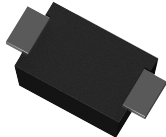


**SMF5.0 ... SMF220CA**  
**SMD Transient Voltage Suppressor Diodes**  
**SMD Spannungs-Begrenzer-Dioden**
**P<sub>PPM</sub> = 200 W**  
**P<sub>M(AV)</sub> = 1 W**  
**T<sub>jmax</sub> = 150°C**
**V<sub>WM</sub> = 5.0 ... 220 V**  
**V<sub>BR</sub> = 6.8 ... 260 V**

Version 2022-10-06

**SOD-123FL**  
 ~ SMF
SPICE Model & STEP File <sup>1)</sup>

unidir. (A)



bidir. (CA)

**Marking**
 V<sub>WM</sub> only. Cathode unidir. types only  
 Nur V<sub>WM</sub>. Kathode nur unidir. Typen
**HS Code** 85411000**Typical Applications**
 Over-voltage protection  
 ESD protection  
 Free-wheeling diodes  
 Commercial / industrial grade  
 Suffix -Q: AEC-Q101 compliant <sup>1)</sup>  
 Suffix -AQ: in AEC-Q101 qualification <sup>1)</sup>
**Features**
 Uni- and Bidirectional versions  
 Peak pulse power of 200 W  
 (10/1000 µs waveform)  
 Very fast response time  
 Low profile package  
 Compliant to RoHS (exemp. 7a)  
 REACH, Conflict Minerals <sup>1)</sup>
**Mechanical Data <sup>1)</sup>**
 Taped and reeled  
 Weight approx.  
 Case material  
 Solder & assembly conditions


3000 / 7"

0.02 g

UL 94V-0

260°C/10s

MSL = 1

**Typische Anwendungen**
 Schutz gegen Überspannung  
 ESD-Schutz  
 Freilauf-Dioden  
 Standardausführung  
 Suffix -Q: AEC-Q101 konform <sup>1)</sup>  
 Suffix -AQ: in AEC-Q101 Qualifikation <sup>1)</sup>
**Besonderheiten**
 Uni- und Bidirektionale Versionen  
 200 W Impuls-Verlustleistung  
 (10/1000 µs Strom-Impuls)  
 Sehr schnelle Ansprechzeit  
 Flache Bauform  
 Konform zu RoHS (Ausn. 7a)  
 REACH, Konfliktmineralien <sup>1)</sup>
**Mechanische Daten <sup>1)</sup>**

Gegurtet auf Rolle

Gewicht ca.

Gehäusematerial

Löt- und Einbaubedingungen

 For bidirectional types (suffix "CA"), electrical characteristics apply in both directions.  
 Für bidirektionale Dioden (mit Suffix "CA") gelten die elektrischen Werte in beiden Richtungen.
**Maximum ratings <sup>2)</sup>****Grenzwerte <sup>2)</sup>**

|                                                                                                                                       |                                                     |                    |                                             |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------|---------------------------------------------|
| Peak pulse power dissipation<br>Impuls-Verlustleistung                                                                                | 10/1000 µs pulse<br>8/20 µs pulse                   | P <sub>PPM</sub>   | 200 W <sup>3)</sup><br>1000 W <sup>3)</sup> |
| Steady state power dissipation<br>Verlustleistung im Dauerbetrieb                                                                     | T <sub>A</sub> = 50°C<br>T <sub>A</sub> = 25°C      | P <sub>M(AV)</sub> | 0.5 W <sup>4)</sup><br>1.0 W <sup>5)</sup>  |
| ESD immunity (air discharge) – ESD-Festigkeit (Luftentladung)<br>ESD immunity (contact discharge) – ESD-Festigkeit (Kontaktentladung) | IEC 61000-4-2                                       | V <sub>PP</sub>    | ± 30 kV <sup>6)</sup>                       |
| Peak forward surge current<br>Stoßstrom in Fluss-Richtung                                                                             | Half sine-wave<br>Sinus-Halbwelle<br>60 Hz (8.3 ms) | I <sub>FSM</sub>   | 20 A <sup>7)</sup>                          |

**Characteristics****Kennwerte**

|                                                                                            |                       |                                  |                                                |
|--------------------------------------------------------------------------------------------|-----------------------|----------------------------------|------------------------------------------------|
| Max. instantaneous forward voltage – Augenblickswert der Durchlass-Spannung                | I <sub>F</sub> = 10 A | V <sub>F</sub>                   | < 3.5 V <sup>7)</sup>                          |
| Junction temperature – Sperrschichttemperatur<br>Storage temperature – Lagerungstemperatur |                       | T <sub>j</sub><br>T <sub>s</sub> | -50...+150°C<br>-50...+150°C                   |
| Typ. thermal resistance junction to ambient<br>Typ. Wärmewiderstand Sperrschicht-Umgebung  |                       | R <sub>thA</sub>                 | 180 K/W <sup>4)</sup><br>125 K/W <sup>5)</sup> |

<sup>1)</sup> Please note the [detailed information on our website](#) or at the beginning of the data book  
 Bitte beachten Sie die [detaillierten Hinweise auf unserer Internetseite](#) bzw. am Anfang des Datenbuches

<sup>2)</sup> T<sub>A</sub> = 25°C unless otherwise specified – T<sub>A</sub> = 25°C wenn nicht anders angegeben

<sup>3)</sup> Non-repetitive pulse see curve I<sub>pp</sub> = f(t) / P<sub>pp</sub> = f(t)

Höchstzulässiger Spitzenwert eines einmaligen Impulses, siehe Kurve I<sub>pp</sub> = f(t) / P<sub>pp</sub> = f(t)

<sup>4)</sup> Mounted on P. C. board with 5x5 mm<sup>2</sup> copper pads – Montage auf Leiterplatte mit 5x5 mm<sup>2</sup> Lötpad je Anschluss

<sup>5)</sup> Mounted on P. C. board with 50x50 mm<sup>2</sup> copper pads – Montage auf Leiterplatte mit 50x50 mm<sup>2</sup> Lötpad je Anschluss

<sup>6)</sup> Defined for -Q/-AQ parts only – Nur definiert für -Q/-AQ Bauteile

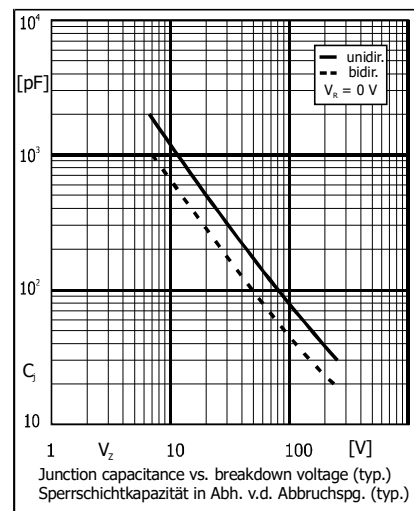
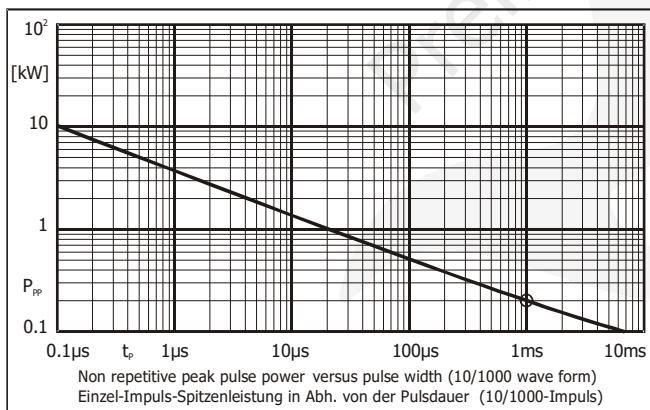
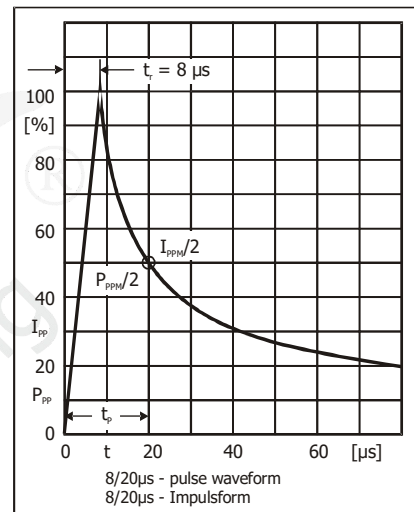
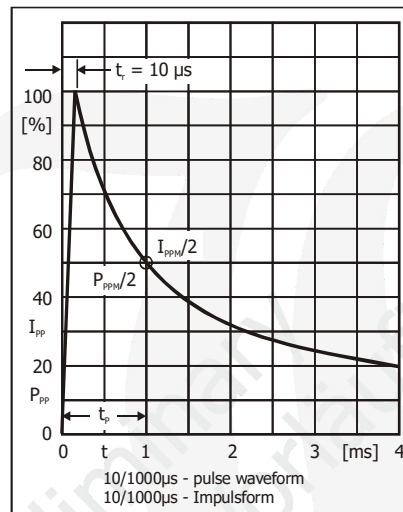
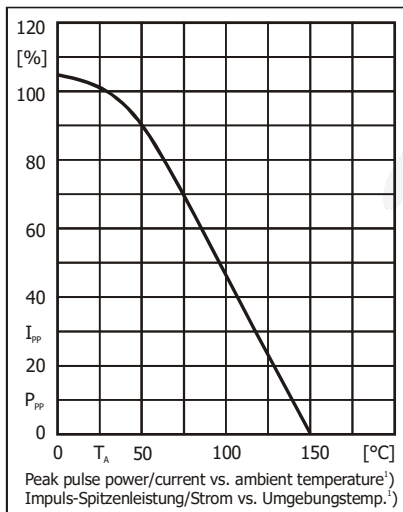
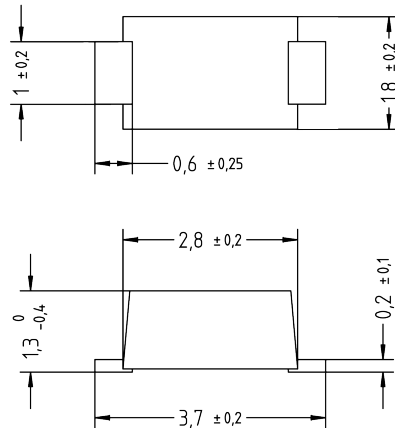
<sup>7)</sup> Unidirectional diodes only – Nur für unidirektionale Dioden

**Characteristics ( $T_j = 25^\circ\text{C}$ )**
**Kennwerte ( $T_j = 25^\circ\text{C}$ )**

| 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1 Footnotes see last page – Fußnoten siehe letzte Seite

## Dimensions – Maße [mm]



**Disclaimer:** See data book page 2 or [website](#)  
**Haftungsausschluss:** Siehe Datenbuch Seite 2 oder [Internet](#)

- 1 Mounted on PCB with 25 mm<sup>2</sup> copper pad per terminal – Montage auf Leiterplatte mit 25 mm<sup>2</sup> Lötpad je Anschluss
- 2 <sup>2)</sup> Available in -Q. Ordering code e. g. SMF14A-Q – <sup>2)</sup> **Available in -AQ. Ordering code e. g. SMF26A-AQ**  
<sup>2)</sup> Erhältlich in -Q. Bestellnummer z. B. SMF14A-Q – <sup>2)</sup> **Erhältlich in -AQ. Bestellnummer z. B. SMF26A-AQ**
- 3 Bidirectional types of V<sub>WM</sub> ≤ 10V have double reverse current limit – Bidir. Typen mit V<sub>WM</sub> ≤ 10V haben doppelte Sperrstromgrenze

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