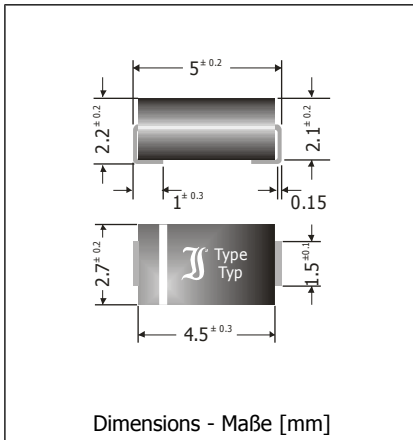



P4SMAJ5.0 ... P4SMAJ170CA

Surface mount unidirectional and bidirectional Transient Voltage Suppressor Diodes Unidirektionale und bidirektionale Spannungs-Begrenzer-Dioden für die Oberflächenmontage

Version 2012-06-05



| | |
|---|---|
| Peak pulse power dissipation Impuls-Verlustleistung | 400 W |
| Nominal Stand-off voltage Nominale Sperrspannung | 5.0...170 V |
| Plastic case Kunststoffgehäuse | ~ SMA ~ DO-214AC |
| Weight approx. – Gewicht ca. | 0.07 g |
| Plastic material has UL classification 94V-0 Gehäusematerial UL94V-0 klassifiziert |  |
| Standard packaging taped and reeled Standard Lieferform gegurtet auf Rollen | |

For bidirectional types, suppressor characteristics apply in both directions; add suffix "C" or "CA".
Für bidirektionale Dioden gelten die Begrenzer-Eigenschaften in beiden Richtungen;
es ist das Suffix "C" oder "CA" zu ergänzen.

**TVS diodes having breakdown voltage $V_{BR} = 220 \dots 550$ V:
please refer to datasheet P4SMA220**

**TVS-Dioden mit Abbruchspannung $V_{BR} = 220 \dots 550$ V:
siehe Datenblatt P4SMA220**

Maximum ratings and Characteristics

Grenz- und Kennwerte

| | | | |
|--|--------------------------|----------------|------------------------------|
| Peak pulse power dissipation (10/1000 μ s waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 μ s) | $T_A = 25^\circ\text{C}$ | P_{PPM} | 400 W ¹⁾ |
| Steady state power dissipation Verlustleistung im Dauerbetrieb | $T_T = 75^\circ\text{C}$ | $P_{M(AV)}$ | 1 W |
| Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwelle | $T_A = 25^\circ\text{C}$ | I_{FSM} | 40 A ²⁾ |
| Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung | $I_F = 25$ A | V_F | < 3.5 V ²⁾ |
| Operating junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur | | T_j T_S | -50...+150°C -50...+150°C |
| Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft | | R_{thA} | < 70 K/W ³⁾ |
| Thermal resistance junction to terminal Wärmewiderstand Sperrschicht – Anschluss | | R_{thT} | < 30 K/W |

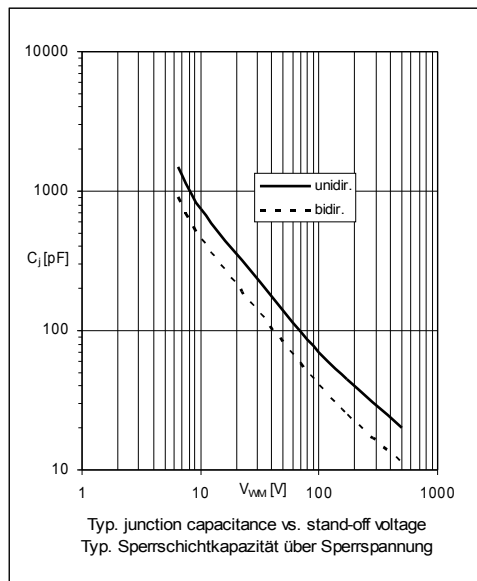
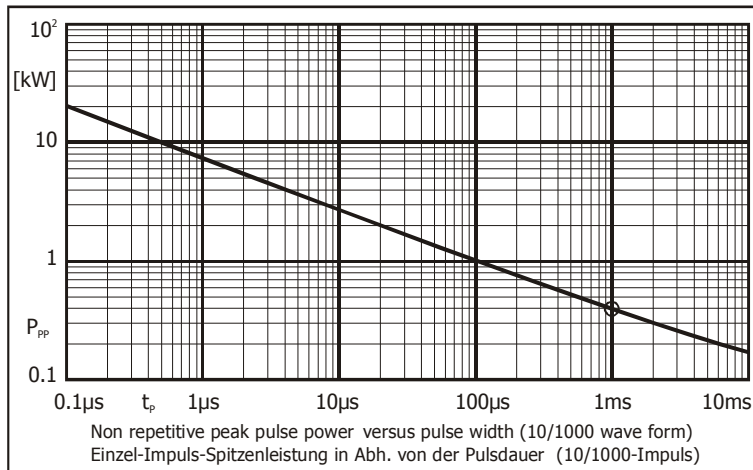
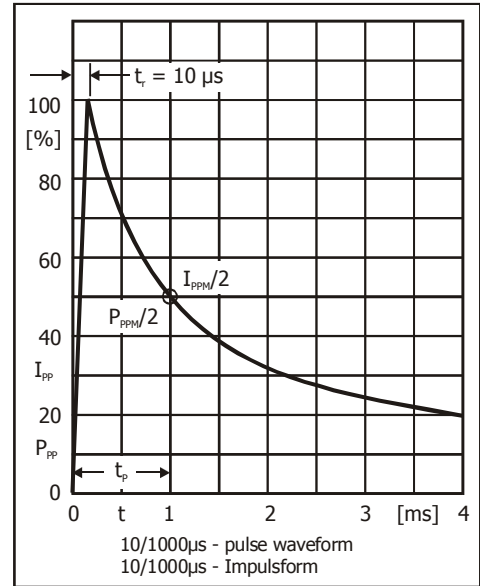
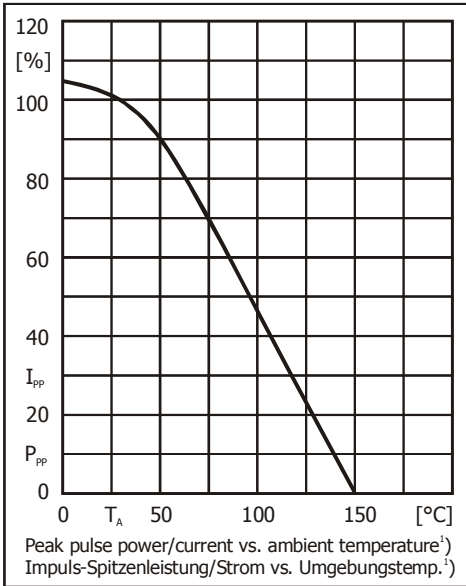
- 1 Non-repetitive pulse see curve $I_{pp} = f(t) / P_{pp} = f(t)$
Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve $I_{pp} = f(t) / P_{pp} = f(t)$
- 2 Unidirectional diodes only – Nur für unidirektionale Dioden
- 3 Mounted on P.C. board with 25 mm² copper pads at each terminal
Montage auf Leiterplatte mit 25 mm² Kupferbelag (Löt-pad) an jedem Anschluss

Maximum ratings
Grenzwerte

| Type Typ | Stand-off voltage Sperrspannung | Max. rev. current Max. Sperrstrom at / bei V_{WM} | Breakdown voltage at $I_T = 1$ mA Abbruch-Spannung bei $I_T = 1$ mA *) at / bei $I_T = 10$ mA | | Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 μ s) | |
|-----------------|------------------------------------|---|---|------------------|--|---------------|
| bidir. = C / CA | V_{WM} [V] | I_D [μ A] | V_{BR} min [V] | V_{BR} max [V] | V_C [V] | I_{PPM} [A] |
| P4SMAJ5.0 | 5.0 | 800 | 6.4 *) | 7.8 *) | 10.3 | 38.8 |
| P4SMAJ5.0A | 5.0 | 800 | 6.4 *) | 7.0 *) | 9.2 | 43.5 |
| P4SMAJ6.5 | 6.5 | 500 | 7.2 *) | 8.8 *) | 12.3 | 32.5 |
| P4SMAJ6.5A | 6.5 | 500 | 7.2 *) | 8.0 *) | 11.2 | 35.7 |
| P4SMAJ7.0 | 7.0 | 200 | 7.8 *) | 9.5 *) | 13.3 | 30.1 |
| P4SMAJ7.0A | 7.0 | 200 | 7.8 *) | 8.7 *) | 12.0 | 33.3 |
| P4SMAJ7.5 | 7.5 | 100 | 8.3 | 10.1 | 14.3 | 28.0 |
| P4SMAJ7.5A | 7.5 | 100 | 8.3 | 9.2 | 12.9 | 31.0 |
| P4SMAJ8.0 | 8.0 | 50 | 8.9 | 10.9 | 15.0 | 26.7 |
| P4SMAJ8.0A | 8.0 | 50 | 8.9 | 9.9 | 13.6 | 29.4 |
| P4SMAJ8.5 | 8.5 | 10 | 9.4 | 11.5 | 15.9 | 25.2 |
| P4SMAJ8.5A | 8.5 | 10 | 9.4 | 10.4 | 14.4 | 27.8 |
| P4SMAJ9.0 | 9.0 | 5 | 10.0 | 12.2 | 16.9 | 23.7 |
| P4SMAJ9.0A | 9.0 | 5 | 10.0 | 11.1 | 15.4 | 26.0 |
| P4SMAJ10 | 10 | 5 | 11.1 | 13.5 | 18.8 | 21.3 |
| P4SMAJ10A | 10 | 5 | 11.1 | 12.3 | 17.0 | 23.5 |
| P4SMAJ11 | 11 | 5 | 12.2 | 14.9 | 20.1 | 19.9 |
| P4SMAJ11A | 11 | 5 | 12.2 | 13.5 | 18.2 | 22.0 |
| P4SMAJ12 | 12 | 5 | 13.3 | 16.2 | 22.0 | 18.2 |
| P4SMAJ12A | 12 | 5 | 13.3 | 14.8 | 19.9 | 20.1 |
| P4SMAJ13 | 13 | 5 | 14.4 | 17.6 | 23.8 | 16.8 |
| P4SMAJ13A | 13 | 5 | 14.4 | 16.0 | 21.5 | 18.6 |
| P4SMAJ14 | 14 | 5 | 15.6 | 19.0 | 25.8 | 15.5 |
| P4SMAJ14A | 14 | 5 | 15.6 | 17.3 | 23.2 | 17.2 |
| P4SMAJ15 | 15 | 5 | 16.7 | 20.4 | 26.9 | 14.9 |
| P4SMAJ15A | 15 | 5 | 16.7 | 18.6 | 24.4 | 16.4 |
| P4SMAJ16 | 16 | 5 | 17.8 | 21.7 | 28.8 | 13.9 |
| P4SMAJ16A | 16 | 5 | 17.8 | 19.8 | 26.0 | 15.4 |
| P4SMAJ17 | 17 | 5 | 18.9 | 23.1 | 30.5 | 13.1 |
| P4SMAJ17A | 17 | 5 | 18.9 | 21.0 | 27.6 | 14.5 |
| P4SMAJ18 | 18 | 5 | 20.0 | 24.4 | 32.2 | 12.4 |
| P4SMAJ18A | 18 | 5 | 20.0 | 22.2 | 29.2 | 13.7 |
| P4SMAJ20 | 20 | 5 | 22.2 | 27.1 | 35.8 | 11.2 |
| P4SMAJ20A | 20 | 5 | 22.2 | 24.6 | 32.4 | 12.3 |
| P4SMAJ22 | 22 | 5 | 24.4 | 29.8 | 39.4 | 10.2 |
| P4SMAJ22A | 22 | 5 | 24.4 | 27.1 | 35.5 | 11.3 |
| P4SMAJ24 | 24 | 5 | 26.7 | 32.6 | 43.0 | 9.3 |
| P4SMAJ24A | 24 | 5 | 26.7 | 29.6 | 38.9 | 10.3 |
| P4SMAJ26 | 26 | 5 | 28.9 | 35.3 | 46.6 | 8.6 |
| P4SMAJ26A | 26 | 5 | 28.9 | 32.1 | 42.1 | 9.5 |
| P4SMAJ28 | 28 | 5 | 31.1 | 37.9 | 50.0 | 8.0 |
| P4SMAJ28A | 28 | 5 | 31.1 | 34.5 | 45.4 | 8.8 |
| P4SMAJ30 | 30 | 5 | 33.3 | 40.1 | 53.5 | 7.5 |
| P4SMAJ30A | 30 | 5 | 33.3 | 36.9 | 48.4 | 8.3 |
| P4SMAJ33 | 33 | 5 | 36.7 | 44.8 | 59.0 | 6.8 |
| P4SMAJ33A | 33 | 5 | 36.7 | 40.7 | 53.3 | 7.5 |

Maximum ratings**Grenzwerte**

| Type Typ | Stand-off voltage Sperrspannung | Max. rev. current Max. Sperrstrom at / bei V_{WM} | Breakdown voltage at $I_T = 1$ mA Abbruch-Spannung bei $I_T = 1$ mA *) at / bei $I_T = 10$ mA | | Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 μ s) | |
|---|------------------------------------|---|---|------------------|--|---------------|
| bidir. = C / CA | V_{WM} [V] | I_D [μ A] | V_{BR} min [V] | V_{BR} max [V] | V_C [V] | I_{PPM} [A] |
| P4SMAJ36 | 36 | 5 | 40.0 | 48.4 | 64.3 | 6.2 |
| P4SMAJ36A | 36 | 5 | 40.0 | 44.4 | 58.1 | 6.9 |
| P4SMAJ40 | 40 | 5 | 44.4 | 54.2 | 71.4 | 5.6 |
| P4SMAJ40A | 40 | 5 | 44.4 | 49.3 | 64.5 | 6.2 |
| P4SMAJ43 | 43 | 5 | 47.8 | 58.3 | 76.7 | 5.2 |
| P4SMAJ43A | 43 | 5 | 47.8 | 53.1 | 69.4 | 5.8 |
| P4SMAJ45 | 45 | 5 | 50.0 | 61.0 | 80.3 | 5.0 |
| P4SMAJ45A | 45 | 5 | 50.0 | 55.5 | 72.7 | 5.5 |
| P4SMAJ48 | 48 | 5 | 53.3 | 65.0 | 85.5 | 4.7 |
| P4SMAJ48A | 48 | 5 | 53.3 | 59.2 | 77.4 | 5.2 |
| P4SMAJ51 | 51 | 5 | 56.7 | 69.2 | 91.1 | 4.4 |
| P4SMAJ51A | 51 | 5 | 56.7 | 62.9 | 82.4 | 4.9 |
| P4SMAJ54 | 54 | 5 | 60.0 | 73.2 | 96.3 | 4.2 |
| P4SMAJ54A | 54 | 5 | 60.0 | 66.6 | 87.1 | 4.6 |
| P4SMAJ58 | 58 | 5 | 64.4 | 78.6 | 103 | 3.9 |
| P4SMAJ58A | 58 | 5 | 64.4 | 71.5 | 93.6 | 4.3 |
| P4SMAJ60 | 60 | 5 | 66.7 | 81.4 | 107 | 3.7 |
| P4SMAJ60A | 60 | 5 | 66.7 | 74.0 | 96.8 | 4.1 |
| P4SMAJ64 | 64 | 5 | 71.1 | 86.7 | 114 | 3.5 |
| P4SMAJ64A | 64 | 5 | 71.1 | 78.9 | 103 | 3.9 |
| P4SMAJ70 | 70 | 5 | 77.8 | 94.9 | 125 | 3.2 |
| P4SMAJ70A | 70 | 5 | 77.8 | 86.4 | 113 | 3.5 |
| P4SMAJ75 | 75 | 5 | 83.3 | 102 | 134 | 3.0 |
| P4SMAJ75A | 75 | 5 | 83.3 | 92.5 | 121 | 3.3 |
| P4SMAJ78 | 78 | 5 | 86.7 | 106 | 139 | 2.9 |
| P4SMAJ78A | 78 | 5 | 86.7 | 96.2 | 126 | 3.2 |
| P4SMAJ85 | 85 | 5 | 94.4 | 115 | 151 | 2.6 |
| P4SMAJ85A | 85 | 5 | 94.4 | 105 | 137 | 2.9 |
| P4SMAJ90 | 90 | 5 | 100 | 122 | 160 | 2.5 |
| P4SMAJ90A | 90 | 5 | 100 | 111 | 146 | 2.7 |
| P4SMAJ100 | 100 | 5 | 111 | 135 | 179 | 2.2 |
| P4SMAJ100A | 100 | 5 | 111 | 123 | 162 | 2.5 |
| P4SMAJ110 | 110 | 5 | 122 | 149 | 196 | 2.0 |
| P4SMAJ110A | 110 | 5 | 122 | 135 | 177 | 2.3 |
| P4SMAJ120 | 120 | 5 | 133 | 162 | 214 | 1.9 |
| P4SMAJ120A | 120 | 5 | 133 | 148 | 193 | 2.1 |
| P4SMAJ130 | 130 | 5 | 144 | 176 | 231 | 1.7 |
| P4SMAJ130A | 130 | 5 | 144 | 160 | 209 | 1.9 |
| P4SMAJ150 | 150 | 5 | 167 | 204 | 268 | 1.5 |
| P4SMAJ150A | 150 | 5 | 167 | 185 | 243 | 1.6 |
| P4SMAJ160 | 160 | 5 | 178 | 217 | 287 | 1.4 |
| P4SMAJ160A | 160 | 5 | 178 | 198 | 259 | 1.5 |
| P4SMAJ170 | 170 | 5 | 189 | 231 | 304 | 1.3 |
| P4SMAJ170A | 170 | 5 | 189 | 210 | 275 | 1.5 |
| P4SMA220 ... P4SMA550CA $\rightarrow V_{WM} = 175 \dots 495V$ | | | | | | |



1 Mounted on P.C. board with 25 mm² copper pads at each terminal
Montage auf Leiterplatte mit 25 mm² Kupferbelag (Löt-pad) an jedem Anschluss