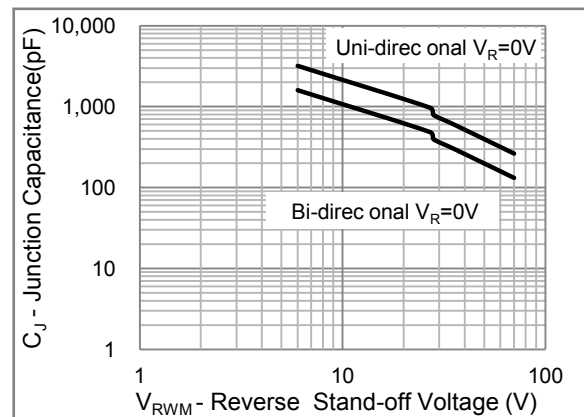
**Fig.1 Peak Pulse Power Rating**



**Fig.2 Derating Curve**



**Fig.3 10/1000μs Pulse Waveform**



**Fig.4 Typical Capacitance**

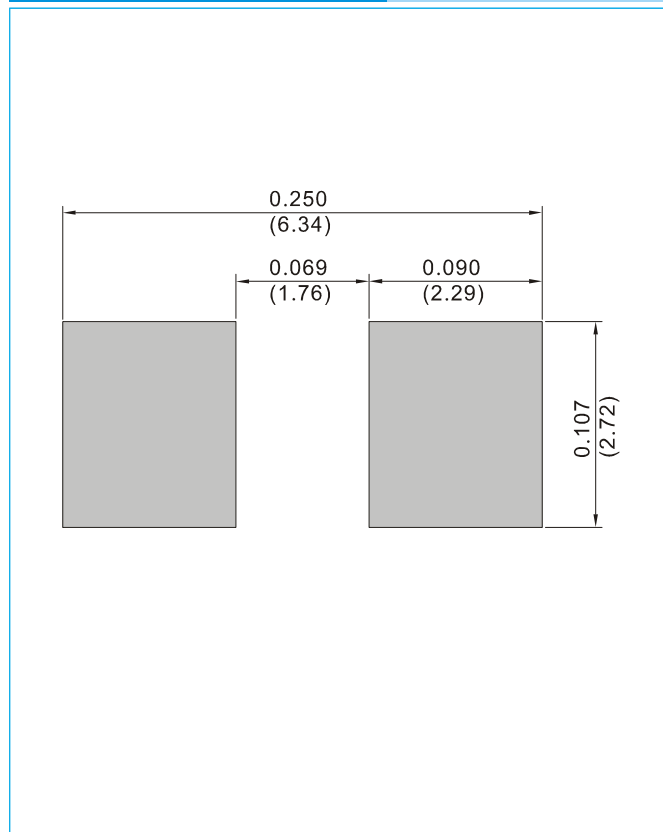


## P6SMBJ-AU SERIES

### MOUNTING PAD LAYOUT

SMB / DO-214AA

Unit : inch(mm)



### ORDER INFORMATION

- Packing information  
T/R - 3K per 13" plastic Reel  
T/R - 0.8K per 7" plastic Reel



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### Part No.\_packing code\_Version

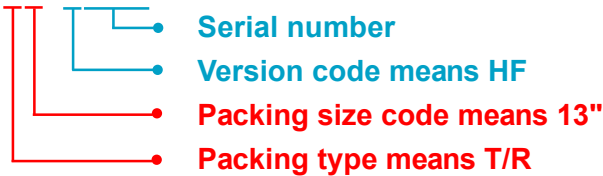
P6SMBJ5.0-AU\_R1\_000A1

P6SMBJ5.0-AU\_R2\_000A1

For example :

**RB500V-40\_R2\_00001**

Part No.



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |