



P4SMA6.8~P4SMA250CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR POWER 400 Watt

BREAK DOWN VOLTAGE

6.8 to 250 Volt

SMA / DO-214AC

Unit : inch(mm)

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-214AC, 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: 0.002 ounce, 0.068 gram



DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4SMA6.8 thru types P4SMA250.
Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Units |
|---|-----------------|----------------------|-----------------------------|
| Peak Pulse Power Dissipation on $T_A = 25^\circ\text{C}$ (Notes 1,2,5, Fig.1) | P_{PP} | 400 | Watts |
| ESD IEC-61000-4-2 (Air) ESD IEC-61000-4-2 (Contact) | V_{ESD} | ± 30 ± 30 | kV |
| Peak Forward Surge Current per Fig.5 (Notes 3) | I_{FSM} | 40 | Amps |
| Peak Pulse Current on $t_p=10/1000\mu\text{s}$ waveform (Notes 1)Fig.2 | I_{PPM} | see Table 1 | Amps |
| Typical Thermal Resistance Junction to Air (Notes 2) | $R_{\theta JA}$ | 70 | $^\circ\text{C} / \text{W}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

NOTES :

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2.
2. Mounted on 5mm^2 copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minutes maximum.
4. Lead temperature at $75^\circ\text{C} = T_L$.
5. Peak pulse power waveform is $10/1000\mu\text{s}$.
6. 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.



P4SMA6.8~P4SMA250CA

| 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 |
| 400W Transient Voltage Suppressor | | | | | | | | | | | |
| P4SMA6.8 | P4SMA6.8C | 5.5 | 6.12 | 7.48 | 10 | 1000 | 2000 | 10.8 | 38 | MZA | NZA |
| P4SMA6.8A | P4SMA6.8CA | 5.8 | 6.45 | 7.14 | 10 | 1000 | 2000 | 10.5 | 40 | MZB | NZB |
| P4SMA7.5 | P4SMA7.5C | 6.05 | 6.75 | 8.25 | 10 | 500 | 1000 | 11.7 | 36 | MZC | NZC |
| P4SMA7.5A | P4SMA7.5CA | 6.4 | 7.13 | 7.88 | 10 | 500 | 1000 | 11.3 | 37 | MZD | NZD |
| P4SMA8.2 | P4SMA8.2C | 6.63 | 7.38 | 9.02 | 10 | 200 | 400 | 12.5 | 33 | MZE | NZE |
| P4SMA8.2A | P4SMA8.2CA | 7.02 | 7.79 | 8.61 | 10 | 200 | 400 | 12.1 | 35 | MZF | NZF |
| P4SMA9.1 | P4SMA9.1C | 7.37 | 8.19 | 10 | 1 | 50 | 100 | 13.8 | 30 | MZG | NZG |
| P4SMA9.1A | P4SMA9.1CA | 7.78 | 8.65 | 9.5 | 1 | 50 | 100 | 13.4 | 31 | MZH | NZH |
| P4SMA10 | P4SMA10C | 8.1 | 9 | 11 | 1 | 10 | 20 | 15 | 28 | MZJ | NZJ |
| P4SMA10A | P4SMA10CA | 8.55 | 9.5 | 10.5 | 1 | 10 | 20 | 14.5 | 29 | MZK | NZK |
| P4SMA11 | P4SMA11C | 8.92 | 9.9 | 12.1 | 1 | 5 | 10 | 16.2 | 26 | MZL | NZL |
| P4SMA11A | P4SMA11CA | 9.4 | 10.5 | 11.6 | 1 | 5 | 10 | 15.6 | 27 | MZM | NZM |
| P4SMA12 | P4SMA12C | 9.72 | 10.8 | 13.2 | 1 | 1 | 1 | 17.3 | 24 | MZN | NZN |
| P4SMA12A | P4SMA12CA | 10.2 | 11.4 | 12.6 | 1 | 1 | 1 | 16.7 | 25 | MZP | NZP |
| P4SMA13 | P4SMA13C | 10.5 | 11.7 | 14.3 | 1 | 1 | 1 | 19 | 22 | MZQ | NZQ |
| P4SMA13A | P4SMA13CA | 11.1 | 12.4 | 13.7 | 1 | 1 | 1 | 18.2 | 23 | MZR | NZR |
| P4SMA15 | P4SMA15C | 12.1 | 13.5 | 16.5 | 1 | 1 | 1 | 22 | 19 | MZS | NZS |
| P4SMA15A | P4SMA15CA | 12.8 | 14.3 | 15.8 | 1 | 1 | 1 | 21.2 | 20 | MZT | NZT |
| P4SMA16 | P4SMA16C | 12.9 | 14.4 | 17.6 | 1 | 1 | 1 | 23.5 | 18 | MZU | NZU |
| P4SMA16A | P4SMA16CA | 13.6 | 15.2 | 16.8 | 1 | 1 | 1 | 22.5 | 19 | MZV | NZV |
| P4SMA18 | P4SMA18C | 14.5 | 16.2 | 19.8 | 1 | 1 | 1 | 26.5 | 16 | MZW | NZW |
| P4SMA18A | P4SMA18CA | 15.3 | 17.1 | 18.9 | 1 | 1 | 1 | 25.2 | 17 | MZX | NZX |
| P4SMA20 | P4SMA20C | 16.2 | 18 | 22 | 1 | 1 | 1 | 29.1 | 14 | MZY | NZY |
| P4SMA20A | P4SMA20CA | 17.1 | 19 | 21 | 1 | 1 | 1 | 27.7 | 15 | MZZ | NZZ |
| P4SMA22 | P4SMA22C | 17.8 | 19.8 | 24.2 | 1 | 1 | 1 | 31.9 | 13 | MXA | NXA |
| P4SMA22A | P4SMA22CA | 18.8 | 20.9 | 23.1 | 1 | 1 | 1 | 30.6 | 14 | MXB | NXB |
| P4SMA24 | P4SMA24C | 19.4 | 21.6 | 26.4 | 1 | 1 | 1 | 34.7 | 12 | MXC | NXC |
| P4SMA24A | P4SMA24CA | 20.5 | 22.8 | 25.2 | 1 | 1 | 1 | 33.2 | 13 | MXD | NXD |
| P4SMA27 | P4SMA27C | 21.8 | 24.3 | 29.7 | 1 | 1 | 1 | 39.1 | 11 | MXE | NXE |
| P4SMA27A | P4SMA27CA | 23.1 | 25.7 | 28.4 | 1 | 1 | 1 | 37.5 | 11.2 | MXF | NXF |
| P4SMA30 | P4SMA30C | 24.3 | 27 | 33 | 1 | 1 | 1 | 43.5 | 10 | MXG | NXG |
| P4SMA30A | P4SMA30CA | 25.6 | 28.5 | 31.5 | 1 | 1 | 1 | 41.4 | 10 | MXH | NXH |
| P4SMA33 | P4SMA33C | 26.8 | 29.7 | 36.3 | 1 | 1 | 1 | 47.7 | 9 | MXJ | NXJ |
| P4SMA33A | P4SMA33CA | 28.2 | 31.4 | 34.7 | 1 | 1 | 1 | 45.7 | 9 | MXK | NXK |
| P4SMA36 | P4SMA36C | 29.1 | 32.4 | 39.6 | 1 | 1 | 1 | 52 | 8 | MXL | NXL |
| P4SMA36A | P4SMA36CA | 30.8 | 34.2 | 37.8 | 1 | 1 | 1 | 49.9 | 8.4 | MXM | NXM |
| P4SMA39 | P4SMA39C | 31.6 | 35.1 | 42.9 | 1 | 1 | 1 | 56.4 | 7.4 | MXN | NXN |
| P4SMA39A | P4SMA39CA | 33.3 | 37.1 | 41 | 1 | 1 | 1 | 53.9 | 7.8 | MXP | NXP |
| P4SMA43 | P4SMA43C | 34.8 | 38.7 | 47.3 | 1 | 1 | 1 | 61.9 | 6.8 | MXQ | NXQ |



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| Part Number | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | | Max. Clamp Voltage | Peak Pulse Current | 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 |
| 400W Transient Voltage Suppressor | | | | | | | | | | | |
| P4SMA43A | P4SMA43CA | 36.8 | 40.9 | 45.2 | 1 | 1 | 1 | 59.3 | 7.1 | MXR | NXR |
| P4SMA47 | P4SMA47C | 38.1 | 42.3 | 51.7 | 1 | 1 | 1 | 67.8 | 6.2 | MXS | NXS |
| P4SMA47A | P4SMA47CA | 40.2 | 44.7 | 49.4 | 1 | 1 | 1 | 64.8 | 5 | MXT | NXT |
| P4SMA51 | P4SMA51C | 41.3 | 45.9 | 56.1 | 1 | 1 | 1 | 73.5 | 5.7 | MXU | NXU |
| P4SMA51A | P4SMA51CA | 43.6 | 48.5 | 53.6 | 1 | 1 | 1 | 70.1 | 6 | MXV | NXV |
| P4SMA56 | P4SMA56C | 45.6 | 50.4 | 61.6 | 1 | 1 | 1 | 80.5 | 5.2 | MXW | NXW |
| P4SMA56A | P4SMA56CA | 47.8 | 53.2 | 58.8 | 1 | 1 | 1 | 77 | 5.5 | MXX | NXX |
| P4SMA62 | P4SMA62C | 50.2 | 55.8 | 68.2 | 1 | 1 | 1 | 89 | 4.7 | MYX | NXY |
| P4SMA62A | P4SMA62CA | 53 | 58.9 | 65.1 | 1 | 1 | 1 | 85 | 5 | MXZ | NXZ |
| P4SMA68 | P4SMA68C | 55.1 | 61.2 | 74.8 | 1 | 1 | 1 | 98 | 4.3 | MYA | NYA |
| P4SMA68A | P4SMA68CA | 58.1 | 64.6 | 71.4 | 1 | 1 | 1 | 92 | 4.6 | MYB | NYB |
| P4SMA75 | P4SMA75C | 60.7 | 67.5 | 82.5 | 1 | 1 | 1 | 108 | 3.9 | MYC | NYC |
| P4SMA75A | P4SMA75CA | 64.1 | 71.3 | 78.8 | 1 | 1 | 1 | 103 | 4.1 | MYD | NYD |
| P4SMA82 | P4SMA82C | 66.4 | 73.8 | 90.2 | 1 | 1 | 1 | 118 | 3.6 | MYE | NYE |
| P4SMA82A | P4SMA82CA | 70.1 | 77.9 | 86.1 | 1 | 1 | 1 | 113 | 3.7 | MYF | NYF |
| P4SMA91 | P4SMA91C | 73.7 | 81.9 | 100 | 1 | 1 | 1 | 131 | 3.2 | MYG | NYG |
| P4SMA91A | P4SMA91CA | 77.8 | 86.5 | 95.5 | 1 | 1 | 1 | 125 | 3.4 | MYH | NYH |
| P4SMA100 | P4SMA100C | 81 | 90 | 110 | 1 | 1 | 1 | 144 | 2.9 | MYJ | NYJ |
| P4SMA100A | P4SMA100CA | 85.5 | 95 | 105 | 1 | 1 | 1 | 137 | 3.1 | MYK | NYK |
| P4SMA110 | P4SMA110C | 89.2 | 99 | 121 | 1 | 1 | 1 | 158 | 2.7 | MYL | NYL |
| P4SMA110A | P4SMA110CA | 94 | 105 | 116 | 1 | 1 | 1 | 152 | 2.8 | MYM | NYM |
| P4SMA120 | P4SMA120C | 97.2 | 108 | 132 | 1 | 1 | 1 | 173 | 2.4 | MYN | NYN |
| P4SMA120A | P4SMA120CA | 102 | 114 | 126 | 1 | 1 | 1 | 165 | 2.5 | MYP | NYP |
| P4SMA130 | P4SMA130C | 105 | 117 | 143 | 1 | 1 | 1 | 187 | 2.2 | MYQ | NYQ |
| P4SMA130A | P4SMA130CA | 111 | 124 | 137 | 1 | 1 | 1 | 179 | 2.3 | MYR | NYR |
| P4SMA150 | P4SMA150C | 121 | 135 | 165 | 1 | 1 | 1 | 215 | 2 | MYS | NYS |
| P4SMA150A | P4SMA150CA | 128 | 143 | 158 | 1 | 1 | 1 | 207 | 2 | MYT | NYT |
| P4SMA160 | P4SMA160C | 130 | 144 | 176 | 1 | 1 | 1 | 230 | 1.8 | MYU | NYU |
| P4SMA160A | P4SMA160CA | 136 | 152 | 168 | 1 | 1 | 1 | 219 | 1.9 | MYV | NYV |
| P4SMA170 | P4SMA170C | 138 | 153 | 187 | 1 | 1 | 1 | 244 | 1.7 | MYW | NYW |
| P4SMA170A | P4SMA170CA | 145 | 162 | 179 | 1 | 1 | 1 | 234 | 1.8 | MYX | NYX |
| P4SMA180 | P4SMA180C | 146 | 162 | 198 | 1 | 1 | 1 | 258 | 1.6 | MYY | NYY |
| P4SMA180A | P4SMA180CA | 154 | 171 | 189 | 1 | 1 | 1 | 246 | 1.7 | MYZ | NYZ |
| P4SMA200 | P4SMA200C | 162 | 180 | 220 | 1 | 1 | 1 | 287 | 1.5 | MWA | NWA |
| P4SMA200A | P4SMA200CA | 171 | 190 | 210 | 1 | 1 | 1 | 274 | 1.5 | MWB | NWB |
| P4SMA220 | P4SMA220C | 175 | 198 | 242 | 1 | 1 | 1 | 344 | 1.2 | MWC | NWC |
| P4SMA220A | P4SMA220CA | 185 | 209 | 231 | 1 | 1 | 1 | 328 | 1.2 | MWD | NWD |
| P4SMA250 | P4SMA250C | 202 | 225 | 275 | 1 | 1 | 1 | 360 | 1.1 | MWE | NWE |
| P4SMA250A | P4SMA250CA | 214 | 237 | 263 | 1 | 1 | 1 | 344 | 1.2 | MWF | NWF |



P4SMA6.8~P4SMA250CA

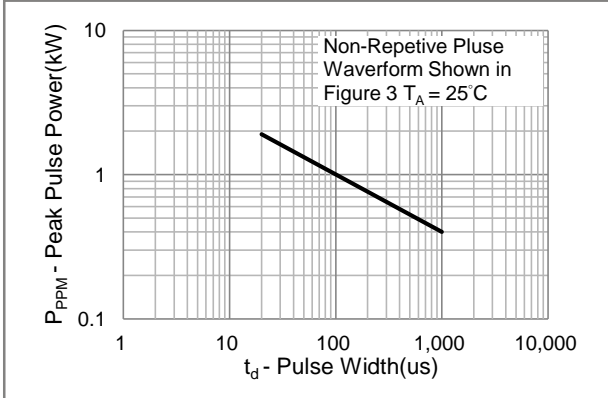


Fig.1 Pulse Power Rating Curve

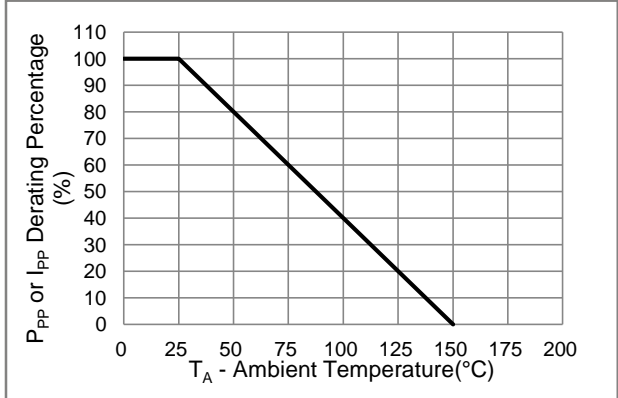


Fig.2 Derating Curve



Fig.3 10/1000us Pulse Waveform



Fig.4 Typical Capacitance



P4SMA6.8~P4SMA250CA

MOUNTING PAD LAYOUT

SMA / DO-214AC

Unit : inch(mm)



ORDER INFORMATION

- Packing information
 - T/R - 7.5K per 13" plastic Reel
 - T/R - 1.8K per 7" plastic Reel



P4SMA6.8~P4SMA250CA

Part No_packing code_Version

P4SMA6.8_R1_00001

P4SMA6.8_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 | | | |



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