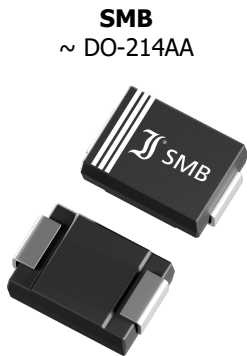
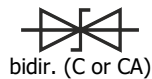
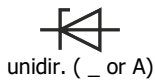


|  |   |  |
|--|---|--|
| <b>P6SMB210A ... P6SMB550CA</b><br><b>SMD Transient Voltage Suppressor Diodes</b><br><b>SMD Spannungs-Begrenzer-Dioden</b> | <b>P<sub>PPM</sub> = 600 W</b><br><b>P<sub>M(AV)</sub> = 5.0 W</b><br><b>T<sub>jmax</sub> = 150°C</b> | <b>V<sub>WM</sub> = 175 ... 495 V</b><br><b>V<sub>BR</sub> = 210 ... 550 V</b> |
|--|---|--|

Version 2021-08-31



SPICE Model & STEP File <sup>1)</sup>



**Marking**

V<sub>BR</sub> only. Cathode mark only at unidirectional types

Nur V<sub>BR</sub>. Kathoden-Markierung nur bei unidirektionalen Typen

**HS Code** 85411000

**Typical Applications**

Over-voltage protection  
ESD protection  
Free-wheeling diodes  
Commercial 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 600 W (10/1000 μs waveform)  
Very fast response time  
Further available: P6SMBJ5.0...170CA  
having V<sub>WM</sub> = 5.0 ... 170 V  
Compliant to RoHS (exemp. 7a), REACH, Conflict Minerals <sup>1)</sup>

**Mechanical Data <sup>1)</sup>**

Taped and reeled 3000 / 13"  
Weight approx. 0.1 g  
Case material UL 94V-0  
Solder & assembly conditions 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  
600 W Impuls-Verlustleistung (10/1000 μs Strom-Impuls)  
Sehr schnelle Ansprechzeit  
Auch erhältlich: P6SMBJ5.0...170CA mit V<sub>WM</sub> = 5.0 ... 170 V  
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 "C" or "CA"), electrical characteristics apply in both directions.  
Für bidirektionale Dioden (mit Suffix "C" oder "CA") gelten die elektrischen Werte in beiden Richtungen.

**Maximum ratings <sup>2)</sup>**

**Grenzwerte <sup>2)</sup>**

|  |   |                    |                     |
|--|---|--------------------|---------------------|
| Peak pulse power dissipation – Impuls-Verlustleistung            | 10/1000 μs  | P <sub>PPM</sub>   | 600 W <sup>3)</sup> |
| Steady state power dissipation – Verlustleistung im Dauerbetrieb | T <sub>T</sub> = 75°C                             | P <sub>M(AV)</sub> | 5 W                 |
| Peak forward surge current<br>Stoßstrom in Fluss-Richtung        | Half sine-wave<br>Sinus-Halbwellen 60 Hz (8.3 ms) | I <sub>FSM</sub>   | 100 A <sup>4)</sup> |
| Junction temperature – Sperrschichttemperatur                    |   | T <sub>j</sub>     | -50...+150°C        |
| Storage temperature – Lagerungstemperatur                        |   | T <sub>s</sub>     | -50...+150°C        |

**Characteristics**

**Kennwerte**

|  |   |                  |                       |
|--|---|------------------|-----------------------|
| Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung                    | I <sub>F</sub> = 25 A V <sub>BR</sub> ≤ 550 V | V <sub>F</sub>   | < 3.0 V <sup>4)</sup> |
| Typ. thermal resistance junction to ambient – Typ. Wärmewiderstand Sperrschicht – Umgebung   |   | R <sub>thA</sub> | 45 K/W <sup>5)</sup>  |
| Typ. thermal resistance junction to terminal – Typ. Wärmewiderstand Sperrschicht – Anschluss |   | R <sub>thT</sub> | 15 K/W                |

- 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
- T<sub>A</sub> = 25°C unless otherwise specified – T<sub>A</sub> = 25°C wenn nicht anders angegeben
- 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)
- Unidirectional diodes only – Nur für unidirektionale Dioden
- Mounted on P.C. board with 25 mm<sup>2</sup> copper pads per terminal – Montage auf Leiterplatte mit 25 mm<sup>2</sup> Lötpad je Anschluss

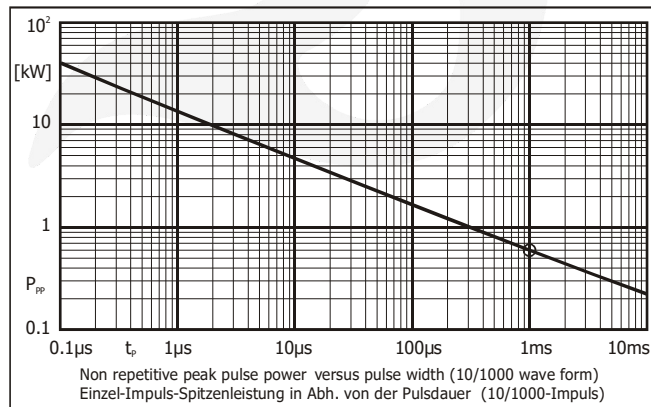
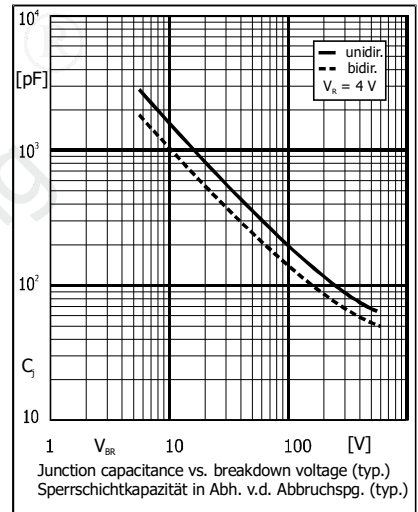
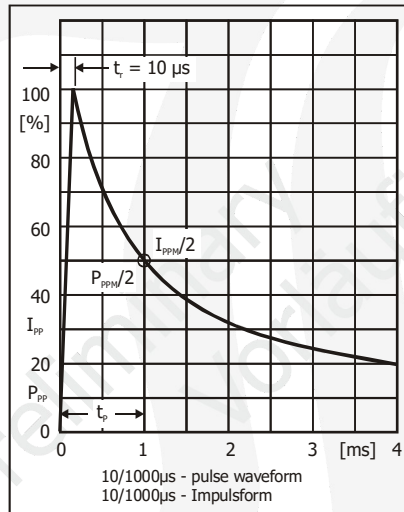
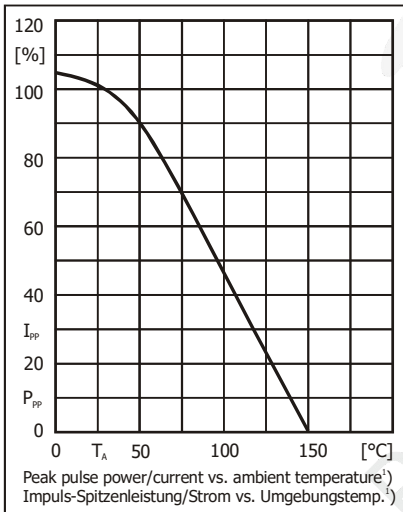
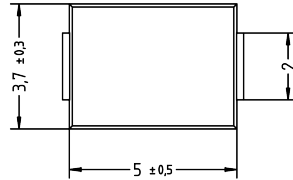
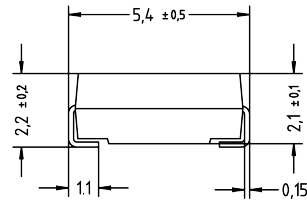
**Characteristics (T<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

| Type<br>Typ                          |                | Breakdown voltage at I <sub>r</sub> = 1 mA<br>Abbruch-Spannung bei I <sub>r</sub> = 1 mA |           | Stand-off<br>voltage<br>Sperrspannung | Max. rev. current<br>Max. Sperrstrom<br>at / bei V <sub>WM</sub> | Max. clamping voltage<br>Max. Begrenzer-Spannung<br>at / bei I <sub>PPM</sub> (10/1000 μs) |                      |
|--------------------------------------|----------------|--|-----------|---------------------------------------|--|--|----------------------|
| unidirectional                       | bidirectional  | V <sub>BR</sub> [V]  |           | V <sub>WM</sub> [V]                   | I <sub>D</sub> [μA]  | V <sub>C</sub> [V]   | I <sub>PPM</sub> [A] |
| <b>P6SMBJ5.0 ... P6SMBJ170CA</b>     |                |  |           |                                       |  |  |                      |
| <b>V<sub>WM</sub> = 5.0 ... 170V</b> |                |  |           |                                       |  |  |                      |
| P6SMB210A                            | P6SMB210CA     | 210 ± 5%   | 201...222 | 180                                   | 5  | 292  | 2.1                  |
| P6SMB220                             | P6SMB220C      | 220 ± 10%  | 198...242 | 175                                   | 5  | 344  | 1.7                  |
| P6SMB220A                            | P6SMB220CA     | 220 ± 5%   | 209...231 | 185                                   | 5  | 328  | 1.8                  |
| P6SMB250                             | P6SMB250C      | 250 ± 10%  | 225...275 | 202                                   | 5  | 360  | 1.7                  |
| P6SMB250A                            | P6SMB250CA     | 250 ± 5%   | 237...263 | 214                                   | 5  | 344  | 1.7                  |
| P6SMB300                             | P6SMB300C      | 300 ± 10%  | 270...330 | 243                                   | 5  | 430  | 1.4                  |
| P6SMB300A                            | P6SMB300CA     | 300 ± 5%   | 285...315 | 256                                   | 5  | 414  | 1.4                  |
| P6SMB350                             | P6SMB350C      | 350 ± 10%  | 315...385 | 284                                   | 5  | 504  | 1.2                  |
| P6SMB350A                            | P6SMB350CA     | 350 ± 5%   | 332...368 | 300                                   | 5  | 482  | 1.2                  |
| P6SMB400                             | P6SMB400C      | 400 ± 10%  | 360...440 | 324                                   | 5  | 574  | 1.0                  |
| P6SMB400A                            | P6SMB400CA     | 400 ± 5%   | 380...420 | 342                                   | 1  | 548  | 1.1                  |
| P6SMB440                             | P6SMB440C      | 440 ± 10%  | 396...484 | 356                                   | 5  | 631  | 1.0                  |
| P6SMB440A                            | P6SMB440CA/-AQ | 440 ± 5%   | 418...462 | 376                                   | 5  | 602  | 1.0                  |
| P6SMB480                             | P6SMB480C      | 480 ± 10%  | 432...528 | 388                                   | 5  | 686  | 0.87                 |
| P6SMB480A                            | P6SMB480CA     | 480 ± 5%   | 456...504 | 408                                   | 5  | 658  | 0.91                 |
| P6SMB530                             | P6SMB530C      | 530 ± 10%  | 477...583 | 429                                   | 5  | 764  | 0.79                 |
| P6SMB530A                            | P6SMB530CA     | 530 ± 5%   | 503...556 | 477                                   | 5  | 729  | 0.82                 |
| P6SMB550                             | P6SMB550C      | 550 ± 10%  | 495...605 | 445                                   | 5  | 793  | 0.76                 |
| P6SMB550A                            | P6SMB550CA     | 550 ± 5%   | 522...577 | 495                                   | 5  | 760  | 0.79                 |

TVS diodes having **stand-off voltage V<sub>WM</sub> = 5.0 ... 170 V:**  
please refer to datasheet **P6SMBJ5.0 ... 170CA**

TVS-Dioden mit **Sperrspannung V<sub>WM</sub> = 5.0 ... 170 V:**  
siehe Datenblatt **P6SMBJ5.0 ... 170CA**

**Dimensions - Maße [mm]**



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

1 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 (Lötpad) an jedem Anschluss