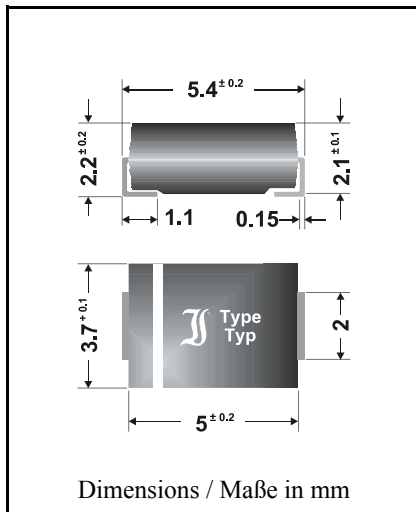


**Surface mount Silicon-Zener Diodes**  
**(non-planar technology)**
**Flächendiffundierte Si-Zener-Dioden**  
**für die Oberflächenmontage**


|                                              |                |
|----------------------------------------------|----------------|
| Maximum power dissipation                    | 2 W            |
| Maximale Verlustleistung                     |                |
| Nominal Z-voltage – Nominale Z-Spannung      | 1...200 V      |
| Plastic case                                 | ~ SMB          |
| Kunststoffgehäuse                            | ~ DO-214AA     |
| Weight approx. – Gewicht ca.                 | 0.1 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 |

Standard Zener voltage tolerance is graded to the international E 24 (~5%) standard.  
 Other voltage tolerances and higher Zener voltages on request.  
 Die Toleranz der Zener-Spannung ist in der Standard-Ausführung gestuft nach der internationalen Reihe E 24 (~5%). Andere Toleranzen oder höhere Arbeitsspannungen auf Anfrage.

**Maximum ratings and Characteristics**
**Grenz- und Kennwerte**

|                                                         |                          |                  |                        |
|---------------------------------------------------------|--------------------------|------------------|------------------------|
| Power dissipation – Verlustleistung                     | $T_A = 25^\circ\text{C}$ | $P_{\text{tot}}$ | 2 W <sup>1)</sup>      |
| Non repetitive peak power dissipation, $t < 10$ ms      | $T_A = 25^\circ\text{C}$ | $P_{\text{ZSM}}$ | 40 W                   |
| Einmalige Impuls-Verlustleistung, $t < 10$ ms           |                          |                  |                        |
| Operating junction temperature – Sperrschichttemperatur |                          | $T_j$            | – 50...+150°C          |
| Storage temperature – Lagerungstemperatur               |                          | $T_s$            | – 50...+175°C          |
| Thermal resistance junction to ambient air              |                          | $R_{\text{thA}}$ | < 60 K/W <sup>1)</sup> |
| Wärmewiderstand Sperrschicht – umgebende Luft           |                          |                  |                        |
| Thermal resistance junction to terminal                 |                          | $R_{\text{thT}}$ | < 15 K/W               |
| Wärmewiderstand Sperrschicht – Anschluß                 |                          |                  |                        |

Zener voltages see table on next page – Zener-Spannungen siehe Tabelle auf der nächsten Seite

<sup>1)</sup> 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

<sup>2)</sup> Tested with pulses – Gemessen mit Impulsen

<sup>3)</sup> The Z2SMB 1 is a diode operated in forward. Hence, the index of all parameters should be “F” instead of “Z”.  
 The cathode, indicated by a white band is to be connected to the negative pole.  
 Die Z2SMB 1 ist eine in Durchlaß betriebene Si-Diode. Daher ist bei allen Kenn- und Grenzwerten der Index “F” anstatt “Z” zu setzen. Die mit weißem Balken gekennzeichnete Kathode ist mit dem Minuspol zu verbinden.

## Maximum ratings

## Grenzwerte

| Type<br>Typ            | Zener voltage <sup>2)</sup><br>Zener-Spannung <sup>2)</sup><br>$I_Z = I_{Ztest}$<br>$V_{zmin}$ [V] $V_{zmax}$ |      | Test cur.<br>Meß-<br>strom<br>$I_{Ztest}$ [mA] | Dyn. resistance<br>Diff. Widerst.<br>$I_{Ztest} / 1 \text{ kHz}$<br>$r_{zj}$ [ $\Omega$ ] | Temp. Coeffiz.<br>of Z-voltage<br>...der Z-spannung.<br>$\alpha_{VZ}$ [ $10^{-4} / ^\circ\text{C}$ ] | Reverse volt.<br>Sperrspannung.<br>$I_R = 1 \mu\text{A}$<br>$V_R$ [V] | Z-current <sup>1)</sup><br>Z-Strom <sup>1)</sup><br>$T_A = 50^\circ\text{C}$<br>$I_{Zmax}$ [mA] |
|------------------------|---------------------------------------------------------------------------------------------------------------|------|------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Z2 SMB 1 <sup>3)</sup> | 0.71                                                                                                          | 0.82 | 100                                            | 0.5 (<1)                                                                                  | -26...-16                                                                                            | —                                                                     | 1000                                                                                            |
| Z2 SMB 3.9             | 3.7                                                                                                           | 4.1  | 100                                            | 4 (<6)                                                                                    | -7...+2                                                                                              | —                                                                     | 488                                                                                             |
| Z2 SMB 4.3             | 4.0                                                                                                           | 4.6  | 100                                            | 3.8 (<6)                                                                                  | -7...+3                                                                                              | —                                                                     | 435                                                                                             |
| Z2 SMB 4.7             | 4.4                                                                                                           | 5.0  | 100                                            | 3 (<5)                                                                                    | -7...+4                                                                                              | —                                                                     | 400                                                                                             |
| Z2 SMB 5.1             | 4.8                                                                                                           | 5.4  | 100                                            | 2 (<3)                                                                                    | -6...+5                                                                                              | —                                                                     | 370                                                                                             |
| Z2 SMB 5.6             | 5.2                                                                                                           | 6.0  | 100                                            | 1 (<2)                                                                                    | -3...+5                                                                                              | > 1.5                                                                 | 333                                                                                             |
| Z2 SMB 6.2             | 5.8                                                                                                           | 6.6  | 100                                            | 1 (<2)                                                                                    | -1...+6                                                                                              | > 1.5                                                                 | 303                                                                                             |
| Z2 SMB 6.8             | 6.4                                                                                                           | 7.2  | 100                                            | 1 (<2)                                                                                    | 0...+7                                                                                               | > 2                                                                   | 278                                                                                             |
| Z2 SMB 7.5             | 7.0                                                                                                           | 7.9  | 100                                            | 1 (<2)                                                                                    | 0...+7                                                                                               | > 2                                                                   | 253                                                                                             |
| Z2 SMB 8.2             | 7.7                                                                                                           | 8.7  | 100                                            | 1 (<2)                                                                                    | +3...+8                                                                                              | > 3.5                                                                 | 230                                                                                             |
| Z2 SMB 9.1             | 8.5                                                                                                           | 9.6  | 50                                             | 2 (<4)                                                                                    | +3...+8                                                                                              | > 3.5                                                                 | 208                                                                                             |
| Z2 SMB 10              | 9.4                                                                                                           | 10.6 | 50                                             | 2 (<4)                                                                                    | +5...+9                                                                                              | > 5                                                                   | 189                                                                                             |
| Z2 SMB 11              | 10.4                                                                                                          | 11.6 | 50                                             | 4 (<7)                                                                                    | +5...+10                                                                                             | > 5                                                                   | 172                                                                                             |
| Z2 SMB 12              | 11.4                                                                                                          | 12.7 | 50                                             | 4 (<7)                                                                                    | +5...+10                                                                                             | > 7                                                                   | 157                                                                                             |
| Z2 SMB 13              | 12.4                                                                                                          | 14.1 | 50                                             | 5 (<10)                                                                                   | +5...+10                                                                                             | > 7                                                                   | 142                                                                                             |
| Z2 SMB 15              | 13.8                                                                                                          | 15.6 | 50                                             | 5 (<10)                                                                                   | +5...+10                                                                                             | > 10                                                                  | 128                                                                                             |
| Z2 SMB 16              | 15.3                                                                                                          | 17.1 | 25                                             | 6 (<15)                                                                                   | +6...+11                                                                                             | > 10                                                                  | 117                                                                                             |
| Z2 SMB 18              | 16.8                                                                                                          | 19.1 | 25                                             | 6 (<15)                                                                                   | +6...+11                                                                                             | > 10                                                                  | 105                                                                                             |
| Z2 SMB 20              | 18.8                                                                                                          | 21.2 | 25                                             | 6 (<15)                                                                                   | +6...+11                                                                                             | > 10                                                                  | 94                                                                                              |
| Z2 SMB 22              | 20.8                                                                                                          | 23.3 | 25                                             | 6 (<15)                                                                                   | +6...+11                                                                                             | > 12                                                                  | 86                                                                                              |
| Z2 SMB 24              | 22.8                                                                                                          | 25.6 | 25                                             | 7 (<15)                                                                                   | +6...+11                                                                                             | > 12                                                                  | 78                                                                                              |
| Z2 SMB 27              | 25.1                                                                                                          | 28.9 | 25                                             | 7 (<15)                                                                                   | +6...+11                                                                                             | > 14                                                                  | 69                                                                                              |
| Z2 SMB 30              | 28                                                                                                            | 32   | 25                                             | 8 (<15)                                                                                   | +6...+11                                                                                             | > 14                                                                  | 63                                                                                              |
| Z2 SMB 33              | 31                                                                                                            | 35   | 25                                             | 8 (<15)                                                                                   | +6...+11                                                                                             | > 17                                                                  | 57                                                                                              |
| Z2 SMB 36              | 34                                                                                                            | 38   | 10                                             | 16 (<30)                                                                                  | +6...+11                                                                                             | > 17                                                                  | 53                                                                                              |
| Z2 SMB 39              | 37                                                                                                            | 41   | 10                                             | 20 (<40)                                                                                  | +6...+11                                                                                             | > 20                                                                  | 49                                                                                              |
| Z2 SMB 43              | 40                                                                                                            | 46   | 10                                             | 24 (<40)                                                                                  | +7...+12                                                                                             | > 20                                                                  | 43                                                                                              |
| Z2 SMB 47              | 44                                                                                                            | 50   | 10                                             | 24 (<40)                                                                                  | +7...+12                                                                                             | > 24                                                                  | 40                                                                                              |
| Z2 SMB 51              | 48                                                                                                            | 54   | 10                                             | 25 (<60)                                                                                  | +7...+12                                                                                             | > 24                                                                  | 37                                                                                              |
| Z2 SMB 56              | 52                                                                                                            | 60   | 10                                             | 25 (<60)                                                                                  | +7...+12                                                                                             | > 28                                                                  | 33                                                                                              |
| Z2 SMB 62              | 58                                                                                                            | 66   | 10                                             | 25 (<80)                                                                                  | +8...+13                                                                                             | > 28                                                                  | 30                                                                                              |
| Z2 SMB 68              | 64                                                                                                            | 72   | 10                                             | 25 (<80)                                                                                  | +8...+13                                                                                             | > 34                                                                  | 28                                                                                              |
| Z2 SMB 75              | 70                                                                                                            | 79   | 10                                             | 30 (<100)                                                                                 | +8...+13                                                                                             | > 34                                                                  | 25                                                                                              |
| Z2 SMB 82              | 77                                                                                                            | 88   | 10                                             | 30 (<100)                                                                                 | +8...+13                                                                                             | > 41                                                                  | 23                                                                                              |
| Z2 SMB 91              | 85                                                                                                            | 96   | 5                                              | 40 (<150)                                                                                 | +9...+13                                                                                             | > 41                                                                  | 21                                                                                              |
| Z2 SMB 100             | 94                                                                                                            | 106  | 5                                              | 60 (<150)                                                                                 | +9...+13                                                                                             | > 50                                                                  | 19                                                                                              |
| Z2 SMB 110             | 104                                                                                                           | 116  | 5                                              | 80 (<200)                                                                                 | +9...+13                                                                                             | > 50                                                                  | 17                                                                                              |
| Z2 SMB 120             | 114                                                                                                           | 127  | 5                                              | 80 (<200)                                                                                 | +9...+13                                                                                             | > 60                                                                  | 16                                                                                              |
| Z2 SMB 130             | 124                                                                                                           | 141  | 5                                              | 90 (<250)                                                                                 | +9...+13                                                                                             | > 60                                                                  | 14                                                                                              |
| Z2 SMB 150             | 138                                                                                                           | 156  | 5                                              | 100 (<250)                                                                                | +9...+13                                                                                             | > 75                                                                  | 13                                                                                              |
| Z2 SMB 160             | 153                                                                                                           | 171  | 5                                              | 110 (<300)                                                                                | +9...+13                                                                                             | > 75                                                                  | 12                                                                                              |
| Z2 SMB 180             | 168                                                                                                           | 191  | 5                                              | 120 (<350)                                                                                | +9...+13                                                                                             | > 90                                                                  | 10                                                                                              |
| Z2 SMB 200             | 188                                                                                                           | 212  | 5                                              | 150 (<350)                                                                                | +9...+13                                                                                             | > 90                                                                  | 9                                                                                               |

<sup>1)</sup> Notes see previous page – Fußnoten siehe vorhergehende Seite