

## P4SMA10AS ~ P4SMA250CAS Series

### Surface Mount Transient Voltage Suppressor

|                |                 |              |              |
|----------------|-----------------|--------------|--------------|
| <b>Voltage</b> | <b>10~250 V</b> | <b>Power</b> | <b>400 W</b> |
|----------------|-----------------|--------------|--------------|

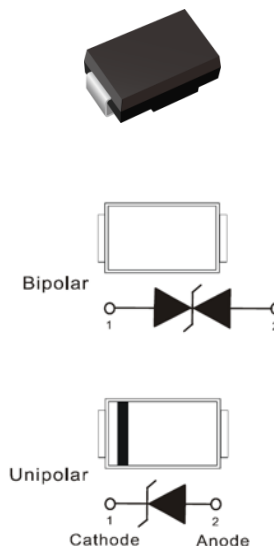
#### Features

- For surface mounted applications in order to optimize board space.
- Package suitable for automated handling
- Low inductance
- High temperature soldering : 260°C/10 seconds at terminals
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

#### Mechanical Data

- Case: Molded plastic, SMA
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0024 ounces, 0.068 grams

#### SMA



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER                                                           | SYMBOL                             | LIMIT       | UNITS |
|---------------------------------------------------------------------|------------------------------------|-------------|-------|
| Peak Pulse Power Dissipation(tp = 10 / 1000 us)                     | P <sub>PP</sub> <sup>(1) (2)</sup> | 400         | W     |
| Peak Pulse Current on tp = 10 / 1000 us waveform <sup>(Fig.2)</sup> | I <sub>PPM</sub> <sup>(1)</sup>    | See table 1 | A     |
| Power Dissipation on Infinite Heat Sink at T <sub>L</sub> = 50 °C   | P <sub>D</sub>                     | 3.3         | W     |
| ESD IEC61000-4-2(Air)                                               | V <sub>ESD</sub>                   | ±30         | kV    |
| ESD IEC61000-4-2(Contact)                                           |                                    | ±30         |       |
| Typical Thermal Resistance Junction to Ambient                      | R <sub>θJA</sub> <sup>(3)</sup>    | 150         | °C/W  |
| Operating Junction Temperature Range                                | T <sub>J</sub>                     | -55~150     | °C    |
| Storage Temperature Range                                           | T <sub>STG</sub>                   | -55~150     | °C    |



## P4SMA10AS ~ P4SMA250CAS Series

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part Number                       |             | V <sub>RWM</sub> | V <sub>BR</sub> |      |                | I <sub>R</sub>          |    | V <sub>C@I<sub>PP</sub></sub> |      | Marking Code |     |
|-----------------------------------|-------------|------------------|-----------------|------|----------------|-------------------------|----|-------------------------------|------|--------------|-----|
|                                   |             |                  | Min.            | Max. | I <sub>T</sub> | @V <sub>RWM</sub><br>uA |    |                               |      |              |     |
| UNI                               | BI          | V                | V               | V    | mA             | UNI                     | BI | V                             | A    | UNI          | BI  |
| 400W Transient Voltage Suppressor |             |                  |                 |      |                |                         |    |                               |      |              |     |
| P4SMA10AS                         | P4SMA10CAS  | 8.55             | 9.5             | 10.5 | 1              | 10                      | 20 | 14.5                          | 29   | TZU          | VZF |
| P4SMA11AS                         | P4SMA11CAS  | 9.4              | 10.5            | 11.6 | 1              | 5                       | 10 | 15.6                          | 27   | TZV          | VZG |
| P4SMA12AS                         | P4SMA12CAS  | 10.2             | 11.4            | 12.6 | 1              | 1                       | 1  | 16.7                          | 25   | TZW          | VZH |
| P4SMA13AS                         | P4SMA13CAS  | 11.1             | 12.4            | 13.7 | 1              | 1                       | 1  | 18.2                          | 23   | TZX          | VZJ |
| P4SMA15AS                         | P4SMA15CAS  | 12.8             | 14.3            | 15.8 | 1              | 1                       | 1  | 21.2                          | 20   | TZY          | VZK |
| P4SMA16AS                         | P4SMA16CAS  | 13.6             | 15.2            | 16.8 | 1              | 1                       | 1  | 22.5                          | 19   | TZZ          | VZL |
| P4SMA18AS                         | P4SMA18CAS  | 15.3             | 17.1            | 18.9 | 1              | 1                       | 1  | 25.2                          | 17   | UZA          | VZM |
| P4SMA20AS                         | P4SMA20CAS  | 17.1             | 19              | 21   | 1              | 1                       | 1  | 27.7                          | 15   | UZB          | VZN |
| P4SMA22AS                         | P4SMA22CAS  | 18.8             | 20.9            | 23.1 | 1              | 1                       | 1  | 30.6                          | 14   | UZC          | VZP |
| P4SMA24AS                         | P4SMA24CAS  | 20.5             | 22.8            | 25.2 | 1              | 1                       | 1  | 33.2                          | 13   | UZD          | VZQ |
| P4SMA27AS                         | P4SMA27CAS  | 23.1             | 25.7            | 28.4 | 1              | 1                       | 1  | 37.5                          | 11.2 | UZE          | VZR |
| P4SMA30AS                         | P4SMA30CAS  | 25.6             | 28.5            | 31.5 | 1              | 1                       | 1  | 41.4                          | 10   | UZF          | VZS |
| P4SMA33AS                         | P4SMA33CAS  | 28.2             | 31.4            | 34.7 | 1              | 1                       | 1  | 45.7                          | 9    | UZG          | VZT |
| P4SMA36AS                         | P4SMA36CAS  | 30.8             | 34.2            | 37.8 | 1              | 1                       | 1  | 49.9                          | 8.4  | UZH          | VZU |
| P4SMA39AS                         | P4SMA39CAS  | 33.3             | 37.1            | 41   | 1              | 1                       | 1  | 53.9                          | 7.8  | UZJ          | VZV |
| P4SMA43AS                         | P4SMA43CAS  | 36.8             | 40.9            | 45.2 | 1              | 1                       | 1  | 59.3                          | 7.1  | UZK          | VZW |
| P4SMA47AS                         | P4SMA47CAS  | 40.2             | 44.7            | 49.4 | 1              | 1                       | 1  | 64.8                          | 5    | UZL          | VZX |
| P4SMA51AS                         | P4SMA51CAS  | 43.6             | 48.5            | 53.6 | 1              | 1                       | 1  | 70.1                          | 6    | UZM          | VZY |
| P4SMA56AS                         | P4SMA56CAS  | 47.8             | 53.2            | 58.8 | 1              | 1                       | 1  | 77                            | 5.5  | UZN          | VZZ |
| P4SMA62AS                         | P4SMA62CAS  | 53               | 58.9            | 65.1 | 1              | 1                       | 1  | 85                            | 5    | UZP          | WZA |
| P4SMA68AS                         | P4SMA68CAS  | 58.1             | 64.6            | 71.4 | 1              | 1                       | 1  | 92                            | 4.6  | UZQ          | WZB |
| P4SMA75AS                         | P4SMA75CAS  | 64.1             | 71.3            | 78.8 | 1              | 1                       | 1  | 103                           | 4.1  | UZR          | WZC |
| P4SMA82AS                         | P4SMA82CAS  | 70.1             | 77.9            | 86.1 | 1              | 1                       | 1  | 113                           | 3.7  | UZS          | WZD |
| P4SMA91AS                         | P4SMA91CAS  | 77.8             | 86.5            | 95.5 | 1              | 1                       | 1  | 125                           | 3.4  | UZT          | WZE |
| P4SMA100AS                        | P4SMA100CAS | 85.5             | 95              | 105  | 1              | 1                       | 1  | 137                           | 3.1  | UZU          | WZF |
| P4SMA110AS                        | P4SMA110CAS | 94               | 105             | 116  | 1              | 1                       | 1  | 152                           | 2.8  | UZV          | WZG |
| P4SMA120AS                        | P4SMA120CAS | 102              | 114             | 126  | 1              | 1                       | 1  | 165                           | 2.5  | UZW          | WZH |
| P4SMA130AS                        | P4SMA130CAS | 111              | 124             | 137  | 1              | 1                       | 1  | 179                           | 2.3  | UZX          | WZJ |
| P4SMA150AS                        | P4SMA150CAS | 128              | 143             | 158  | 1              | 1                       | 1  | 207                           | 2    | UZY          | WZK |
| P4SMA160AS                        | P4SMA160CAS | 136              | 152             | 168  | 1              | 1                       | 1  | 219                           | 1.9  | UZZ          | WZL |



## P4SMA10AS ~ P4SMA250CAS Series

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Part Number                       |             | V <sub>RWM</sub> | V <sub>BR</sub> |      |                | I <sub>R</sub><br>@V <sub>RWM</sub> |    | V <sub>C</sub> @I <sub>pp</sub> |     | Marking Code |     |
|-----------------------------------|-------------|------------------|-----------------|------|----------------|-------------------------------------|----|---------------------------------|-----|--------------|-----|
|                                   |             |                  | Min.            | Max. | I <sub>T</sub> | uA                                  |    |                                 |     |              |     |
| UNI                               | BI          | V                | V               | V    | mA             | UNI                                 | BI | V                               | A   | UNI          | BI  |
| 400W Transient Voltage Suppressor |             |                  |                 |      |                |                                     |    |                                 |     |              |     |
| P4SMA170AS                        | P4SMA170CAS | 145              | 162             | 179  | 1              | 1                                   | 1  | 234                             | 1.8 | VZA          | WZM |
| P4SMA180AS                        | P4SMA180CAS | 154              | 171             | 189  | 1              | 1                                   | 1  | 246                             | 1.7 | VZB          | WZN |
| P4SMA200AS                        | P4SMA200CAS | 171              | 190             | 210  | 1              | 1                                   | 1  | 274                             | 1.5 | VZC          | WZP |
| P4SMA220AS                        | P4SMA220CAS | 185              | 209             | 231  | 1              | 1                                   | 1  | 328                             | 1.2 | VZD          | WZQ |
| P4SMA250AS                        | P4SMA250CAS | 214              | 237             | 263  | 1              | 1                                   | 1  | 344                             | 1.2 | VZE          | WZR |

Notes :

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
2. Mounted on 100cm<sup>2</sup> copper pads to each terminal.
3. Mounted on a FR4 PCB, single-sided copper, standard footprint.

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### TYPICAL CHARACTERISTIC CURVES

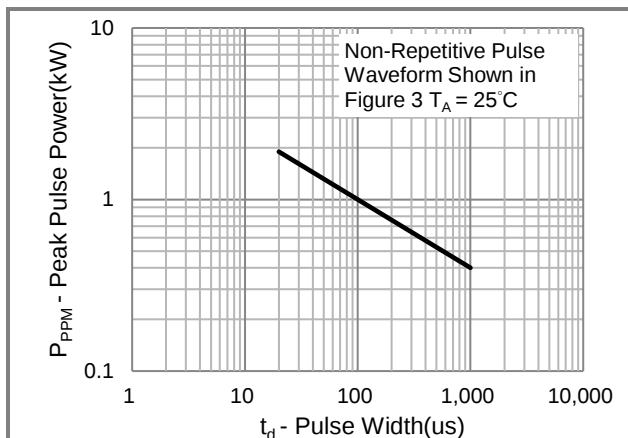


Fig.1 Pulse Power Rating Curve

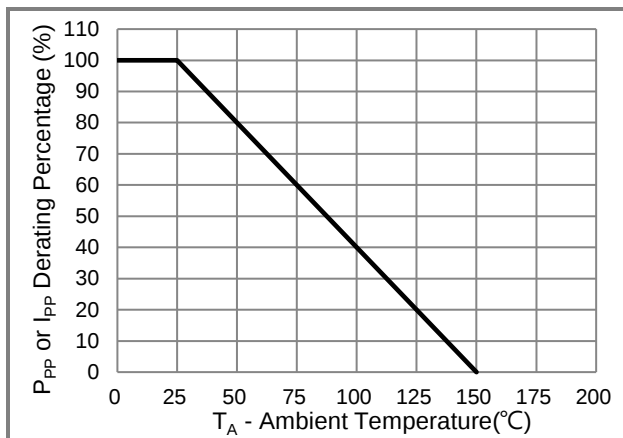


Fig.2 Derating Curve

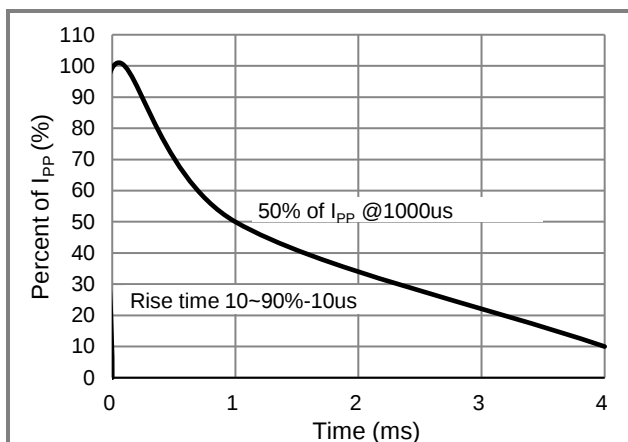


Fig.3 10/1000us Pulse Waveform

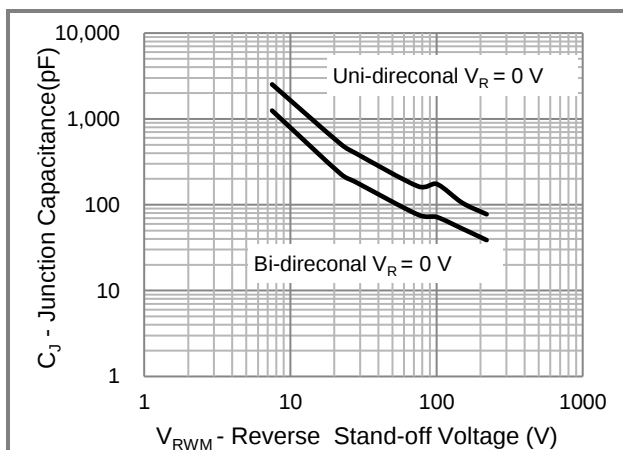


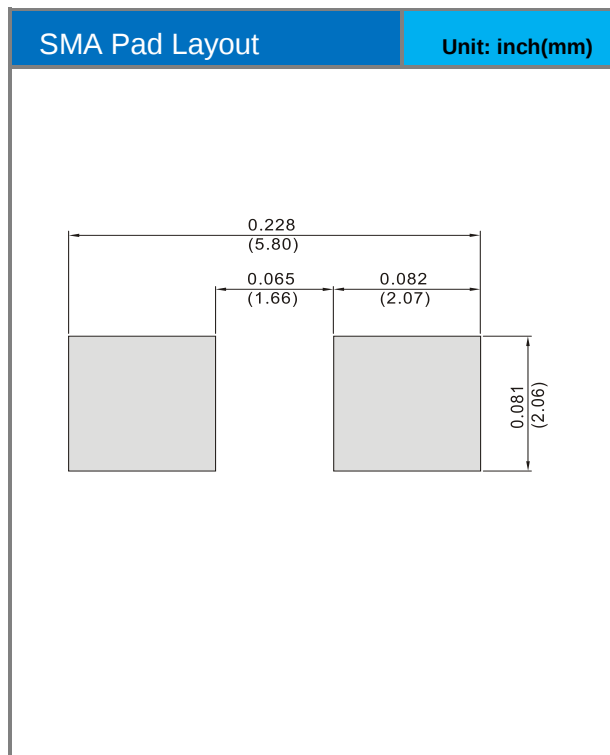
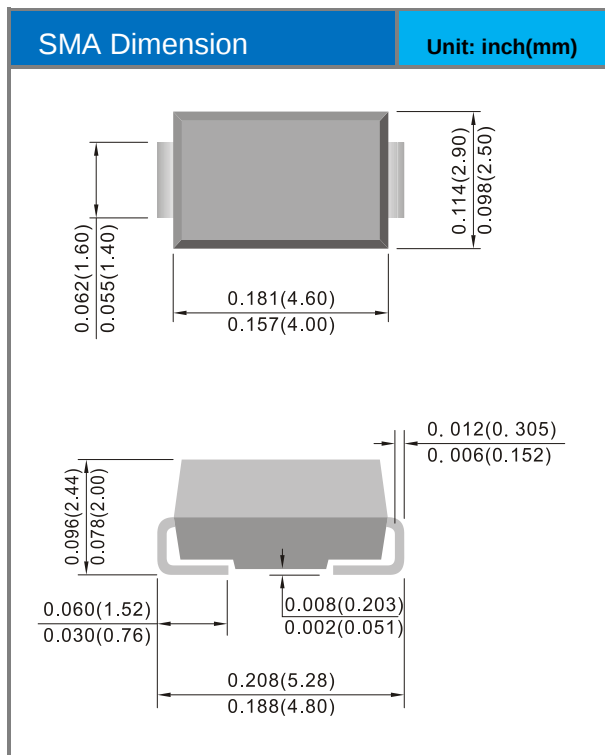
Fig.4 Typical Capacitance

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### Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type       | Marking   | Version                        |
|-----------------------|--------------|--------------------|-----------|--------------------------------|
| P4SMAxxxxAS_R1_00001  | SMA          | 1.8K pcs / 7" reel | See Table | Halogen free<br>RoHS compliant |

### Packaging Information & Mounting Pad Layout





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