



# P6SMB SERIES

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

**BREAK DOWN VOLTAGE**

**6.8 to 400 Volt**

**SMB / DO-214AA**

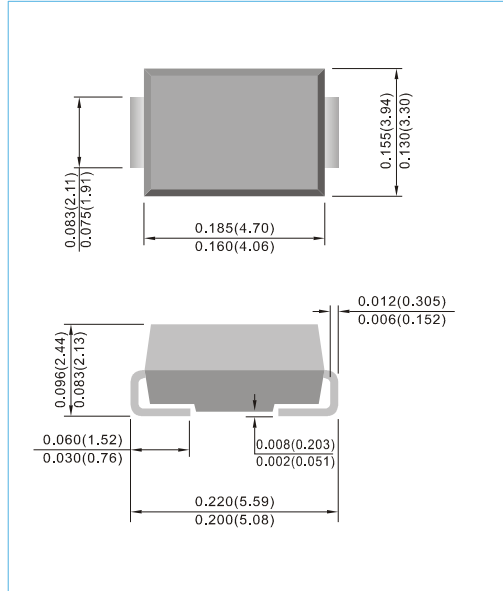
Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space.
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Fammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- ESD IEC-61000-4-2 Air ± 30kV, Contact ± 30kV
- 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 ounce, 0.093 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types  
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 tp=10/1000µs waveform (Notes 1,2, Fig.1)                      | P <sub>PP</sub>                   | 600         | Watts  |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (Notes 2,3) | I <sub>FSM</sub>                  | 100         | Amps   |
| Peak Pulse Current on tp=10/1000µs waveform (Notes 1) Fig.3                                   | I <sub>PPM</sub>                  | see Table 1 | Amps   |
| Typical Thermal Resistance Junction to Air (Notes 2)  | R <sub>θJA</sub>                  | 60          | °C / W |
| ESD IEC-61000-4-2 (Air)<br>ESD IEC-61000-4-2 (Contact)  | V <sub>ESD</sub>                  | ±30<br>±30  | kV     |
| Operating Junction and Storage Temperature Range  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C     |

#### NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 25°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 pulse s per minute maximum.
4. A transient suppressor is selected according to the working peak reverse voltage (V<sub>RWM</sub>), which should be equal to or greater than the DC or continuous peak operating voltage level.



## P6SMB SERIES

| 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 <sub>BR</sub> @ I <sub>T</sub> |      |              | I <sub>R</sub> @ V <sub>RWM</sub> |      |                                 |                                 |              |     |
|  |            |                           | Min.                             | Max. |              | UNI                               | BI   |                                 |                                 |              |     |
| UNI                                      | BI         | V                         | V                                | V    | mA           | µA                                | µA   | V                               | A                               | UNI          | BI  |
| <b>600W Transient Voltage Suppressor</b> |            |                           |                                  |      |              |                                   |      |                                 |                                 |              |     |
| P6SMB6.8                                 | P6SMB6.8C  | 5.5                       | 6.12                             | 7.48 | 10           | 1000                              | 2000 | 10.8                            | 56                              | EZA          | DZA |
| P6SMB6.8A                                | P6SMB6.8CA | 5.8                       | 6.45                             | 7.14 | 10           | 1000                              | 2000 | 10.5                            | 57                              | EZB          | DZB |
| P6SMB7.5                                 | P6SMB7.5C  | 6.05                      | 6.75                             | 8.25 | 10           | 500                               | 1000 | 11.7                            | 51                              | EZC          | DZC |
| P6SMB7.5A                                | P6SMB7.5CA | 6.4                       | 7.13                             | 7.88 | 10           | 500                               | 1000 | 11.3                            | 53                              | EZD          | DZD |
| P6SMB8.2                                 | P6SMB8.2C  | 6.63                      | 7.38                             | 9.02 | 10           | 200                               | 400  | 12.5                            | 48                              | EZE          | DZE |
| P6SMB8.2A                                | P6SMB8.2CA | 7.02                      | 7.79                             | 8.61 | 10           | 200                               | 400  | 12.1                            | 50                              | EZF          | DZF |
| P6SMB9.1                                 | P6SMB9.1C  | 7.37                      | 8.19                             | 10   | 1            | 50                                | 100  | 13.8                            | 44                              | EZG          | DZG |
| P6SMB9.1A                                | P6SMB9.1CA | 7.78                      | 8.65                             | 9.5  | 1            | 50                                | 100  | 13.4                            | 45                              | EZH          | DZH |
| P6SMB10                                  | P6SMB10C   | 8.1                       | 9                                | 11   | 1            | 10                                | 20   | 15                              | 40                              | EZJ          | DZJ |
| P6SMB10A                                 | P6SMB10CA  | 8.55                      | 9.5                              | 10.5 | 1            | 10                                | 20   | 14.5                            | 41                              | EZK          | DZK |
| P6SMB11                                  | P6SMB11C   | 8.92                      | 9.9                              | 12.1 | 1            | 5                                 | 10   | 16.2                            | 37                              | EZL          | DZL |
| P6SMB11A                                 | P6SMB11CA  | 9.4                       | 10.5                             | 11.6 | 1            | 5                                 | 10   | 15.6                            | 38                              | EZM          | DZM |
| P6SMB12                                  | P6SMB12C   | 9.72                      | 10.8                             | 13.2 | 1            | 5                                 | 5    | 17.3                            | 35                              | EZN          | DZN |
| P6SMB12A                                 | P6SMB12CA  | 10.2                      | 11.4                             | 12.6 | 1            | 5                                 | 5    | 16.7                            | 36                              | EZP          | DZP |
| P6SMB13                                  | P6SMB13C   | 10.5                      | 11.7                             | 14.3 | 1            | 1                                 | 1    | 19                              | 32                              | EZQ          | DZQ |
| P6SMB13A                                 | P6SMB13CA  | 11.1                      | 12.4                             | 13.7 | 1            | 1                                 | 1    | 18.2                            | 33                              | EZR          | DZR |
| P6SMB15                                  | P6SMB15C   | 12.1                      | 13.5                             | 16.5 | 1            | 1                                 | 1    | 22                              | 27                              | EZS          | DZS |
| P6SMB15A                                 | P6SMB15CA  | 12.8                      | 14.3                             | 15.8 | 1            | 1                                 | 1    | 21.2                            | 28                              | EZT          | DZT |
| P6SMB16                                  | P6SMB16C   | 12.9                      | 14.4                             | 17.6 | 1            | 1                                 | 1    | 23.5                            | 26                              | EZU          | DZU |
| P6SMB16A                                 | P6SMB16CA  | 13.6                      | 15.2                             | 16.8 | 1            | 1                                 | 1    | 22.5                            | 27                              | EZV          | DZV |
| P6SMB18                                  | P6SMB18C   | 14.5                      | 16.2                             | 19.8 | 1            | 1                                 | 1    | 26.5                            | 23                              | EZW          | DZW |
| P6SMB18A                                 | P6SMB18CA  | 15.3                      | 17.1                             | 18.9 | 1            | 1                                 | 1    | 25.2                            | 24                              | EZX          | DZX |
| P6SMB20                                  | P6SMB20C   | 16.2                      | 18                               | 22   | 1            | 1                                 | 1    | 29.1                            | 21                              | EZY          | DZY |
| P6SMB20A                                 | P6SMB20CA  | 17.1                      | 19                               | 21   | 1            | 1                                 | 1    | 27.7                            | 22                              | EZZ          | DZZ |
| P6SMB22                                  | P6SMB22C   | 17.8                      | 19.8                             | 24.2 | 1            | 1                                 | 1    | 31.9                            | 19                              | EXA          | DXA |
| P6SMB22A                                 | P6SMB22CA  | 18.8                      | 20.9                             | 23.1 | 1            | 1                                 | 1    | 30.6                            | 20                              | EXB          | DXB |
| P6SMB24                                  | P6SMB24C   | 19.4                      | 21.6                             | 26.4 | 1            | 1                                 | 1    | 34.7                            | 17                              | EXC          | DXC |
| P6SMB24A                                 | P6SMB24CA  | 20.5                      | 22.8                             | 25.2 | 1            | 1                                 | 1    | 33.2                            | 18                              | EXD          | DXD |
| P6SMB27                                  | P6SMB27C   | 21.8                      | 24.3                             | 29.7 | 1            | 1                                 | 1    | 39.1                            | 15                              | EXE          | DXE |
| P6SMB27A                                 | P6SMB27CA  | 23.1                      | 25.7                             | 28.4 | 1            | 1                                 | 1    | 37.5                            | 16                              | EXF          | DXF |
| P6SMB30                                  | P6SMB30C   | 24.3                      | 27                               | 33   | 1            | 1                                 | 1    | 43.5                            | 14                              | EXG          | DXG |
| P6SMB30A                                 | P6SMB30CA  | 25.6                      | 28.5                             | 31.5 | 1            | 1                                 | 1    | 41.4                            | 14.4                            | EXH          | DXH |
| P6SMB33                                  | P6SMB33C   | 26.8                      | 29.7                             | 36.3 | 1            | 1                                 | 1    | 47.7                            | 12.6                            | EXJ          | DXJ |
| P6SMB33A                                 | P6SMB33CA  | 28.2                      | 31.4                             | 34.7 | 1            | 1                                 | 1    | 45.7                            | 13.2                            | EXK          | DXK |
| P6SMB36                                  | P6SMB36C   | 29.1                      | 32.4                             | 39.6 | 1            | 1                                 | 1    | 52                              | 11.6                            | EXL          | DXL |
| P6SMB36A                                 | P6SMB36CA  | 30.8                      | 34.2                             | 37.8 | 1            | 1                                 | 1    | 49.9                            | 12                              | EXM          | DXM |
| P6SMB39                                  | P6SMB39C   | 31.6                      | 35.1                             | 42.9 | 1            | 1                                 | 1    | 56.4                            | 10.6                            | EXN          | DXN |
| P6SMB39A                                 | P6SMB39CA  | 33.3                      | 37.1                             | 41   | 1            | 1                                 | 1    | 53.9                            | 11.2                            | EXP          | DXP |
| P6SMB43                                  | P6SMB43C   | 34.8                      | 38.7                             | 47.3 | 1            | 1                                 | 1    | 61.9                            | 9.6                             | EXQ          | DXQ |
| P6SMB43A                                 | P6SMB43CA  | 36.8                      | 40.9                             | 45.2 | 1            | 1                                 | 1    | 59.3                            | 10.1                            | EXR          | DXR |
| P6SMB47                                  | P6SMB47C   | 38.1                      | 42.3                             | 51.7 | 1            | 1                                 | 1    | 67.8                            | 8.9                             | EXS          | DXS |
| P6SMB47A                                 | P6SMB47CA  | 40.2                      | 44.7                             | 49.4 | 1            | 1                                 | 1    | 64.8                            | 9.3                             | EXT          | DXT |
| P6SMB51                                  | P6SMB51C   | 41.3                      | 45.9                             | 56.1 | 1            | 1                                 | 1    | 73.5                            | 8.2                             | EXU          | DXU |
| P6SMB51A                                 | P6SMB51CA  | 43.6                      | 48.5                             | 53.6 | 1            | 1                                 | 1    | 70.1                            | 8.6                             | EXV          | DXV |
| P6SMB56                                  | P6SMB56C   | 45.6                      | 50.4                             | 61.6 | 1            | 1                                 | 1    | 80.5                            | 7.4                             | EXW          | DXW |



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| Part Number                              |            | Reverse Stand-off Voltage     | Breakdown Voltage                |      | Test Current   | Reverse Leakage                   |         | Max. Clamp Voltage<br>10/1000 $\mu$ s | Peak Pulse Current<br>10/1000 $\mu$ s | Marking Code |     |
|--|------------|-------------------------------|----------------------------------|------|----------------|-----------------------------------|---------|---------------------------------------|---------------------------------------|--------------|-----|
|  |            |                               | V <sub>BR</sub> @ I <sub>T</sub> |      |                | I <sub>R</sub> @ V <sub>RWM</sub> |         |                                       |                                       |              |     |
|  |            | V <sub>RWM</sub><br>(Notes 4) | Min.                             | Max. | I <sub>T</sub> | UNI                               | BI      | V <sub>C</sub> @ I <sub>PP</sub>      | I <sub>PP</sub>                       | UNI          | BI  |
| UNI                                      | BI         | V                             | V                                | V    | mA             | $\mu$ A                           | $\mu$ A | V                                     | A                                     | UNI          | BI  |
| <b>600W Transient Voltage Suppressor</b> |            |                               |                                  |      |                |                                   |         |                                       |                                       |              |     |
| P6SMB56A                                 | P6SMB56CA  | 47.8                          | 53.2                             | 58.8 | 1              | 1                                 | 1       | 77                                    | 7.8                                   | EXX          | DXX |
| P6SMB62                                  | P6SMB62C   | 50.2                          | 55.8                             | 68.2 | 1              | 1                                 | 1       | 89                                    | 6.8                                   | EXY          | DXY |
| P6SMB62A                                 | P6SMB62CA  | 53                            | 58.9                             | 65.1 | 1              | 1                                 | 1       | 85                                    | 7.1                                   | EXZ          | DXZ |
| P6SMB68                                  | P6SMB68C   | 55.1                          | 61.2                             | 74.8 | 1              | 1                                 | 1       | 98                                    | 6.1                                   | EYA          | DYA |
| P6SMB68A                                 | P6SMB68CA  | 58.1                          | 64.6                             | 71.4 | 1              | 1                                 | 1       | 92                                    | 6.5                                   | EYB          | DYB |
| P6SMB75                                  | P6SMB75C   | 60.7                          | 67.5                             | 82.5 | 1              | 1                                 | 1       | 108                                   | 5.5                                   | EYC          | DYC |
| P6SMB75A                                 | P6SMB75CA  | 64.1                          | 71.3                             | 78.8 | 1              | 1                                 | 1       | 103                                   | 5.8                                   | EYD          | DYD |
| P6SMB82                                  | P6SMB82C   | 66.4                          | 73.8                             | 90.2 | 1              | 1                                 | 1       | 118                                   | 5.1                                   | EYE          | DYE |
| P6SMB82A                                 | P6SMB82CA  | 70.1                          | 77.9                             | 86.1 | 1              | 1                                 | 1       | 113                                   | 5.3                                   | EYF          | DYF |
| P6SMB91                                  | P6SMB91C   | 73.7                          | 81.9                             | 100  | 1              | 1                                 | 1       | 131                                   | 4.5                                   | EYG          | DYG |
| P6SMB91A                                 | P6SMB91CA  | 77.8                          | 86.5                             | 95.5 | 1              | 1                                 | 1       | 125                                   | 4.8                                   | EYH          | DYH |
| P6SMB100                                 | P6SMB100C  | 81                            | 90                               | 110  | 1              | 1                                 | 1       | 144                                   | 4.2                                   | EYJ          | DYJ |
| P6SMB100A                                | P6SMB100CA | 85.5                          | 95                               | 105  | 1              | 1                                 | 1       | 137                                   | 4.4                                   | EYK          | DYK |
| P6SMB110                                 | P6SMB110C  | 89.2                          | 99                               | 121  | 1              | 1                                 | 1       | 158                                   | 3.8                                   | EYL          | DYL |
| P6SMB110A                                | P6SMB110CA | 94                            | 105                              | 116  | 1              | 1                                 | 1       | 152                                   | 4                                     | EYM          | DYM |
| P6SMB120                                 | P6SMB120C  | 97.2                          | 108                              | 132  | 1              | 1                                 | 1       | 173                                   | 3.5                                   | EYN          | DYN |
| P6SMB120A                                | P6SMB120CA | 102                           | 114                              | 126  | 1              | 1                                 | 1       | 165                                   | 3.6                                   | EYP          | DYP |
| P6SMB130                                 | P6SMB130C  | 105                           | 117                              | 143  | 1              | 1                                 | 1       | 187                                   | 3.2                                   | EYQ          | DYQ |
| P6SMB130A                                | P6SMB130CA | 111                           | 124                              | 137  | 1              | 1                                 | 1       | 179                                   | 3.3                                   | EYR          | DYR |
| P6SMB150                                 | P6SMB150C  | 121                           | 135                              | 165  | 1              | 1                                 | 1       | 215                                   | 2.8                                   | EYS          | DYS |
| P6SMB150A                                | P6SMB150CA | 128                           | 143                              | 158  | 1              | 1                                 | 1       | 207                                   | 2.9                                   | EYT          | DYT |
| P6SMB160                                 | P6SMB160C  | 130                           | 144                              | 176  | 1              | 1                                 | 1       | 230                                   | 2.6                                   | EYU          | DYU |
| P6SMB160A                                | P6SMB160CA | 136                           | 152                              | 168  | 1              | 1                                 | 1       | 219                                   | 2.7                                   | EYV          | DYV |
| P6SMB170                                 | P6SMB170C  | 138                           | 153                              | 187  | 1              | 1                                 | 1       | 244                                   | 2.5                                   | EYW          | DYW |
| P6SMB170A                                | P6SMB170CA | 145                           | 162                              | 179  | 1              | 1                                 | 1       | 234                                   | 2.6                                   | EYX          | DYX |
| P6SMB180                                 | P6SMB180C  | 146                           | 162                              | 198  | 1              | 1                                 | 1       | 258                                   | 2.3                                   | EYY          | DYY |
| P6SMB180A                                | P6SMB180CA | 154                           | 171                              | 189  | 1              | 1                                 | 1       | 246                                   | 2.4                                   | EYZ          | DYZ |
| P6SMB200                                 | P6SMB200C  | 162                           | 180                              | 220  | 1              | 1                                 | 1       | 287                                   | 2.1                                   | EWA          | DWA |
| P6SMB200A                                | P6SMB200CA | 171                           | 190                              | 210  | 1              | 1                                 | 1       | 274                                   | 2.2                                   | EWB          | DWB |
| P6SMB220                                 | P6SMB220C  | 175                           | 198                              | 242  | 1              | 1                                 | 1       | 344                                   | 1.8                                   | EWX          | DWX |
| P6SMB220A                                | P6SMB220CA | 185                           | 209                              | 231  | 1              | 1                                 | 1       | 328                                   | 1.9                                   | EWD          | DWD |
| P6SMB250                                 | P6SMB250C  | 202                           | 225                              | 275  | 1              | 1                                 | 1       | 360                                   | 1.7                                   | EWE          | DWE |
| P6SMB250A                                | P6SMB250CA | 214                           | 237                              | 263  | 1              | 1                                 | 1       | 344                                   | 1.8                                   | EWY          | DWY |
| P6SMB300A                                | -          | 256                           | 285                              | 315  | 1              | 1                                 | -       | 414                                   | 1.5                                   | EWH          | -   |
| P6SMB350A                                | -          | 300                           | 332                              | 368  | 1              | 1                                 | -       | 482                                   | 1.3                                   | EWK          | -   |
| P6SMB400A                                | -          | 342                           | 380                              | 420  | 1              | 1                                 | -       | 548                                   | 1.1                                   | EWM          | -   |



## P6SMB SERIES



**Fig.1 Peak Pulse Power Rating**



**Fig.2 Derating Curve**



**Fig.3 10/1000μs Pulse Waveform**



**Fig.4 Typical Capacitance**



## P6SMB 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



## P6SMB SERIES

### Part No\_packing code\_Version

P6SMB6.8\_R1\_00001

P6SMB6.8\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



| 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>             |                           |                      |                                       |