



P6SMBJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 600 Watt

STAND-OFF VOLTAGE

5 to 220 Volt

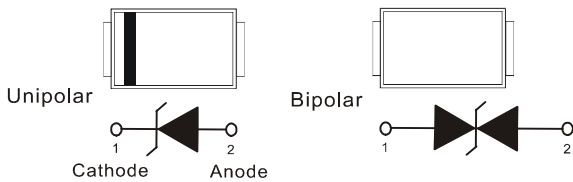
Recognized File # E210467 (P6SMBJ5.0~P6SMBJ170CA)

FEATURES

- For surface mounted applications in order to optimize board space
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 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

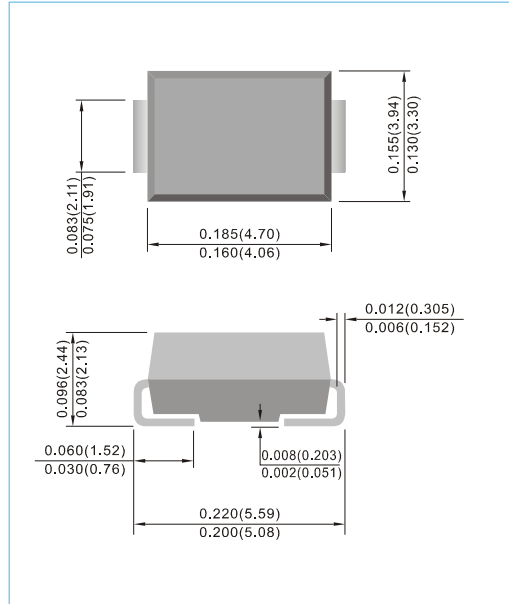
MECHANICAL DATA

- 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)
- Approx. Weight: 0.003 ounces, 0.092 grams



SMB / DO-214AA

Unit : inch(mm)



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P6SMBJ5.0 thru types P6SMBJ220.
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 |
| 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 | °C / W |
| ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact) | V_{ESD} | ±30 ±30 | kV |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | °C |

NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ C$ per Fig. 2.
2. Mounted on $5mm^2$ (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. 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.



P6SMBJ SERIES

| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage 10/1000µs | Peak Pulse Current 10/1000µs | Marking Code | |
|--|-------------|---------------------------|-------------------|-------|--------------|-----------------|------|---------------------------------|---------------------------------|--------------|----|
| | | | $V_{BR} @ I_T$ | | | $I_R @ V_{RWM}$ | | | | | |
| | | | Min. | Max. | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI |
| 600W Transient Voltage Suppressor | | | | | | | | | | | |
| P6SMBJ5.0 | P6SMBJ5.0C | 5 | 6.4 | 7.55 | 10 | 800 | 1600 | 9.6 | 62.5 | KD | AD |
| P6SMBJ5.0A | P6SMBJ5.0CA | 5 | 6.4 | 7.07 | 10 | 800 | 1600 | 9.2 | 65.2 | KE | AE |
| P6SMBJ6.0 | P6SMBJ6.0C | 6 | 6.67 | 8.45 | 10 | 800 | 1600 | 11.4 | 52.6 | KF | AF |
| P6SMBJ6.0A | P6SMBJ6.0CA | 6 | 6.67 | 7.37 | 10 | 800 | 1600 | 10.3 | 58.3 | KG | AG |
| P6SMBJ6.5 | P6SMBJ6.5C | 6.5 | 7.22 | 9.14 | 10 | 500 | 1000 | 12.3 | 48.7 | KH | AH |
| P6SMBJ6.5A | P6SMBJ6.5CA | 6.5 | 7.22 | 7.98 | 10 | 500 | 1000 | 11.2 | 53.6 | KK | AK |
| P6SMBJ7.0 | P6SMBJ7.0C | 7 | 7.78 | 9.86 | 10 | 200 | 400 | 13.3 | 45.1 | KL | AL |
| P6SMBJ7.0A | P6SMBJ7.0CA | 7 | 7.78 | 8.6 | 10 | 200 | 400 | 12.0 | 50 | KM | AM |
| P6SMBJ7.5 | P6SMBJ7.5C | 7.5 | 8.33 | 10.67 | 1 | 100 | 200 | 14.3 | 42 | KN | AN |
| P6SMBJ7.5A | P6SMBJ7.5CA | 7.5 | 8.33 | 9.21 | 1 | 100 | 200 | 12.9 | 46.5 | KP | AP |
| P6SMBJ8.0 | P6SMBJ8.0C | 8 | 8.89 | 11.3 | 1 | 50 | 100 | 15.0 | 40 | KQ | AQ |
| P6SMBJ8.0A | P6SMBJ8.0CA | 8 | 8.89 | 9.83 | 1 | 50 | 100 | 13.6 | 44.1 | KR | AR |
| P6SMBJ8.5 | P6SMBJ8.5C | 8.5 | 9.44 | 11.92 | 1 | 10 | 20 | 15.9 | 37.7 | KS | AS |
| P6SMBJ8.5A | P6SMBJ8.5CA | 8.5 | 9.44 | 10.4 | 1 | 10 | 20 | 14.4 | 41.7 | KT | AT |
| P6SMBJ9.0 | P6SMBJ9.0C | 9 | 10 | 12.6 | 1 | 5 | 5 | 16.9 | 35.5 | KU | AU |
| P6SMBJ9.0A | P6SMBJ9.0CA | 9 | 10 | 11.1 | 1 | 5 | 5 | 15.4 | 39 | KV | AV |
| P6SMBJ10 | P6SMBJ10C | 10 | 11.1 | 14.1 | 1 | 5 | 5 | 18.8 | 31.9 | KW | AW |
| P6SMBJ10A | P6SMBJ10CA | 10 | 11.1 | 12.3 | 1 | 5 | 5 | 17 | 35.3 | KX | AX |
| P6SMBJ11 | P6SMBJ11C | 11 | 12.2 | 15.4 | 1 | 1 | 1 | 20.1 | 29.9 | KY | AY |
| P6SMBJ11A | P6SMBJ11CA | 11 | 12.2 | 13.5 | 1 | 1 | 1 | 18.2 | 33 | KZ | AZ |
| P6SMBJ12 | P6SMBJ12C | 12 | 13.3 | 16.9 | 1 | 1 | 1 | 22 | 27.3 | LD | BD |
| P6SMBJ12A | P6SMBJ12CA | 12 | 13.3 | 14.7 | 1 | 1 | 1 | 19.9 | 30.2 | LE | BE |
| P6SMBJ13 | P6SMBJ13C | 13 | 14.4 | 18.2 | 1 | 1 | 1 | 23.8 | 25.2 | LF | BF |
| P6SMBJ13A | P6SMBJ13CA | 13 | 14.4 | 15.9 | 1 | 1 | 1 | 21.5 | 27.9 | LG | BG |
| P6SMBJ14 | P6SMBJ14C | 14 | 15.6 | 19.8 | 1 | 1 | 1 | 25.8 | 23.3 | LH | BH |
| P6SMBJ14A | P6SMBJ14CA | 14 | 15.6 | 17.2 | 1 | 1 | 1 | 23.2 | 25.8 | LK | BK |
| P6SMBJ15 | P6SMBJ15C | 15 | 16.7 | 21.1 | 1 | 1 | 1 | 26.9 | 22.3 | LL | BL |
| P6SMBJ15A | P6SMBJ15CA | 15 | 16.7 | 18.5 | 1 | 1 | 1 | 24.4 | 24 | LM | BM |
| P6SMBJ16 | P6SMBJ16C | 16 | 17.8 | 22.6 | 1 | 1 | 1 | 28.8 | 20.8 | LN | BN |
| P6SMBJ16A | P6SMBJ16CA | 16 | 17.8 | 19.7 | 1 | 1 | 1 | 26 | 23.1 | LP | BP |
| P6SMBJ17 | P6SMBJ17C | 17 | 18.9 | 23.9 | 1 | 1 | 1 | 30.5 | 19.7 | LQ | BQ |
| P6SMBJ17A | P6SMBJ17CA | 17 | 18.9 | 20.9 | 1 | 1 | 1 | 27.6 | 21.7 | LR | BR |
| P6SMBJ18 | P6SMBJ18C | 18 | 20 | 25.3 | 1 | 1 | 1 | 32.2 | 18.6 | LS | BS |
| P6SMBJ18A | P6SMBJ18CA | 18 | 20 | 22.1 | 1 | 1 | 1 | 29.2 | 20.5 | LT | BT |
| P6SMBJ20 | P6SMBJ20C | 20 | 22.2 | 28.1 | 1 | 1 | 1 | 35.8 | 16.7 | LU | BU |
| P6SMBJ20A | P6SMBJ20CA | 20 | 22.2 | 24.5 | 1 | 1 | 1 | 32.4 | 18.5 | LV | BV |
| P6SMBJ22 | P6SMBJ22C | 22 | 24.4 | 30.9 | 1 | 1 | 1 | 39.4 | 15.2 | LW | BW |
| P6SMBJ22A | P6SMBJ22CA | 22 | 24.4 | 27 | 1 | 1 | 1 | 35.5 | 16.9 | LX | BX |
| P6SMBJ24 | P6SMBJ24C | 24 | 26.7 | 33.8 | 1 | 1 | 1 | 43 | 14 | LY | BY |
| P6SMBJ24A | P6SMBJ24CA | 24 | 26.7 | 29.5 | 1 | 1 | 1 | 38.9 | 15.4 | LZ | BZ |
| P6SMBJ26 | P6SMBJ26C | 26 | 28.9 | 36.6 | 1 | 1 | 1 | 46.6 | 12.4 | MD | CD |
| P6SMBJ26A | P6SMBJ26CA | 26 | 28.9 | 31.9 | 1 | 1 | 1 | 42.1 | 14.2 | ME | CE |
| P6SMBJ28 | P6SMBJ28C | 28 | 31.1 | 39.4 | 1 | 1 | 1 | 50 | 12 | MF | CF |
| P6SMBJ28A | P6SMBJ28CA | 28 | 31.1 | 34.4 | 1 | 1 | 1 | 45.4 | 13.2 | MG | CG |
| P6SMBJ30 | P6SMBJ30C | 30 | 33.3 | 42.2 | 1 | 1 | 1 | 53.5 | 11.2 | MH | CH |
| P6SMBJ30A | P6SMBJ30CA | 30 | 33.3 | 36.8 | 1 | 1 | 1 | 48.4 | 12.4 | MK | CK |
| P6SMBJ33 | P6SMBJ33C | 33 | 36.7 | 46.5 | 1 | 1 | 1 | 59 | 10.2 | ML | CL |
| P6SMBJ33A | P6SMBJ33CA | 33 | 36.7 | 40.6 | 1 | 1 | 1 | 53.3 | 11.3 | MM | CM |
| P6SMBJ36 | P6SMBJ36C | 36 | 40 | 50.7 | 1 | 1 | 1 | 64.3 | 9.3 | MN | CN |
| P6SMBJ36A | P6SMBJ36CA | 36 | 40 | 44.2 | 1 | 1 | 1 | 58.1 | 10.3 | MP | CP |
| P6SMBJ40 | P6SMBJ40C | 40 | 44.4 | 56.3 | 1 | 1 | 1 | 71.4 | 8.4 | MQ | CQ |
| P6SMBJ40A | P6SMBJ40CA | 40 | 44.4 | 49.1 | 1 | 1 | 1 | 64.5 | 9.3 | MR | CR |



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|--|-------------|---------------------------|----------------------------------|-------|----|--------------|-----------------------------------|------|---------------------------------|---------------------------------|--------------|--|
| | | | V _{BR} @ I _T | | | | I _r @ V _{RWM} | | | | | |
| | | | Min. | Max. | | | UNI | BI | | | | |
| UNI | BI | V | V | V | mA | µA | µA | V | A | UNI | BI | |
| 600W Transient Voltage Suppressor | | | | | | | | | | | | |
| P6SMBJ43 | P6SMBJ43C | 43 | 47.8 | 60.5 | 1 | 1 | 1 | 76.7 | 7.8 | MS | CS | |
| P6SMBJ43A | P6SMBJ43CA | 43 | 47.8 | 52.8 | 1 | 1 | 1 | 69.4 | 8.6 | MT | CT | |
| P6SMBJ45 | P6SMBJ45C | 45 | 50 | 63.3 | 1 | 1 | 1 | 80.3 | 7.5 | MU | CU | |
| P6SMBJ45A | P6SMBJ45CA | 45 | 50 | 55.3 | 1 | 1 | 1 | 72.7 | 8.3 | MV | CV | |
| P6SMBJ48 | P6SMBJ48C | 48 | 53.3 | 67.5 | 1 | 1 | 1 | 85.5 | 7 | MW | CW | |
| P6SMBJ48A | P6SMBJ48CA | 48 | 53.3 | 58.9 | 1 | 1 | 1 | 77.4 | 7.7 | MX | CX | |
| P6SMBJ51 | P6SMBJ51C | 51 | 56.7 | 71.8 | 1 | 1 | 1 | 91.1 | 6.6 | MY | CY | |
| P6SMBJ51A | P6SMBJ51CA | 51 | 56.7 | 62.7 | 1 | 1 | 1 | 82.4 | 7.3 | MZ | CZ | |
| P6SMBJ54 | P6SMBJ54C | 54 | 60 | 76 | 1 | 1 | 1 | 96.3 | 6.2 | ND | DD | |
| P6SMBJ54A | P6SMBJ54CA | 54 | 60 | 66.3 | 1 | 1 | 1 | 87.1 | 6.9 | NE | DE | |
| P6SMBJ58 | P6SMBJ58C | 58 | 64.4 | 81.6 | 1 | 1 | 1 | 103 | 5.8 | NF | DF | |
| P6SMBJ58A | P6SMBJ58CA | 58 | 64.4 | 71.2 | 1 | 1 | 1 | 93.6 | 6.4 | NG | DG | |
| P6SMBJ60 | P6SMBJ60C | 60 | 66.7 | 84.5 | 1 | 1 | 1 | 107 | 5.6 | NH | DH | |
| P6SMBJ60A | P6SMBJ60CA | 60 | 66.7 | 73.7 | 1 | 1 | 1 | 96.8 | 6.2 | NK | DK | |
| P6SMBJ64 | P6SMBJ64C | 64 | 71.1 | 90.1 | 1 | 1 | 1 | 114 | 5.3 | NL | DL | |
| P6SMBJ64A | P6SMBJ64CA | 64 | 71.1 | 78.6 | 1 | 1 | 1 | 103 | 5.8 | NM | DM | |
| P6SMBJ70 | P6SMBJ70C | 70 | 77.8 | 98.6 | 1 | 1 | 1 | 125 | 4.8 | NN | DN | |
| P6SMBJ70A | P6SMBJ70CA | 70 | 77.8 | 86 | 1 | 1 | 1 | 113 | 5.3 | NP | DP | |
| P6SMBJ75 | P6SMBJ75C | 75 | 83.3 | 105.7 | 1 | 1 | 1 | 134 | 4.5 | NQ | DQ | |
| P6SMBJ75A | P6SMBJ75CA | 75 | 83.3 | 92.1 | 1 | 1 | 1 | 121 | 4.9 | NR | DR | |
| P6SMBJ78 | P6SMBJ78C | 78 | 86.7 | 109.8 | 1 | 1 | 1 | 139 | 4.3 | NS | DS | |
| P6SMBJ78A | P6SMBJ78CA | 78 | 86.7 | 95.8 | 1 | 1 | 1 | 126 | 4.7 | NT | DT | |
| P6SMBJ85 | P6SMBJ85C | 85 | 94.4 | 119.2 | 1 | 1 | 1 | 151 | 3.9 | NU | DU | |
| P6SMBJ85A | P6SMBJ85CA | 85 | 94.4 | 104 | 1 | 1 | 1 | 137 | 4.4 | NV | DV | |
| P6SMBJ90 | P6SMBJ90C | 90 | 100 | 126.5 | 1 | 1 | 1 | 160 | 3.8 | NW | DW | |
| P6SMBJ90A | P6SMBJ90CA | 90 | 100 | 111 | 1 | 1 | 1 | 146 | 4.1 | NX | DX | |
| P6SMBJ100 | P6SMBJ100C | 100 | 111 | 141 | 1 | 1 | 1 | 179 | 3.4 | NY | DY | |
| P6SMBJ100A | P6SMBJ100CA | 100 | 111 | 123 | 1 | 1 | 1 | 162 | 3.7 | NZ | DZ | |
| P6SMBJ110 | P6SMBJ110C | 110 | 122 | 154.5 | 1 | 1 | 1 | 196 | 3 | PD | ED | |
| P6SMBJ110A | P6SMBJ110CA | 110 | 122 | 135 | 1 | 1 | 1 | 177 | 3.4 | PE | EE | |
| P6SMBJ120 | P6SMBJ120C | 120 | 133 | 169 | 1 | 1 | 1 | 214 | 2.8 | PF | EF | |
| P6SMBJ120A | P6SMBJ120CA | 120 | 133 | 147 | 1 | 1 | 1 | 193 | 3.1 | PG | EG | |
| P6SMBJ130 | P6SMBJ130C | 130 | 144 | 182.5 | 1 | 1 | 1 | 231 | 2.6 | PH | EH | |
| P6SMBJ130A | P6SMBJ130CA | 130 | 144 | 159 | 1 | 1 | 1 | 209 | 2.9 | PK | EK | |
| P6SMBJ150 | P6SMBJ150C | 150 | 167 | 211.5 | 1 | 1 | 1 | 268 | 2.2 | PL | EL | |
| P6SMBJ150A | P6SMBJ150CA | 150 | 167 | 185 | 1 | 1 | 1 | 243 | 2.5 | PM | EM | |
| P6SMBJ160 | P6SMBJ160C | 160 | 178 | 226 | 1 | 1 | 1 | 287 | 2.1 | PN | EN | |
| P6SMBJ160A | P6SMBJ160CA | 160 | 178 | 197 | 1 | 1 | 1 | 259 | 2.3 | PP | EP | |
| P6SMBJ170 | P6SMBJ170C | 170 | 189 | 239.5 | 1 | 1 | 1 | 304 | 2 | PQ | EQ | |
| P6SMBJ170A | P6SMBJ170CA | 170 | 189 | 209 | 1 | 1 | 1 | 275 | 2.2 | PR | ER | |
| P6SMBJ180 | P6SMBJ180C | 180 | 198 | 253.8 | 1 | 1 | 1 | 322 | 1.9 | PS | ES | |
| P6SMBJ180A | P6SMBJ180CA | 180 | 198 | 222 | 1 | 1 | 1 | 292 | 2.1 | PT | ET | |
| P6SMBJ190 | P6SMBJ190C | 190 | 209 | 267.9 | 1 | 1 | 1 | 340 | 1.8 | PU | EU | |
| P6SMBJ190A | P6SMBJ190CA | 190 | 209 | 243.2 | 1 | 1 | 1 | 308 | 2 | PV | EV | |
| P6SMBJ200 | P6SMBJ200C | 200 | 220 | 282 | 1 | 1 | 1 | 358 | 1.7 | PW | EW | |
| P6SMBJ200A | P6SMBJ200CA | 200 | 220 | 247 | 1 | 1 | 1 | 324 | 1.9 | PX | EX | |
| P6SMBJ210 | P6SMBJ210C | 210 | 231 | 296.1 | 1 | 1 | 1 | 376 | 1.6 | PY | EY | |
| P6SMBJ210A | P6SMBJ210CA | 210 | 231 | 268.8 | 1 | 1 | 1 | 340 | 1.8 | PZ | EZ | |
| P6SMBJ220 | P6SMBJ220C | 220 | 242 | 310.2 | 1 | 1 | 1 | 394 | 1.5 | QD | FD | |
| P6SMBJ220A | P6SMBJ220CA | 220 | 242 | 272 | 1 | 1 | 1 | 356 | 1.7 | QE | FE | |



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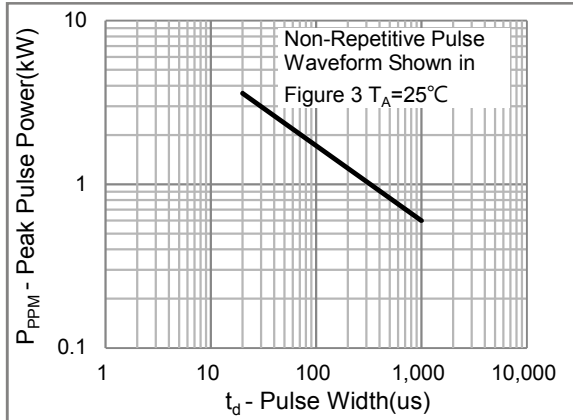


Fig.1 Peak Pulse Power Rating

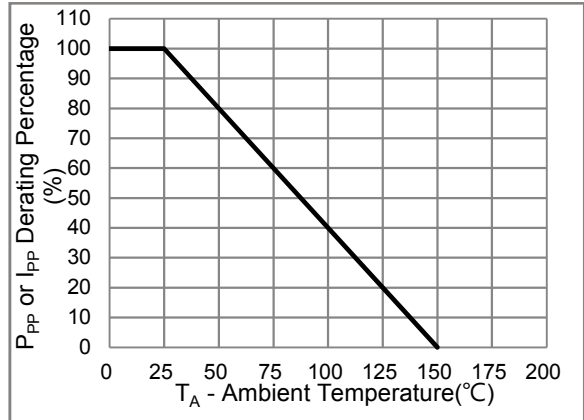


Fig.2 Derating Curve

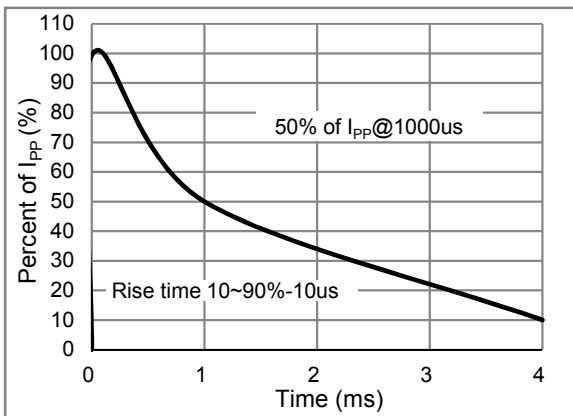


Fig.3 10/1000us Pulse Waveform

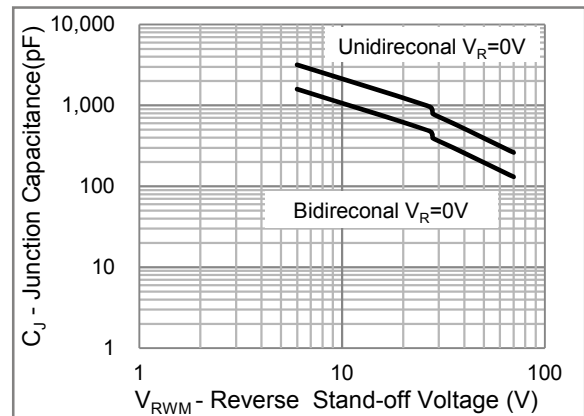
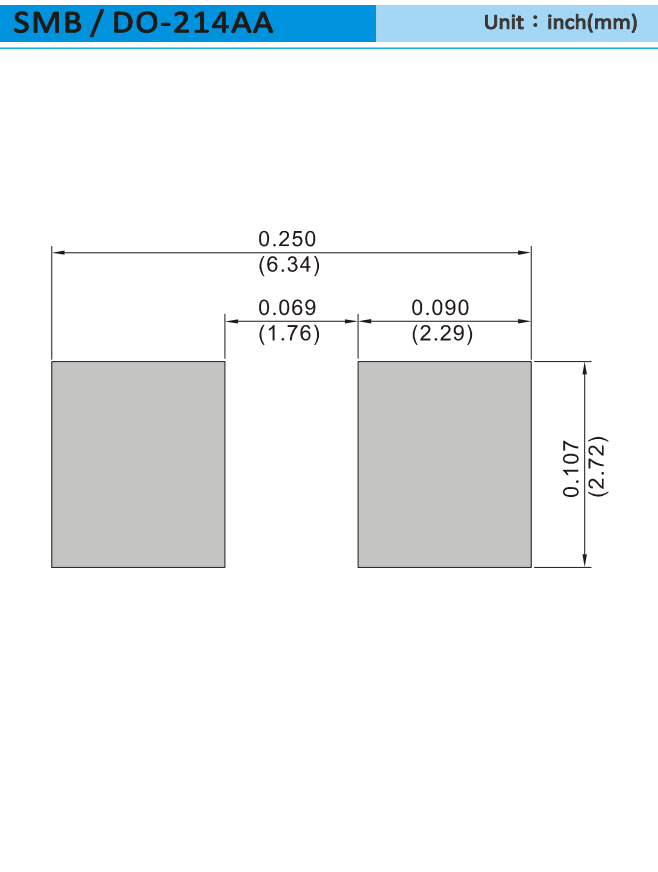


Fig.4 Typical Capacitance



P6SMBJ SERIES

MOUNTING PAD LAYOUT



ORDER INFORMATION

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



P6SMBJ SERIES

Part No._packing code_Version

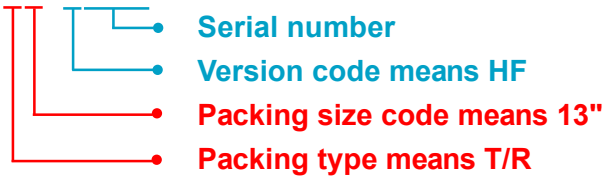
P6SMBJ5.0_R1_00001

P6SMBJ5.0_R2_00001

For example :

RB500V-40_R2_00001

Part No.



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



P6SMBJ SERIES

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