

<b>1.5SMCJ5.0 ... 1.5SMCJ170CA</b> <b>SMD Transient Voltage Suppressor Diodes</b> <b>SMD Spannungs-Begrenzer-Dioden</b>	<b>P<sub>PPM</sub> = 1500 W</b> <b>P<sub>M(AV)</sub> = 5.0 W</b> <b>T<sub>jmax</sub> = 150°C</b>	<b>V<sub>WM</sub> = 5.0 ... 170 V</b> <b>V<sub>BR</sub> = 6.8 ... 200 V</b>
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Version 2016-05-30

**~ SMC / ~ DO-214AB**

Dimensions - Maße [mm]

Type Code = V<sub>WM</sub>. Cathode mark only at unidirectional types

Typ-Code = V<sub>WM</sub>. Kathoden-Markierung nur bei unidirektionalen Typen

**Typical Applications**

Over-voltage protection  
 ESD protection  
 Free-wheeling diodes  
 Commercial grade <sup>1)</sup>

**Features**

Uni- and Bidirectional versions  
 Peak pulse power of 200 W (10/1000 μs waveform)  
 Very fast response time  
 Further available: 1.5SMC220...550CA having V<sub>BR</sub> = 220 ... 550 V  
 Compliant to RoHS, REACH, Conflict Minerals <sup>1)</sup>



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

Taped and reeled 3000 / 13  
 Weight approx. 0.07 g  
 Case material UL 94V-0  
 Solder & assembly conditions 260°C/10s  
 MSL = 1

**Typische Anwendungen**

Schutz gegen Überspannung  
 ESD-Schutz  
 Freilauf-Dioden  
 Standardausführung <sup>1)</sup>

**Besonderheiten**

Uni- und Bidirektionale Versionen  
 200 W Impuls-Verlustleistung (10/1000 μs Strom-Impuls)  
 Sehr schnelle Ansprechzeit  
 Auch erhältlich: 1.5MC220...550CA mit V<sub>BR</sub> = 220 ... 550V  
 Konform zu RoHS, 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 (10/1000 μs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 μs)	T <sub>A</sub> = 25°C	P <sub>PPM</sub>	1500 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 (half sine) – Stoßstrom (Sinushalbw.) 60 Hz	T <sub>A</sub> = 25°C	I <sub>FSM</sub>	100 A <sup>4)</sup>
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T <sub>j</sub> T <sub>S</sub>	-50...+150°C -50...+150°C

**Characteristics**

**Kennwerte**

Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung	I <sub>F</sub> = 25 A V <sub>BR</sub> ≤ 200 V	V <sub>F</sub>	< 3.0 V <sup>4)</sup>
Thermal resistance junction to ambient – Wärmewiderstand Sperrschicht – Umgebung Thermal resistance junction to terminal – Wärmewiderstand Sperrschicht – Anschluss		R <sub>thA</sub> R <sub>thT</sub>	< 33 K/W <sup>5)</sup> < 10 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>j</sub> = 25°C unless otherwise specified – T<sub>j</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 at each terminal  
Montage auf Leiterplatte mit 25 mm<sup>2</sup> Kupferbelag (Lötpad) an jedem Anschluss

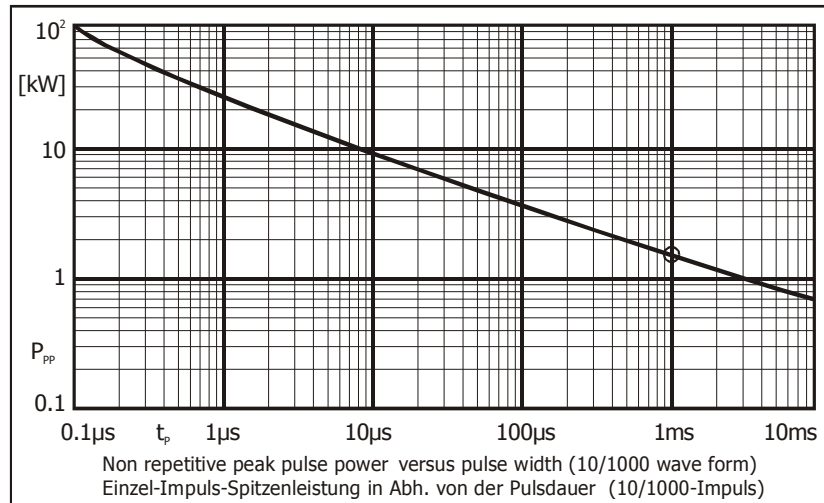
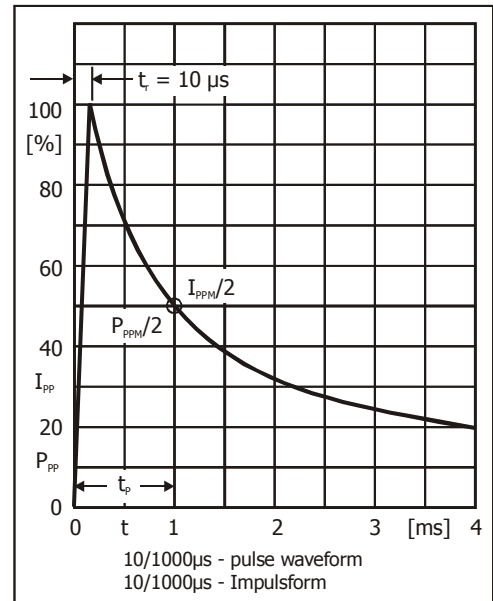
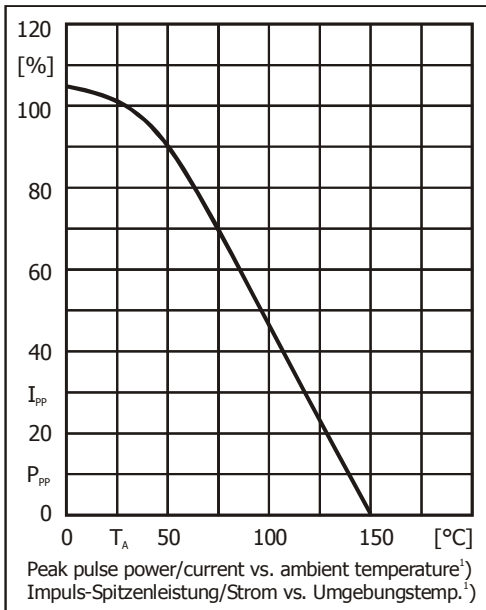
**Characteristics (T<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

Type Typ		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V <sub>WM</sub> <sup>1)</sup>	Breakdown voltage at I <sub>T</sub> = 1 mA Abbruch-Spannung bei I <sub>T</sub> = 1 mA *) I <sub>T</sub> = 10 mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei I <sub>PPM</sub> (10/1000 μs)	
unidirectional	bidire	V <sub>WM</sub> [V]	I <sub>D</sub> [μA]	V <sub>BR</sub> min [V]	V <sub>BR</sub> max [V]	V <sub>C</sub> [V]	I <sub>PPM</sub> [A]
1.5SMCJ5.0	1.5SMCJ5.0C	5.0	800	6.4 *)	7.8 *)	10.3	146
1.5SMCJ5.0A	1.5SMCJ5.0CA	5.0	800	6.4 *)	7.2 *)	9.2	163
1.5SMCJ6.5	1.5SMCJ6.5C	6.5	500	7.2 *)	8.8 *)	12.3	122
1.5SMCJ6.5A	1.5SMCJ6.5CA	6.5	500	7.2 *)	8.0 *)	11.2	134
1.5SMCJ7.0	1.5SMCJ7.0C	7.0	200	7.8 *)	9.5 *)	13.3	113
1.5SMCJ7.0A	1.5SMCJ7.0CA	7.0	200	7.8 *)	8.7 *)	12.0	125
1.5SMCJ7.5	1.5SMCJ7.5C	7.5	100	8.3	10.1	14.3	105
1.5SMCJ7.5A	1.5SMCJ7.5CA	7.5	100	8.3	9.2	12.9	116
1.5SMCJ8.0	1.5SMCJ8.0C	8.0	50	8.9	10.9	15.0	100
1.5SMCJ8.0A	1.5SMCJ8.0CA	8.0	50	8.9	9.9	13.6	110
1.5SMCJ8.5	1.5SMCJ8.5C	8.5	10	9.4	11.5	15.9	94.3
1.5SMCJ8.5A	1.5SMCJ8.5CA	8.5	10	9.4	10.4	14.4	104.2
1.5SMCJ9.0	1.5SMCJ9.0C	9.0	5	10.0	12.2	16.9	88.8
1.5SMCJ9.0A	1.5SMCJ9.0CA	9.0	5	10.0	11.1	15.4	97.4
1.5SMCJ10	1.5SMCJ10C	10	5	11.1	13.5	18.8	79.8
1.5SMCJ10A	1.5SMCJ10CA	10	5	11.1	12.3	17.0	88.2
1.5SMCJ11	1.5SMCJ11C	11	5	12.2	14.9	20.1	74.6
1.5SMCJ11A	1.5SMCJ11CA	11	5	12.2	13.5	18.2	82.4
1.5SMCJ12	1.5SMCJ12C	12	5	13.3	16.2	22.0	68.2
1.5SMCJ12A	1.5SMCJ12CA	12	5	13.3	14.8	19.9	75.4
1.5SMCJ13	1.5SMCJ13C	13	5	14.4	17.6	23.8	63.0
1.5SMCJ13A	1.5SMCJ13CA	13	5	14.4	16.0	21.5	69.8
1.5SMCJ14	1.5SMCJ14C	14	5	15.6	19.0	25.8	58.1
1.5SMCJ14A	1.5SMCJ14CA	14	5	15.6	17.3	23.2	64.7
1.5SMCJ15	1.5SMCJ15C	15	5	16.7	20.4	26.9	55.8
1.5SMCJ15A	1.5SMCJ15CA	15	5	16.7	18.6	24.4	61.5
1.5SMCJ16	1.5SMCJ16C	16	5	17.8	21.7	28.8	52.1
1.5SMCJ16A	1.5SMCJ16CA	16	5	17.8	19.8	26.0	57.7
1.5SMCJ17	1.5SMCJ17C	17	5	18.9	23.1	30.5	49.2
1.5SMCJ17A	1.5SMCJ17CA	17	5	18.9	21.0	27.6	54.3
1.5SMCJ18	1.5SMCJ18C	18	5	20.0	24.4	32.2	46.6
1.5SMCJ18A	1.5SMCJ18CA	18	5	20.0	22.2	29.2	51.4
1.5SMCJ20	1.5SMCJ20C	20	5	22.2	27.1	35.8	41.9
1.5SMCJ20A	1.5SMCJ20CA	20	5	22.2	24.6	32.4	46.3
1.5SMCJ22	1.5SMCJ22C	22	5	24.4	29.8	39.4	38.1
1.5SMCJ22A	1.5SMCJ22CA	22	5	24.4	27.1	35.5	42.3
1.5SMCJ24	1.5SMCJ24C	24	5	26.7	32.6	43.0	34.9
1.5SMCJ24A	1.5SMCJ24CA	24	5	26.7	29.6	38.9	38.6
1.5SMCJ26	1.5SMCJ26C	26	5	28.9	35.3	46.6	32.2
1.5SMCJ26A	1.5SMCJ26CA	26	5	28.9	32.1	42.1	35.6
1.5SMCJ28	1.5SMCJ28C	28	5	31.1	37.9	50.0	30.0
1.5SMCJ28A	1.5SMCJ28CA	28	5	31.1	34.5	45.4	33.0
1.5SMCJ30	1.5SMCJ30C	30	5	33.3	40.1	53.5	28.0
1.5SMCJ30A	1.5SMCJ30CA	30	5	33.3	36.9	48.4	31.0
1.5SMCJ33	1.5SMCJ33C	33	5	36.7	44.8	59.0	25.4
1.5SMCJ33A	1.5SMCJ33CA	33	5	36.7	40.7	53.3	28.1
1.5SMCJ36	1.5SMCJ36C	36	5	40.0	48.4	64.3	23.3

1 For bi-directional types having V<sub>WM</sub> ≤ 10V, the reverse current limit is doubled  
 Bidirektionale Typen mit V<sub>WM</sub> ≤ 10V haben die doppelte Sperrstromgrenze

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

Type Typ		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V <sub>WM</sub> )	Breakdown voltage at I <sub>T</sub> = 1 mA Abbruch-Spannung bei I <sub>T</sub> = 1 mA ) I <sub>T</sub> = 10 mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei I <sub>PPM</sub> (10/1000 μs)	
unidirectional	bidire	V <sub>WM</sub> [V]	I <sub>D</sub> [μA]	V <sub>BR</sub> min [V]	V <sub>BR</sub> max [V]	V <sub>C</sub> [V]	I <sub>PPM</sub> [A]
1.5SMCJ36A	1.5SMCJ36CA	36	5	40.0	44.4	58.1	25.8
1.5SMCJ40	1.5SMCJ40C	40	5	44.4	54.2	71.4	21.0
1.5SMCJ40A	1.5SMCJ40CA	40	5	44.4	49.3	64.5	23.3
1.5SMCJ43	1.5SMCJ43C	43	5	47.8	58.3	76.7	19.6
1.5SMCJ43A	1.5SMCJ43CA	43	5	47.8	53.1	69.4	21.6
1.5SMCJ45	1.5SMCJ45C	45	5	50.0	61.0	80.3	18.7
1.5SMCJ45A	1.5SMCJ45CA	45	5	50.0	55.5	72.7	20.6
1.5SMCJ48	1.5SMCJ48C	48	5	53.3	65.0	85.5	17.5
1.5SMCJ48A	1.5SMCJ48CA	48	5	53.3	59.2	77.4	19.4
1.5SMCJ51	1.5SMCJ51C	51	5	56.7	69.2	91.1	16.5
1.5SMCJ51A	1.5SMCJ51CA	51	5	56.7	62.9	82.4	18.2
1.5SMCJ54	1.5SMCJ54C	54	5	60.0	73.2	96.3	15.6
1.5SMCJ54A	1.5SMCJ54CA	54	5	60.0	66.6	87.1	17.2
1.5SMCJ58	1.5SMCJ58C	58	5	64.4	78.6	103	14.6
1.5SMCJ58A	1.5SMCJ58CA	58	5	64.4	71.5	93.6	16.0
1.5SMCJ60	1.5SMCJ60C	60	5	66.7	81.4	107	14.0
1.5SMCJ60A	1.5SMCJ60CA	60	5	66.7	74.0	96.8	15.5
1.5SMCJ64	1.5SMCJ64C	64	5	71.1	86.7	114	13.2
1.5SMCJ64A	1.5SMCJ64CA	64	5	71.1	78.9	103	14.6
1.5SMCJ70	1.5SMCJ70C	70	5	77.8	94.9	125	12.0
1.5SMCJ70A	1.5SMCJ70CA	70	5	77.8	86.4	113	13.3
1.5SMCJ75	1.5SMCJ75C	75	5	83.3	102	134	11.2
1.5SMCJ75A	1.5SMCJ75CA	75	5	83.3	92.5	121	12.4
1.5SMCJ78	1.5SMCJ78C	78	5	86.7	106	139	10.8
1.5SMCJ78A	1.5SMCJ78CA	78	5	86.7	96.2	126	11.9
1.5SMCJ85	1.5SMCJ85C	85	5	94.4	115	151	9.9
1.5SMCJ85A	1.5SMCJ85CA	85	5	94.4	105	137	10.9
1.5SMCJ90	1.5SMCJ90C	90	5	100	122	160	9.4
1.5SMCJ90A	1.5SMCJ90CA	90	5	100	111	146	10.3
1.5SMCJ100	1.5SMCJ100C	100	5	111	135	179	8.4
1.5SMCJ100A	1.5SMCJ100CA	100	5	111	123	162	9.3
1.5SMCJ110	1.5SMCJ110C	110	5	122	149	196	7.7
1.5SMCJ110A	1.5SMCJ110CA	110	5	122	135	177	8.5
1.5SMCJ120	1.5SMCJ120C	120	5	133	162	214	7.0
1.5SMCJ120A	1.5SMCJ120CA	120	5	133	148	193	7.8
1.5SMCJ130	1.5SMCJ130C	130	5	144	176	231	6.5
1.5SMCJ130A	1.5SMCJ130CA	130	5	144	160	209	7.2
1.5SMCJ150	1.5SMCJ150C	150	5	167	204	268	5.6
1.5SMCJ150A	1.5SMCJ150CA	150	5	167	185	243	6.2
1.5SMCJ160	1.5SMCJ160C	160	5	178	217	287	5.2
1.5SMCJ160A	1.5SMCJ160CA	160	5	178	198	259	5.8
1.5SMCJ170	1.5SMCJ170C	170	5	189	231	304	4.9
1.5SMCJ170A	1.5SMCJ170CA	170	5	189	210	275	5.5
<b>1.5SMC220 ... 1.5SMC550CA</b>		<b>V<sub>WM</sub> = 175 ... 495V</b>					



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

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

<sup>1</sup> 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