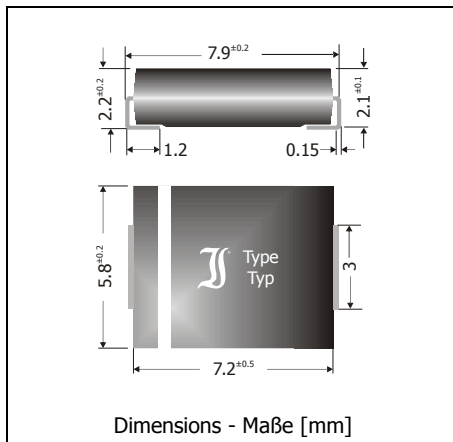


## 1.5SMCJ5.0 ... 1.5SMCJ170CA

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

Version 2012-04-04



|   |                     |
|---|---------------------|
| Peak pulse power dissipation<br>Impuls-Verlustleistung                                | 1500 W              |
| Nominal Stand-off voltage<br>Nominale Sperrspannung                                   | 5.0...170 V         |
| Plastic case<br>Kunststoffgehäuse   | ~ SMC<br>~ DO-214AB |
| Weight approx. – Gewicht ca.  | 0.21 g              |
| Plastic material has UL classification 94V-0<br>Gehäusematerial UL94V-0 klassifiziert |                     |
| Standard packaging taped and reeled<br>Standard Lieferform gegurtet auf Rollen        |                     |



For bidirectional types (add suffix "C" or "CA"), electrical characteristics apply in both directions.  
Für bidirektionale Dioden (ergänze Suffix "C" oder "CA") gelten die elektrischen Werte in beiden Richtungen.

#### Maximum ratings and Characteristics

#### Grenz- und Kennwerte

|  |                          |                |                              |
|--|--------------------------|----------------|------------------------------|
| Peak pulse power dissipation (10/1000 $\mu$ s waveform)<br>Impuls-Verlustleistung (Strom-Impuls 10/1000 $\mu$ s) | $T_A = 25^\circ\text{C}$ | $P_{PPM}$      | 1500 W <sup>1)</sup>         |
| Steady state power dissipation<br>Verlustleistung im Dauerbetrieb  | $T_T = 75^\circ\text{C}$ | $P_{M(AV)}$    | 5 W                          |
| Peak forward surge current, 60 Hz half sine-wave<br>Stoßstrom für eine 60 Hz Sinus-Halbwelle                     | $T_A = 25^\circ\text{C}$ | $I_{FSM}$      | 100 A <sup>2)</sup>          |
| Max. instantaneous forward voltage<br>Augenblickswert der Durchlass-Spannung                                     | $I_F = 25\text{ A}$      | $V_F$          | < 3.0 V <sup>2)</sup>        |
| Operating junction temperature – Sperrschichttemperatur<br>Storage temperature – Lagerungstemperatur             |                          | $T_j$<br>$T_s$ | -50...+150°C<br>-50...+150°C |
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft                      |                          | $R_{thA}$      | < 33 K/W <sup>3)</sup>       |
| Thermal resistance junction to terminal<br>Wärmewiderstand Sperrschicht – Anschluss                              |                          | $R_{thT}$      | < 10 K/W                     |

**TVS diodes having breakdown voltage  $V_{BR} = 220 \dots 550\text{ V}$ : please refer to datasheet 1.5SMC220**  
**TVS-Dioden mit Abbruchspannung  $V_{BR} = 220 \dots 550\text{ V}$ : siehe Datenblatt 1.5SMC220**

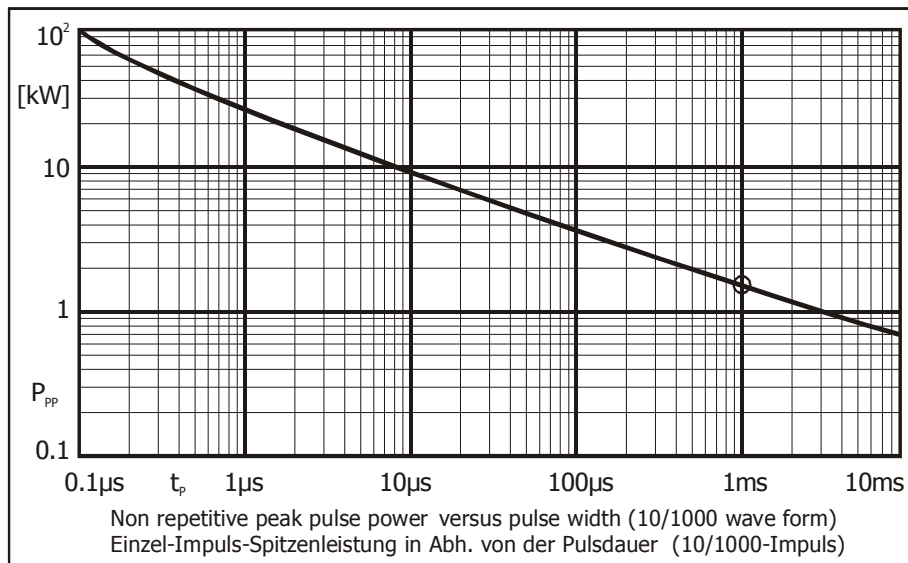
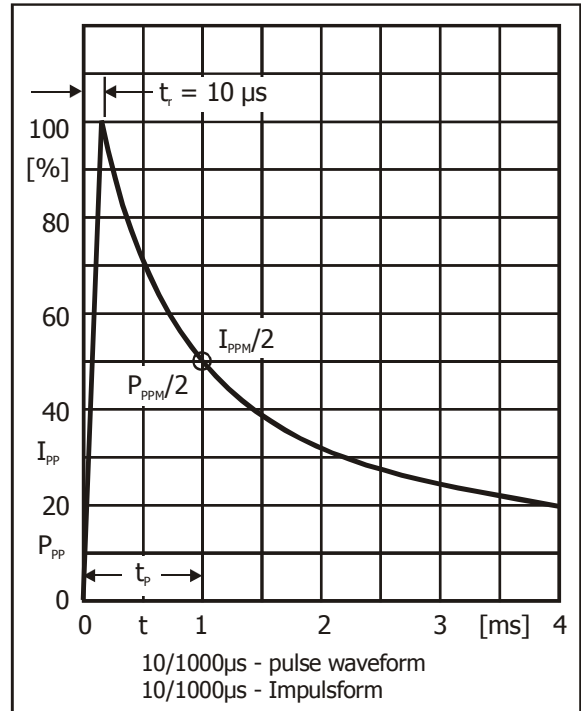
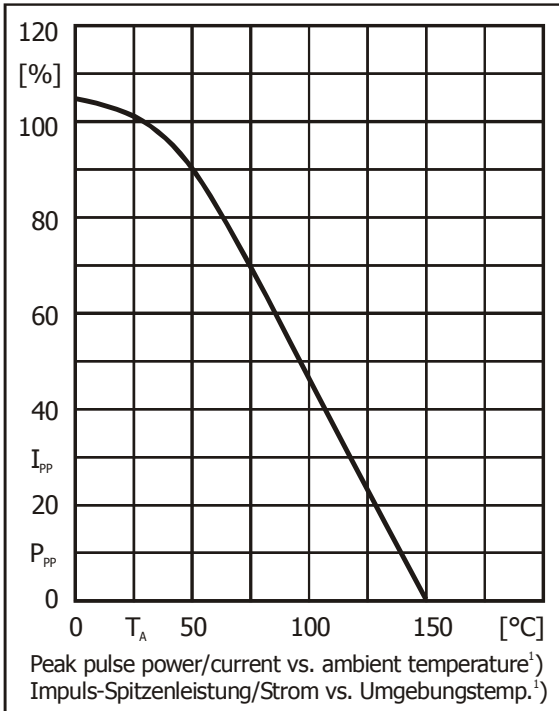
- 1 Non-repetitive pulse see curve  $I_{pp} = f(t) / P_{pp} = f(t)$   
Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve  $I_{pp} = f(t) / P_{pp} = f(t)$
- 2 Unidirectional diodes only – Nur für unidirektionale Dioden
- 3 Mounted on P.C. board with 50 mm<sup>2</sup> copper pads at each terminal  
Montage auf Leiterplatte mit 50 mm<sup>2</sup> Kupferbelag (Löt-pad) an jedem Anschluss

**Maximum ratings**
**Grenzwerte**

| Type<br>Typ | Stand-off voltage<br>Sperrspannung | Max. rev. current<br>Max. Sperrstrom<br>at / bei $V_{WM}$ | Breakdown voltage at $I_T = 1$ mA<br>Abbruch-Spannung bei $I_T = 1$ mA<br>*) $I_T = 10$ mA |                  | Max. clamping voltage<br>Max. Begrenzer-Spannung<br>at / bei $I_{PPM}$ (10/1000 $\mu$ s) |               |
|-------------|------------------------------------|---|--|------------------|--|---------------|
|             | $V_{WM}$ [V]                       | $I_D$ [ $\mu$ A]  | $V_{BR}$ min [V]   | $V_{BR}$ max [V] | $V_C$ [V]  | $I_{PPM}$ [A] |
| 1.5SMCJ5.0  | 5.0                                | 800   | 6.4 *)   | 7.8 *)           | 10.3   | 146           |
| 1.5SMCJ5.0A | 5.0                                | 800   | 6.4 *)   | 7.2 *)           | 9.2  | 163           |
| 1.5SMCJ6.5  | 6.5                                | 500   | 7.2 *)   | 8.8 *)           | 12.3   | 122           |
| 1.5SMCJ6.5A | 6.5                                | 500   | 7.2 *)   | 8.0 *)           | 11.2   | 134           |
| 1.5SMCJ7.0  | 7.0                                | 200   | 7.8 *)   | 9.5 *)           | 13.3   | 113           |
| 1.5SMCJ7.0A | 7.0                                | 200   | 7.8 *)   | 8.7 *)           | 12.0   | 125           |
| 1.5SMCJ7.5  | 7.5                                | 100   | 8.3  | 10.1             | 14.3   | 105           |
| 1.5SMCJ7.5A | 7.5                                | 100   | 8.3  | 9.2              | 12.9   | 116           |
| 1.5SMCJ8.0  | 8.0                                | 50  | 8.9  | 10.9             | 15.0   | 100           |
| 1.5SMCJ8.0A | 8.0                                | 50  | 8.9  | 9.9              | 13.6   | 110           |
| 1.5SMCJ8.5  | 8.5                                | 10  | 9.4  | 11.5             | 15.9   | 94.3          |
| 1.5SMCJ8.5A | 8.5                                | 10  | 9.4  | 10.4             | 14.4   | 104.2         |
| 1.5SMCJ9.0  | 9.0                                | 5   | 10.0   | 12.2             | 16.9   | 88.8          |
| 1.5SMCJ9.0A | 9.0                                | 5   | 10.0   | 11.1             | 15.4   | 97.4          |
| 1.5SMCJ10   | 10                                 | 5   | 11.1   | 13.5             | 18.8   | 79.8          |
| 1.5SMCJ10A  | 10                                 | 5   | 11.1   | 12.3             | 17.0   | 88.2          |
| 1.5SMCJ11   | 11                                 | 5   | 12.2   | 14.9             | 20.1   | 74.6          |
| 1.5SMCJ11A  | 11                                 | 5   | 12.2   | 13.5             | 18.2   | 82.4          |
| 1.5SMCJ12   | 12                                 | 5   | 13.3   | 16.2             | 22.0   | 68.2          |
| 1.5SMCJ12A  | 12                                 | 5   | 13.3   | 14.8             | 19.9   | 75.4          |
| 1.5SMCJ13   | 13                                 | 5   | 14.4   | 17.6             | 23.8   | 63.0          |
| 1.5SMCJ13A  | 13                                 | 5   | 14.4   | 16.0             | 21.5   | 69.8          |
| 1.5SMCJ14   | 14                                 | 5   | 15.6   | 19.0             | 25.8   | 58.1          |
| 1.5SMCJ14A  | 14                                 | 5   | 15.6   | 17.3             | 23.2   | 64.7          |
| 1.5SMCJ15   | 15                                 | 5   | 16.7   | 20.4             | 26.9   | 55.8          |
| 1.5SMCJ15A  | 15                                 | 5   | 16.7   | 18.6             | 24.4   | 61.5          |
| 1.5SMCJ16   | 16                                 | 5   | 17.8   | 21.7             | 28.8   | 52.1          |
| 1.5SMCJ16A  | 16                                 | 5   | 17.8   | 19.8             | 26.0   | 57.7          |
| 1.5SMCJ17   | 17                                 | 5   | 18.9   | 23.1             | 30.5   | 49.2          |
| 1.5SMCJ17A  | 17                                 | 5   | 18.9   | 21.0             | 27.6   | 54.3          |
| 1.5SMCJ18   | 18                                 | 5   | 20.0   | 24.4             | 32.2   | 46.6          |
| 1.5SMCJ18A  | 18                                 | 5   | 20.0   | 22.2             | 29.2   | 51.4          |
| 1.5SMCJ20   | 20                                 | 5   | 22.2   | 27.1             | 35.8   | 41.9          |
| 1.5SMCJ20A  | 20                                 | 5   | 22.2   | 24.6             | 32.4   | 46.3          |
| 1.5SMCJ22   | 22                                 | 5   | 24.4   | 29.8             | 39.4   | 38.1          |
| 1.5SMCJ22A  | 22                                 | 5   | 24.4   | 27.1             | 35.5   | 42.3          |
| 1.5SMCJ24   | 24                                 | 5   | 26.7   | 32.6             | 43.0   | 34.9          |
| 1.5SMCJ24A  | 24                                 | 5   | 26.7   | 29.6             | 38.9   | 38.6          |
| 1.5SMCJ26   | 26                                 | 5   | 28.9   | 35.3             | 46.6   | 32.2          |
| 1.5SMCJ26A  | 26                                 | 5   | 28.9   | 32.1             | 42.1   | 35.6          |
| 1.5SMCJ28   | 28                                 | 5   | 31.1   | 37.9             | 50.0   | 30.0          |
| 1.5SMCJ28A  | 28                                 | 5   | 31.1   | 34.5             | 45.4   | 33.0          |
| 1.5SMCJ30   | 30                                 | 5   | 33.3   | 40.1             | 53.5   | 28.0          |
| 1.5SMCJ30A  | 30                                 | 5   | 33.3   | 36.9             | 48.4   | 31.0          |
| 1.5SMCJ33   | 33                                 | 5   | 36.7   | 44.8             | 59.0   | 25.4          |

**Maximum ratings****Grenzwerte**

| Type<br>Typ | Stand-off voltage<br>Sperrspannung | Max. rev. current<br>Max. Sperrstrom<br>at / bei $V_{WM}$ | Breakdown voltage at $I_T = 1$ mA<br>Abbruch-Spannung bei $I_T = 1$ mA<br>*) $I_T = 10$ mA |                  | Max. clamping voltage<br>Max. Begrenzer-Spannung<br>at / bei $I_{PPM}$ (10/1000 $\mu$ s) |               |
|-------------|------------------------------------|---|--|------------------|--|---------------|
|             | $V_{WM}$ [V]                       | $I_D$ [ $\mu$ A]  | $V_{BR}$ min [V]   | $V_{BR}$ max [V] | $V_C$ [V]  | $I_{PPM}$ [A] |
| 1.5SMCJ33A  | 33                                 | 5   | 36.7   | 40.7             | 53.3   | 28.1          |
| 1.5SMCJ36   | 36                                 | 5   | 40.0   | 48.4             | 64.3   | 23.3          |
| 1.5SMCJ36A  | 36                                 | 5   | 40.0   | 44.4             | 58.1   | 25.8          |
| 1.5SMCJ40   | 40                                 | 5   | 44.4   | 54.2             | 71.4   | 21.0          |
| 1.5SMCJ40A  | 40                                 | 5   | 44.4   | 49.3             | 64.5   | 23.3          |
| 1.5SMCJ43   | 43                                 | 5   | 47.8   | 58.3             | 76.7   | 19.6          |
| 1.5SMCJ43A  | 43                                 | 5   | 47.8   | 53.1             | 69.4   | 21.6          |
| 1.5SMCJ45   | 45                                 | 5   | 50.0   | 61.0             | 80.3   | 18.7          |
| 1.5SMCJ45A  | 45                                 | 5   | 50.0   | 55.5             | 72.7   | 20.6          |
| 1.5SMCJ48   | 48                                 | 5   | 53.3   | 65.0             | 85.5   | 17.5          |
| 1.5SMCJ48A  | 48                                 | 5   | 53.3   | 59.2             | 77.4   | 19.4          |
| 1.5SMCJ51   | 51                                 | 5   | 56.7   | 69.2             | 91.1   | 16.5          |
| 1.5SMCJ51A  | 51                                 | 5   | 56.7   | 62.9             | 82.4   | 18.2          |
| 1.5SMCJ54   | 54                                 | 5   | 60.0   | 73.2             | 96.3   | 15.6          |
| 1.5SMCJ54A  | 54                                 | 5   | 60.0   | 66.6             | 87.1   | 17.2          |
| 1.5SMCJ58   | 58                                 | 5   | 64.4   | 78.6             | 103  | 14.6          |
| 1.5SMCJ58A  | 58                                 | 5   | 64.4   | 71.5             | 93.6   | 16.0          |
| 1.5SMCJ60   | 60                                 | 5   | 66.7   | 81.4             | 107  | 14.0          |
| 1.5SMCJ60A  | 60                                 | 5   | 66.7   | 74.0             | 96.8   | 15.5          |
| 1.5SMCJ64   | 64                                 | 5   | 71.1   | 86.7             | 114  | 13.2          |
| 1.5SMCJ64A  | 64                                 | 5   | 71.1   | 78.9             | 103  | 14.6          |
| 1.5SMCJ70   | 70                                 | 5   | 77.8   | 94.9             | 125  | 12.0          |
| 1.5SMCJ70A  | 70                                 | 5   | 77.8   | 86.4             | 113  | 13.3          |
| 1.5SMCJ75   | 75                                 | 5   | 83.3   | 102              | 134  | 11.2          |
| 1.5SMCJ75A  | 75                                 | 5   | 83.3   | 92.5             | 121  | 12.4          |
| 1.5SMCJ78   | 78                                 | 5   | 86.7   | 106              | 139  | 10.8          |
| 1.5SMCJ78A  | 78                                 | 5   | 86.7   | 96.2             | 126  | 11.9          |
| 1.5SMCJ85   | 85                                 | 5   | 94.4   | 115              | 151  | 9.9           |
| 1.5SMCJ85A  | 85                                 | 5   | 94.4   | 105              | 137  | 10.9          |
| 1.5SMCJ90   | 90                                 | 5   | 100  | 122              | 160  | 9.4           |
| 1.5SMCJ90A  | 90                                 | 5   | 100  | 111              | 146  | 10.3          |
| 1.5SMCJ100  | 100                                | 5   | 111  | 135              | 179  | 8.4           |
| 1.5SMCJ100A | 100                                | 5   | 111  | 123              | 162  | 9.3           |
| 1.5SMCJ110  | 110                                | 5   | 122  | 149              | 196  | 7.7           |
| 1.5SMCJ110A | 110                                | 5   | 122  | 135              | 177  | 8.5           |
| 1.5SMCJ120  | 120                                | 5   | 133  | 162              | 214  | 7.0           |
| 1.5SMCJ120A | 120                                | 5   | 133  | 148              | 193  | 7.8           |
| 1.5SMCJ130  | 130                                | 5   | 144  | 176              | 231  | 6.5           |
| 1.5SMCJ130A | 130                                | 5   | 144  | 160              | 209  | 7.2           |
| 1.5SMCJ150  | 150                                | 5   | 167  | 204              | 268  | 5.6           |
| 1.5SMCJ150A | 150                                | 5   | 167  | 185              | 243  | 6.2           |
| 1.5SMCJ160  | 160                                | 5   | 178  | 217              | 287  | 5.2           |
| 1.5SMCJ160A | 160                                | 5   | 178  | 198              | 259  | 5.8           |
| 1.5SMCJ170  | 170                                | 5   | 189  | 231              | 304  | 4.9           |
| 1.5SMCJ170A | 170                                | 5   | 189  | 210              | 275  | 5.5           |



**TVS diodes having breakdown voltage  $V_{BR} = 220 \dots 550 \text{ V}$ : please refer to datasheet 1.5SMC220**  
**TVS-Dioden mit Abbruchspannung  $V_{BR} = 220 \dots 550 \text{ V}$ : siehe Datenblatt 1.5SMC220**

1 Mounted on P.C. board with 25 mm<sup>2</sup> copper pads at each terminal  
Montage auf Leiterplatte mit 25 mm<sup>2</sup> Kupferbelag (Lötpad) an jedem Anschluss