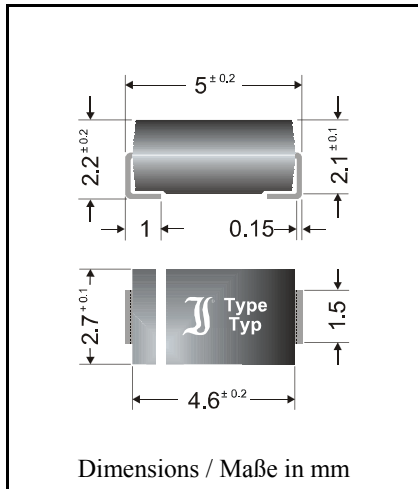


**Surface Mount
unidirectional and bidirectional
Transient Voltage Suppressor Diodes**

**Unidirektionale und bidirektionale
Spannungs-Begrenzer-Dioden
für die Oberflächenmontage**



| | |
|--|----------------|
| Pulse power dissipation – Impuls-Verlustleistung | 400 W |
| Maximum stand-off voltage | 6.5...170 V |
| Maximale Sperrspannung | |
| Plastic case | ~ SMA |
| Kunststoffgehäuse | ~ 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 | see page 18 |
| Standard Lieferform gegurtet auf Rolle | siehe Seite 18 |

Suffix “C” or “CA” for bidirectional types

Suffix “C” oder “CA” für bidirektionale Typen

Maximum ratings and Characteristics

Grenz- und Kennwerte

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

¹⁾ Non-repetitive current pulse see curve $I_{PPM} = f(t_r)$
Höchstzulässiger Spitzenwert eines einmaligen Strom-Impulses, siehe Kurve $I_{PPM} = f(t_r)$
²⁾ 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
³⁾ Unidirectional diodes only – nur für unidirektionale Dioden

Maximum ratings

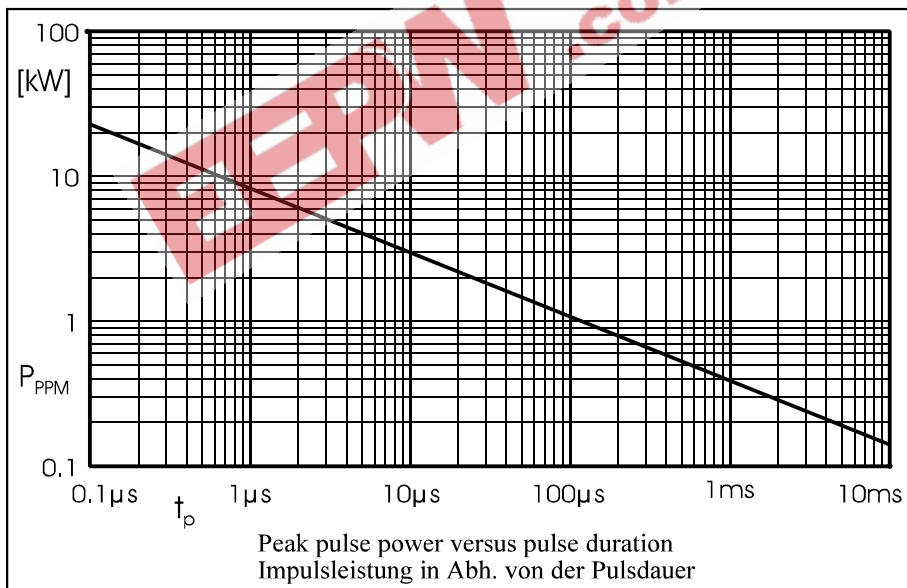
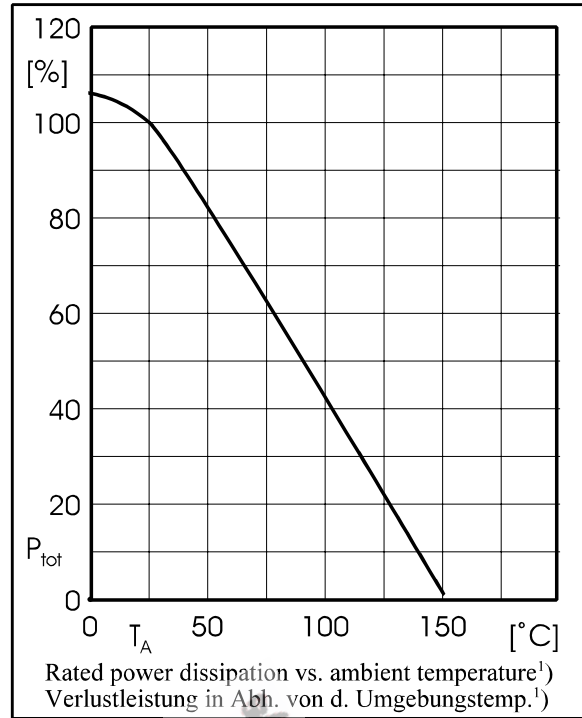
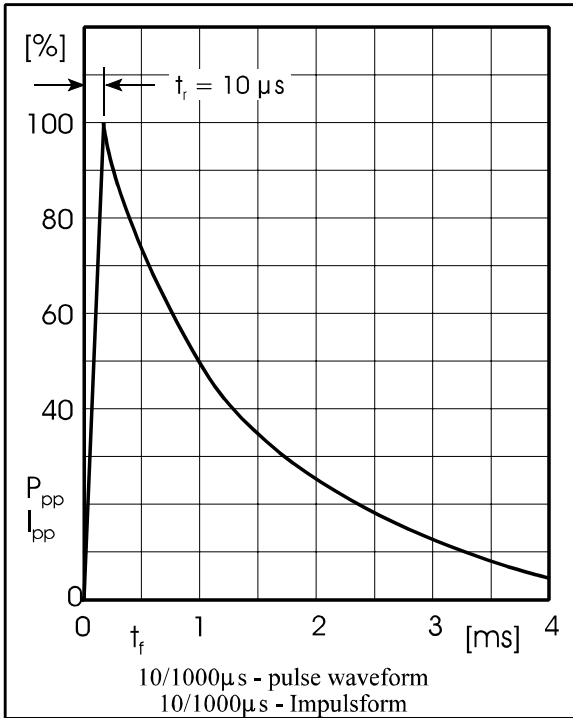
Grenzwerte

| Type Typ | Stand-off voltage Sperrspanng | 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-Spanng at / bei $I_{PPM} (10/1000\mu s)$ | |
|--------------|-------------------------------------|---|---|-------------------|---|---------------|
| | V_{WM} [V] | I_D [μA] | V_{BR} min. [V] | V_{BR} max. [V] | V_C [V] | I_{PPM} [A] |
| P4 SMAJ 6.5 | 6.5 | 500 | 7.2 *) | 8.8 *) | 12.3 | 32.5 |
| P4 SMAJ 6.5A | 6.5 | 500 | 7.2 *) | 8.0 *) | 11.2 | 35.7 |
| P4 SMAJ 7.0 | 7.0 | 200 | 7.8 *) | 9.5 *) | 13.3 | 30.1 |
| P4 SMAJ 7.0A | 7.0 | 200 | 7.8 *) | 8.7 *) | 12.0 | 33.3 |
| P4 SMAJ 7.5 | 7.5 | 100 | 8.3 | 10.1 | 14.3 | 28.0 |
| P4 SMAJ 7.5A | 7.5 | 100 | 8.3 | 9.2 | 12.9 | 31.0 |
| P4 SMAJ 8.0 | 8.0 | 50 | 8.9 | 10.9 | 15.0 | 26.7 |
| P4 SMAJ 8.0A | 8.0 | 50 | 8.9 | 9.9 | 13.6 | 29.4 |
| P4 SMAJ 8.5 | 8.5 | 10 | 9.4 | 11.5 | 15.9 | 25.2 |
| P4 SMAJ 8.5A | 8.5 | 10 | 9.4 | 10.4 | 14.4 | 27.8 |
| P4 SMAJ 9.0 | 9.0 | 5 | 10.0 | 12.2 | 16.9 | 23.7 |
| P4 SMAJ 9.0A | 9.0 | 5 | 10.0 | 11.1 | 15.4 | 26.0 |
| P4 SMAJ 10 | 10 | 5 | 11.1 | 13.5 | 18.8 | 21.3 |
| P4 SMAJ 10A | 10 | 5 | 11.1 | 12.3 | 17.0 | 23.5 |
| P4 SMAJ 11 | 11 | 5 | 12.2 | 14.9 | 20.1 | 19.9 |
| P4 SMAJ 11A | 11 | 5 | 12.2 | 13.5 | 18.2 | 22.0 |
| P4 SMAJ 12 | 12 | 5 | 13.3 | 16.2 | 22.0 | 18.2 |
| P4 SMAJ 12A | 12 | 5 | 13.3 | 14.8 | 19.9 | 20.1 |
| P4 SMAJ 13 | 13 | 5 | 14.4 | 17.6 | 23.8 | 16.8 |
| P4 SMAJ 13A | 13 | 5 | 14.4 | 16.0 | 21.5 | 18.6 |
| P4 SMAJ 14 | 14 | 5 | 15.6 | 19.0 | 25.8 | 15.5 |
| P4 SMAJ 14A | 14 | 5 | 15.6 | 17.3 | 23.2 | 17.2 |
| P4 SMAJ 15 | 15 | 5 | 16.7 | 20.4 | 26.9 | 14.9 |
| P4 SMAJ 15A | 15 | 5 | 16.7 | 18.6 | 24.4 | 16.4 |
| P4 SMAJ 16 | 16 | 5 | 17.8 | 21.7 | 28.8 | 13.9 |
| P4 SMAJ 16A | 16 | 5 | 17.8 | 19.8 | 26.0 | 15.4 |
| P4 SMAJ 17 | 17 | 5 | 18.9 | 23.1 | 30.5 | 13.1 |
| P4 SMAJ 17A | 17 | 5 | 18.9 | 21.0 | 27.6 | 14.5 |
| P4 SMAJ 18 | 18 | 5 | 20.0 | 24.4 | 32.2 | 12.4 |
| P4 SMAJ 18A | 18 | 5 | 20.0 | 22.2 | 29.2 | 13.7 |
| P4 SMAJ 20 | 20 | 5 | 22.2 | 27.1 | 35.8 | 11.2 |
| P4 SMAJ 20A | 20 | 5 | 22.2 | 24.6 | 32.4 | 12.3 |
| P4 SMAJ 22 | 22 | 5 | 24.4 | 29.8 | 39.4 | 10.2 |
| P4 SMAJ 22A | 22 | 5 | 24.4 | 27.1 | 35.5 | 11.3 |
| P4 SMAJ 24 | 24 | 5 | 26.7 | 32.6 | 43.0 | 9.3 |
| P4 SMAJ 24A | 24 | 5 | 26.7 | 29.6 | 38.9 | 10.3 |
| P4 SMAJ 26 | 26 | 5 | 28.9 | 35.3 | 46.6 | 8.6 |
| P4 SMAJ 26A | 26 | 5 | 28.9 | 32.1 | 42.1 | 9.5 |
| P4 SMAJ 28 | 28 | 5 | 31.1 | 37.9 | 50.0 | 8.0 |
| P4 SMAJ 28A | 28 | 5 | 31.1 | 34.5 | 45.4 | 8.8 |
| P4 SMAJ 30 | 30 | 5 | 33.3 | 40.1 | 53.5 | 7.5 |
| P4 SMAJ 30A | 30 | 5 | 33.3 | 36.9 | 48.4 | 8.3 |
| P4 SMAJ 33 | 33 | 5 | 36.7 | 44.8 | 59.0 | 6.8 |
| P4 SMAJ 33A | 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) | |
|--------------|---------------------------------------|---|---|-------------------|--|---------------|
| | V_{WM} [V] | I_D [μ A] | V_{BR} min. [V] | V_{BR} max. [V] | V_C [V] | I_{PPM} [A] |
| P4 SMAJ 36 | 36 | 5 | 40.0 | 48.8 | 64.3 | 6.2 |
| P4 SMAJ 36A | 36 | 5 | 40.0 | 44.4 | 58.1 | 6.9 |
| P4 SMAJ 40 | 40 | 5 | 44.4 | 54.2 | 71.4 | 5.6 |
| P4 SMAJ 40A | 40 | 5 | 44.4 | 49.3 | 64.5 | 6.2 |
| P4 SMAJ 43 | 43 | 5 | 47.8 | 58.3 | 76.7 | 5.2 |
| P4 SMAJ 43A | 43 | 5 | 47.8 | 53.1 | 69.4 | 5.8 |
| P4 SMAJ 45 | 45 | 5 | 50.0 | 61.0 | 80.3 | 5.0 |
| P4 SMAJ 45A | 45 | 5 | 50.0 | 55.5 | 72.7 | 5.5 |
| P4 SMAJ 48 | 48 | 5 | 53.3 | 65.0 | 85.5 | 4.7 |
| P4 SMAJ 48A | 48 | 5 | 53.3 | 59.2 | 77.4 | 5.2 |
| P4 SMAJ 51 | 51 | 5 | 56.7 | 69.2 | 91.1 | 4.4 |
| P4 SMAJ 51A | 51 | 5 | 56.7 | 62.9 | 82.4 | 4.9 |
| P4 SMAJ 54 | 54 | 5 | 60.0 | 73.2 | 96.3 | 4.2 |
| P4 SMAJ 54A | 54 | 5 | 60.0 | 66.6 | 87.1 | 4.6 |
| P4 SMAJ 58 | 58 | 5 | 64.4 | 78.6 | 103 | 3.9 |
| P4 SMAJ 58A | 58 | 5 | 64.4 | 71.5 | 93.6 | 4.3 |
| P4 SMAJ 60 | 60 | 5 | 66.7 | 81.4 | 107 | 3.7 |
| P4 SMAJ 60A | 60 | 5 | 66.7 | 74.0 | 96.8 | 4.1 |
| P4 SMAJ 64 | 64 | 5 | 71.1 | 86.7 | 114 | 3.5 |
| P4 SMAJ 64A | 64 | 5 | 71.1 | 78.9 | 103 | 3.9 |
| P4 SMAJ 70 | 70 | 5 | 77.8 | 94.9 | 125 | 3.2 |
| P4 SMAJ 70A | 70 | 5 | 77.8 | 86.4 | 113 | 3.5 |
| P4 SMAJ 75 | 75 | 5 | 83.3 | 102 | 134 | 3.0 |
| P4 SMAJ 75A | 75 | 5 | 83.3 | 92.5 | 121 | 3.3 |
| P4 SMAJ 78 | 78 | 5 | 86.7 | 106 | 139 | 2.9 |
| P4 SMAJ 78A | 78 | 5 | 86.7 | 96.2 | 126 | 3.2 |
| P4 SMAJ 85 | 85 | 5 | 94.4 | 115 | 151 | 2.6 |
| P4 SMAJ 85A | 85 | 5 | 94.4 | 105 | 137 | 2.9 |
| P4 SMAJ 90 | 90 | 5 | 100 | 122 | 160 | 2.5 |
| P4 SMAJ 90A | 90 | 5 | 100 | 111 | 146 | 2.7 |
| P4 SMAJ 100 | 100 | 5 | 111 | 135 | 179 | 2.2 |
| P4 SMAJ 100A | 100 | 5 | 111 | 123 | 162 | 2.5 |
| P4 SMAJ 110 | 110 | 5 | 122 | 149 | 196 | 2.0 |
| P4 SMAJ 110A | 110 | 5 | 122 | 135 | 177 | 2.3 |
| P4 SMAJ 120 | 120 | 5 | 133 | 162 | 214 | 1.9 |
| P4 SMAJ 120A | 120 | 5 | 133 | 148 | 193 | 2.1 |
| P4 SMAJ 130 | 130 | 5 | 144 | 176 | 231 | 1.7 |
| P4 SMAJ 130A | 130 | 5 | 144 | 160 | 209 | 1.9 |
| P4 SMAJ 150 | 150 | 5 | 167 | 204 | 268 | 1.5 |
| P4 SMAJ 150A | 150 | 5 | 167 | 185 | 243 | 1.6 |
| P4 SMAJ 160 | 160 | 5 | 178 | 217 | 287 | 1.4 |
| P4 SMAJ 160A | 160 | 5 | 178 | 198 | 259 | 1.5 |
| P4 SMAJ 170 | 170 | 5 | 189 | 231 | 304 | 1.3 |
| P4 SMAJ 170A | 170 | 5 | 189 | 210 | 275 | 1.4 |



For bidirectional types (suffix “C” or “CA”) electrical characteristics apply in both directions
Für bidirektionale Dioden (Suffix “C” oder “CA”) gelten die el. Werte in beiden Richtungen

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