



P4SMAJ8.5AS ~ P4SMAJ220CAS Series

Surface Mount Transient Voltage Suppressor

Voltage 8.5~220 V **Power** 400 W

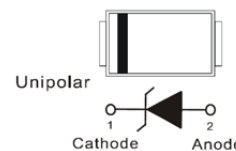
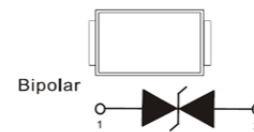
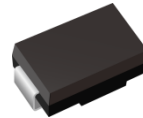
Features

- 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, 0.0679 grams

SMA



Maximum Ratings and Thermal Characteristics (T_A = 25 °C unless otherwise noted)

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



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Electrical Characteristics (T_A = 25 °C unless otherwise noted)

| Part Number | | V _{RWM} | V _{BR} | | | I _R | | V _{C@IPP} | | Marking Code | |
|-----------------------------------|--------------|------------------|-----------------|------|----------------|--------------------|----|--------------------|------|--------------|-----|
| | | | Min. | Max. | I _T | @ V _{RWM} | uA | | | | |
| UNI | BI | V | V | V | mA | UNI | BI | V | A | UNI | BI |
| 400W Transient Voltage Suppressor | | | | | | | | | | | |
| P4SMAJ8.5AS | P4SMAJ8.5CAS | 8.5 | 9.44 | 10.4 | 1 | 10 | 20 | 14.4 | 27.7 | PZA | RZX |
| P4SMAJ9.0AS | P4SMAJ9.0CAS | 9 | 10 | 11.1 | 1 | 5 | 5 | 15.4 | 26 | PZB | RZY |
| P4SMAJ10AS | P4SMAJ10CAS | 10 | 11.1 | 12.3 | 1 | 5 | 5 | 17 | 23.5 | PZC | RZZ |
| P4SMAJ11AS | P4SMAJ11CAS | 11 | 12.2 | 13.5 | 1 | 1 | 1 | 18.2 | 22 | PZD | SZA |
| P4SMAJ12AS | P4SMAJ12CAS | 12 | 13.3 | 14.7 | 1 | 1 | 1 | 19.9 | 20.1 | PZE | SZB |
| P4SMAJ13AS | P4SMAJ13CAS | 13 | 14.4 | 15.9 | 1 | 1 | 1 | 21.5 | 18.6 | PZF | SZC |
| P4SMAJ14AS | P4SMAJ14CAS | 14 | 15.6 | 17.2 | 1 | 1 | 1 | 23.2 | 17.2 | PZG | SZD |
| P4SMAJ15AS | P4SMAJ15CAS | 15 | 16.7 | 18.5 | 1 | 1 | 1 | 24.4 | 16.4 | PZH | SZE |
| P4SMAJ16AS | P4SMAJ16CAS | 16 | 17.8 | 19.7 | 1 | 1 | 1 | 26 | 15.3 | PZJ | SZF |
| P4SMAJ17AS | P4SMAJ17CAS | 17 | 18.9 | 20.9 | 1 | 1 | 1 | 27.6 | 14.5 | PZK | SZG |
| P4SMAJ18AS | P4SMAJ18CAS | 18 | 20 | 22.1 | 1 | 1 | 1 | 29.2 | 13.7 | PZL | SZH |
| P4SMAJ20AS | P4SMAJ20CAS | 20 | 22.2 | 24.5 | 1 | 1 | 1 | 32.4 | 12.3 | PZM | SZJ |
| P4SMAJ22AS | P4SMAJ22CAS | 22 | 24.4 | 26.9 | 1 | 1 | 1 | 35.5 | 11.2 | PZN | SZK |
| P4SMAJ24AS | P4SMAJ24CAS | 24 | 26.7 | 29.5 | 1 | 1 | 1 | 38.9 | 10.3 | PZP | SZL |
| P4SMAJ26AS | P4SMAJ26CAS | 26 | 28.9 | 31.9 | 1 | 1 | 1 | 42.1 | 9.5 | PZQ | SZM |
| P4SMAJ28AS | P4SMAJ28CAS | 28 | 31.1 | 34.4 | 1 | 1 | 1 | 45.4 | 8.8 | PZR | SZN |
| P4SMAJ30AS | P4SMAJ30CAS | 30 | 33.3 | 36.8 | 1 | 1 | 1 | 48.4 | 8.3 | PZS | SZP |
| P4SMAJ33AS | P4SMAJ33CAS | 33 | 36.7 | 40.6 | 1 | 1 | 1 | 53.3 | 7.5 | PZT | SZQ |
| P4SMAJ36AS | P4SMAJ36CAS | 36 | 40 | 44.2 | 1 | 1 | 1 | 58.1 | 6.9 | PZU | SZR |
| P4SMAJ40AS | P4SMAJ40CAS | 40 | 44.4 | 49.1 | 1 | 1 | 1 | 64.5 | 6.2 | PZV | SZS |
| P4SMAJ43AS | P4SMAJ43CAS | 43 | 47.8 | 52.8 | 1 | 1 | 1 | 69.4 | 5.7 | PZW | SZT |
| P4SMAJ45AS | P4SMAJ45CAS | 45 | 50 | 55.3 | 1 | 1 | 1 | 72.7 | 5.5 | PZX | SZU |
| P4SMAJ48AS | P4SMAJ48CAS | 48 | 53.3 | 58.9 | 1 | 1 | 1 | 77.4 | 5.2 | PZY | SZV |
| P4SMAJ51AS | P4SMAJ51CAS | 51 | 56.7 | 62.7 | 1 | 1 | 1 | 82.4 | 4.9 | PZZ | SZW |
| P4SMAJ54AS | P4SMAJ54CAS | 54 | 60 | 66.3 | 1 | 1 | 1 | 87.1 | 4.6 | RZA | SZX |
| P4SMAJ58AS | P4SMAJ58CAS | 58 | 64.4 | 71.2 | 1 | 1 | 1 | 93.6 | 4.3 | RZB | SZY |
| P4SMAJ60AS | P4SMAJ60CAS | 60 | 66.7 | 73.7 | 1 | 1 | 1 | 96.8 | 4.1 | RZC | SZZ |
| P4SMAJ64AS | P4SMAJ64CAS | 64 | 71.1 | 78.6 | 1 | 1 | 1 | 103 | 3.9 | RZD | TZA |
| P4SMAJ70AS | P4SMAJ70CAS | 70 | 77.8 | 86 | 1 | 1 | 1 | 113 | 3.5 | RZE | TZB |



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

| Part Number | | V_{RWM} | V_{BR} | | | I_R @ V_{RWM} | | $V_C @ I_{PP}$ | | Marking Code | |
|-----------------------------------|--------------|-----------|----------|-------|-------|----------------------|----|----------------|-----|--------------|-----|
| | | | Min. | Max. | I_T | μA | | | | | |
| UNI | BI | V | V | V | mA | UNI | BI | V | A | UNI | BI |
| 400W Transient Voltage Suppressor | | | | | | | | | | | |
| P4SMAJ75AS | P4SMAJ75CAS | 75 | 83.3 | 92.1 | 1 | 1 | 1 | 121 | 3.3 | RZF | TZC |
| P4SMAJ78AS | P4SMAJ78CAS | 78 | 86.7 | 95.8 | 1 | 1 | 1 | 126 | 3.2 | RZG | TZD |
| P4SMAJ85AS | P4SMAJ85CAS | 85 | 94.4 | 104 | 1 | 1 | 1 | 137 | 2.9 | RZH | TZE |
| P4SMAJ90AS | P4SMAJ90CAS | 90 | 100 | 111 | 1 | 1 | 1 | 146 | 2.7 | RZJ | TZF |
| P4SMAJ100AS | P4SMAJ100CAS | 100 | 111 | 123 | 1 | 1 | 1 | 162 | 2.5 | RZK | TZG |
| P4SMAJ110AS | P4SMAJ110CAS | 110 | 122 | 135 | 1 | 1 | 1 | 177 | 2.3 | RZL | TZH |
| P4SMAJ120AS | P4SMAJ120CAS | 120 | 133 | 147 | 1 | 1 | 1 | 193 | 2 | RZM | TZJ |
| P4SMAJ130AS | P4SMAJ130CAS | 130 | 144 | 159 | 1 | 1 | 1 | 209 | 1.9 | RZN | TZK |
| P4SMAJ150AS | P4SMAJ150CAS | 150 | 167 | 185 | 1 | 1 | 1 | 243 | 1.6 | RZP | TZL |
| P4SMAJ160AS | P4SMAJ160CAS | 160 | 178 | 197 | 1 | 1 | 1 | 259 | 1.5 | RZQ | TZM |
| P4SMAJ170AS | P4SMAJ170CAS | 170 | 189 | 209 | 1 | 1 | 1 | 275 | 1.4 | RZR | TZN |
| P4SMAJ180AS | P4SMAJ180CAS | 180 | 198 | 222 | 1 | 1 | 1 | 292 | 1.3 | RZS | TZP |
| P4SMAJ190AS | P4SMAJ190CAS | 190 | 209 | 243.2 | 1 | 1 | 1 | 308 | 1.3 | RZT | TZQ |
| P4SMAJ200AS | P4SMAJ200CAS | 200 | 220 | 247 | 1 | 1 | 1 | 324 | 1.2 | RZU | TZR |
| P4SMAJ210AS | P4SMAJ210CAS | 210 | 231 | 268.8 | 1 | 1 | 1 | 340 | 1.2 | RZV | TZS |
| P4SMAJ220AS | P4SMAJ220CAS | 220 | 242 | 272 | 1 | 1 | 1 | 356 | 1.1 | RZW | TZT |

Notes :

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2
2. Mounted on 100cm² copper pads to each terminal
3. Mounted on a FR4 PCB, single-sided copper, standard footprint



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TYPICAL CHARACTERISTIC CURVES

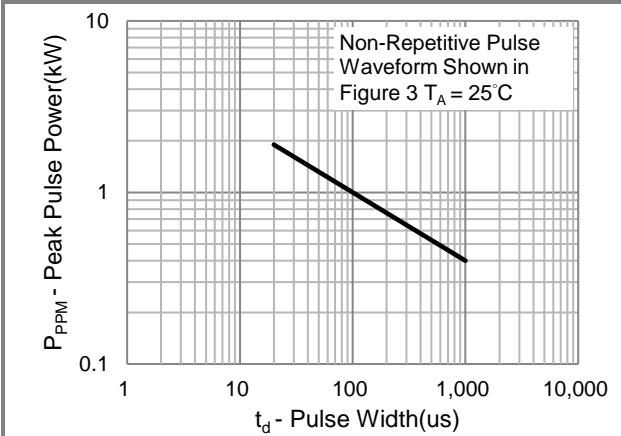


Fig.1 Pulse Power Rating Curve

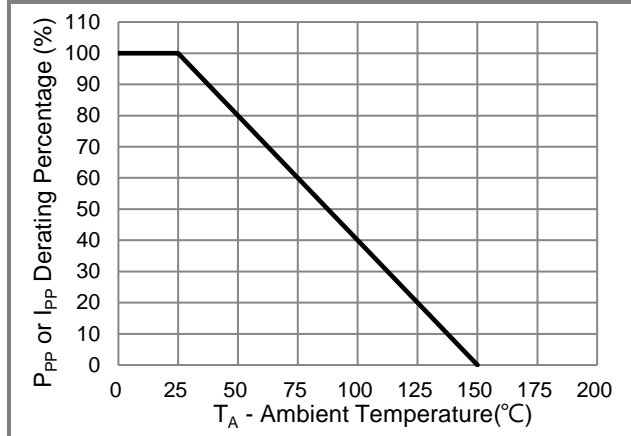


Fig.2 Derating Curve

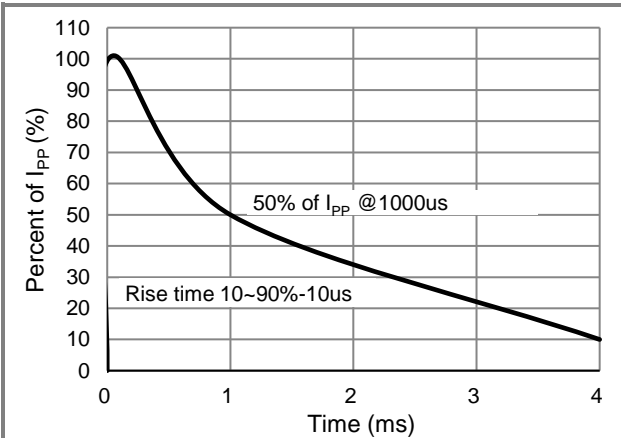


Fig.3 10/1000us Pulse Waveform

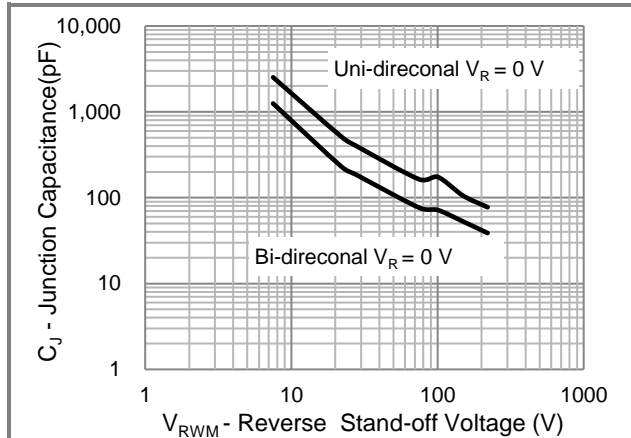


Fig.4 Typical Capacitance

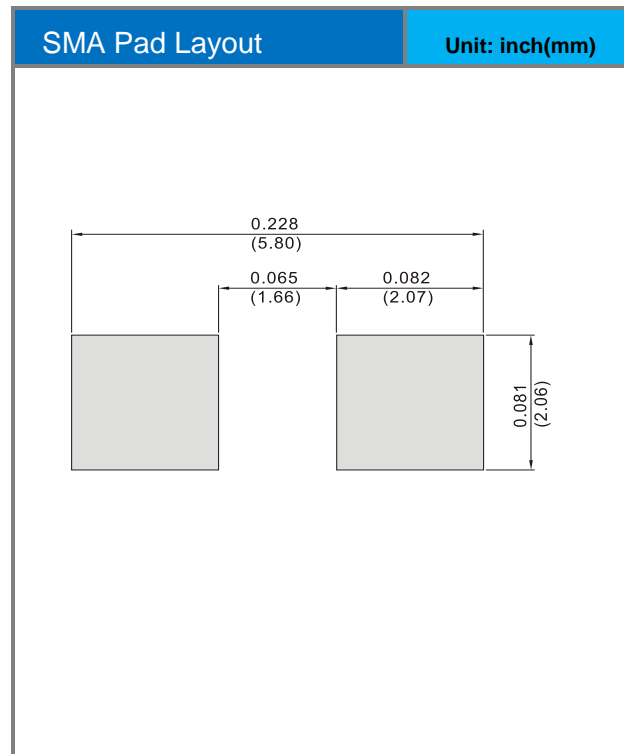


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Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|--------------------|-----------|--------------------------------|
| P4SMAJxxxxAS_R1_00001 | SMA | 1.8K pcs / 7" reel | See Table | Halogen free RoHS compliant |

Packaging Information & Mounting Pad Layout





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