Diotec Semiconductor

3.0SMCJ5.0A ... 3.0SMCJ170CA

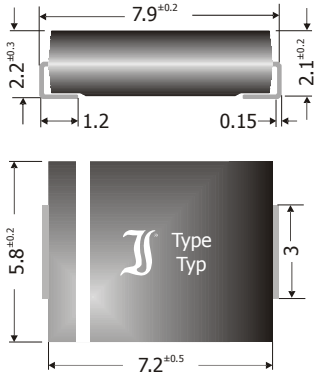
SMD Transient Voltage Suppressor Diodes
SMD Spannungs-Begrenzer-Dioden

P_{PPM} = 3000 W
$P_{M(AV)}$ = 6.0 W
T_{jmax} = 150°C

V_{WM} = 5.0 ... 170 V
V_{BR} = 6.8 ... 200 V

Version 2016-05-30

~ SMC / ~ DO-214AB



Dimensions - Maße [mm]

Type = Part number. Cathode mark only at unidirectional types

Typ = Artikel-Nr. Kathoden-Markierung nur bei unidirektionalen Typen

Typical Applications
Over-voltage protection
ESD protection
Free-wheeling diodes
Commercial grade [1])

Typische Anwendungen
Schutz gegen Überspannung
ESD-Schutz
Freilauf-Dioden
Standardausführung [1])

Features
Uni- and Bidirectional versions
Peak pulse power of 3000 W (10/1000 µs waveform)
Very fast response time
Compliant to RoHS, REACH, Conflict Minerals [1])

Besonderheiten
Uni- und Bidirektionale Versionen
3000 W Impuls-Verlustleistung (10/1000 µs Strom-Impuls)
Sehr schnelle Ansprechzeit
Konform zu RoHS, REACH, Konfliktmineralien [1])

Mechanical Data [1])

Taped and reeled	3000 / 13"	Gegurtet auf Rolle
Weight approx.	0.21 g	Gewicht ca.
Case material	UL 94V-0	Gehäusematerial
Solder & assembly conditions	260°C/10s MSL = 1	Löt- und Einbaubedingungen

Mechanische Daten [1])

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 [2]) **Grenzwerte [2])**

Peak pulse power dissipation (10/1000 µs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 µs)	T_A = 25°C	P_{PPM}	3000 W [3])
Steady state power dissipation – Verlustleistung im Dauerbetrieb	T_T = 75°C	$P_{M(AV)}$	6 W
Peak forward surge current (half sine) – Stoßstrom (Sinushalbw.) 60 Hz	T_A = 25°C	I_{FSM}	300 A [4])
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_S	-50...+150°C -50...+150°C

Characteristics **Kennwerte**

Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung	I_F = 25 A $V_{BR} \le$ 200 V	V_F	< 3.0 V [4])
Thermal resistance junction to ambien – Wärmewiderstand Sperrschicht – Umgebung Thermal resistance junction to terminal – Wärmewiderstand Sperrschicht – Anschluss		R_{thA} R_{thT}	< 33 K/W [5]) < 10 K/W

1 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
2 T_j = 25°C unless otherwise specified – T_j = 25°C wenn nicht anders angegeben
3 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)
4 Unidirectional diodes only – Nur für unidirektionale Dioden
5 Mounted on P.C. board with 25 mm² copper pads at each terminal
Montage auf Leiterplatte mit 25 mm² Kupferbelag (Lötpad) an jedem Anschluss

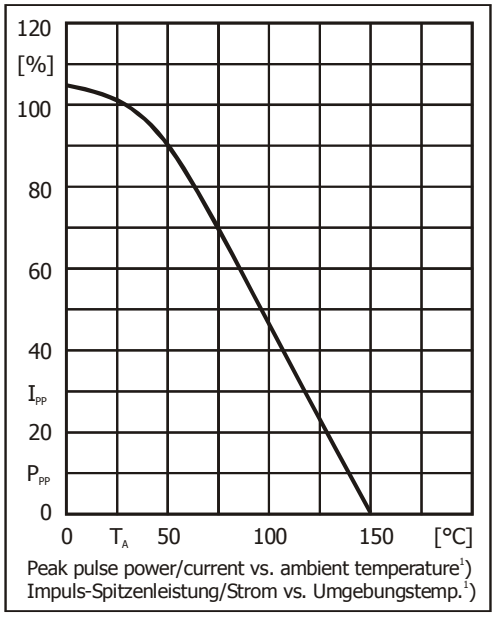
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Maximum ratings (T_j = 25°C) Grenzwerte (T_j = 25°C)

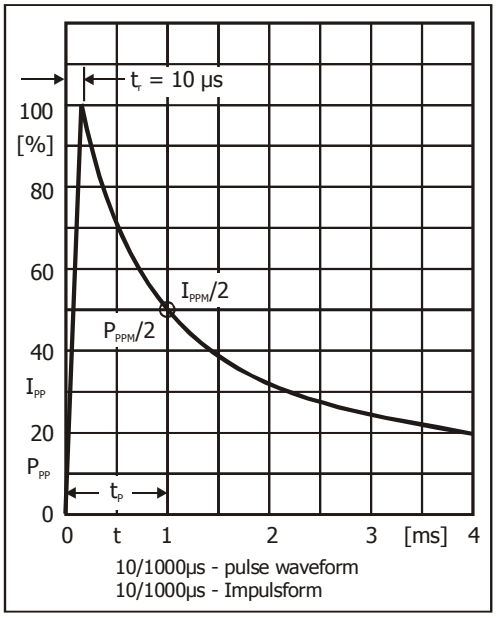
Type Typ		Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V_{WM} [1])	Breakdown voltage at I_T = 1 mA Abbruch-Spannung bei I_T = 1 mA *) I_T = 10 mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 µs)	
unidirectional	bidirectional	V_{WM} [V]	I_D [µA]	V_{BR} min [V]	V_{BR} max [V]	V_C [V]	I_{PPM} [A]
3.0SMCJ5.0A	3.0SMCJ5.0CA	5.0	800	6.4 *)	7.2 *)	9.2	326.0
3.0SMCJ6.0A	3.0SMCJ6.0CA	6.0	800	6.6 *)	7.4 *)	10.3	291.2
3.0SMCJ6.5A	3.0SMCJ6.5CA	6.5	500	7.2 *)	8.0 *)	11.2	267.8
3.0SMCJ7.0A	3.0SMCJ7.0CA	7.0	200	7.8 *)	8.6 *)	12.0	250.0
3.0SMCJ7.5A	3.0SMCJ7.5CA	7.5	100	8.3	9.2	12.9	232.5
3.0SMCJ8.0A	3.0SMCJ8.0CA	8.0	50	8.9	9.9	13.6	220.5
3.0SMCJ8.5A	3.0SMCJ8.5CA	8.5	20	9.4	10.4	14.4	208.3
3.0SMCJ9.0A	3.0SMCJ9.0CA	9.0	10	10.0	11.1	15.4	194.8
3.0SMCJ10A	3.0SMCJ10CA	10	5	11.1	12.3	17.0	176.4
3.0SMCJ11A	3.0SMCJ11CA	11	5	12.2	13.5	18.2	164.8
3.0SMCJ12A	3.0SMCJ12CA	12	5	13.3	14.8	19.9	150.7
3.0SMCJ13A	3.0SMCJ13CA	13	5	14.4	16.0	21.5	139.5
3.0SMCJ14A	3.0SMCJ14CA	14	5	15.6	17.3	23.2	129.3
3.0SMCJ15A	3.0SMCJ15CA	15	5	16.7	18.6	24.4	122.9
3.0SMCJ16A	3.0SMCJ16CA	16	2	17.8	19.8	26.0	115.3
3.0SMCJ17A	3.0SMCJ17CA	17	5	18.9	21.0	27.6	108.7
3.0SMCJ18A	3.0SMCJ18CA	18	5	20.0	22.2	29.2	102.7
3.0SMCJ20A	3.0SMCJ20CA	20	5	22.2	24.6	32.4	92.5
3.0SMCJ22A	3.0SMCJ22CA	22	5	24.4	27.1	35.5	84.5
3.0SMCJ24A	3.0SMCJ24CA	24	5	26.7	29.6	38.9	77.1
3.0SMCJ26A	3.0SMCJ26CA	26	5	28.9	32.1	42.1	71.2
3.0SMCJ28A	3.0SMCJ28CA	28	5	31.1	34.5	45.4	66.0
3.0SMCJ30A	3.0SMCJ30CA	30	5	33.3	36.9	48.4	61.9
3.0SMCJ33A	3.0SMCJ33CA	33	5	36.7	40.7	53.3	56.2
3.0SMCJ36A	3.0SMCJ36CA	36	5	40.0	44.4	58.1	51.6
3.0SMCJ40A	3.0SMCJ40CA	40	5	44.4	49.3	64.5	46.5
3.0SMCJ43A	3.0SMCJ43CA	43	5	47.8	53.1	69.4	43.2
3.0SMCJ45A	3.0SMCJ45CA	45	5	50.0	55.5	72.7	41.2
3.0SMCJ48A	3.0SMCJ48CA	48	5	53.3	59.2	77.4	38.7
3.0SMCJ51A	3.0SMCJ51CA	51	5	56.7	62.9	82.4	36.4
3.0SMCJ54A	3.0SMCJ54CA	54	5	60.0	66.6	87.1	34.4
3.0SMCJ58A	3.0SMCJ58CA	58	5	64.4	71.5	93.6	32.0
3.0SMCJ60A	3.0SMCJ60CA	60	5	66.7	74.0	96.8	30.9
3.0SMCJ64A	3.0SMCJ64CA	64	5	71.1	78.9	103	29.1
3.0SMCJ70A	3.0SMCJ70CA	70	5	77.8	86.4	113	26.5
3.0SMCJ75A	3.0SMCJ75CA	75	5	83.3	92.5	121	24.7
3.0SMCJ78A	3.0SMCJ78CA	78	5	86.7	96.2	126	23.8
3.0SMCJ85A	3.0SMCJ85CA	85	5	94.4	105	137	21.9
3.0SMCJ90A	3.0SMCJ90CA	90	5	100	111	146	20.5
3.0SMCJ100A	3.0SMCJ100CA	100	5	111	123	162	18.5
3.0SMCJ110A	3.0SMCJ110CA	110	5	122	135	177	16.9
3.0SMCJ120A	3.0SMCJ120CA	120	5	133	148	193	15.5
3.0SMCJ130A	3.0SMCJ130CA	130	5	144	160	209	14.3
3.0SMCJ150A	3.0SMCJ150CA	150	5	167	185	243	12.3
3.0SMCJ160A	3.0SMCJ160CA	160	5	178	198	259	11.5
3.0SMCJ170A	3.0SMCJ170CA	170	5	189	210	275	10.9

1 For bi-directional types having $V_{WM} \leq 10V$, the reverse current limit is doubled
Bidirektionale Typen mit $V_{WM} \leq 10V$ haben die doppelte Sperrstromgrenze

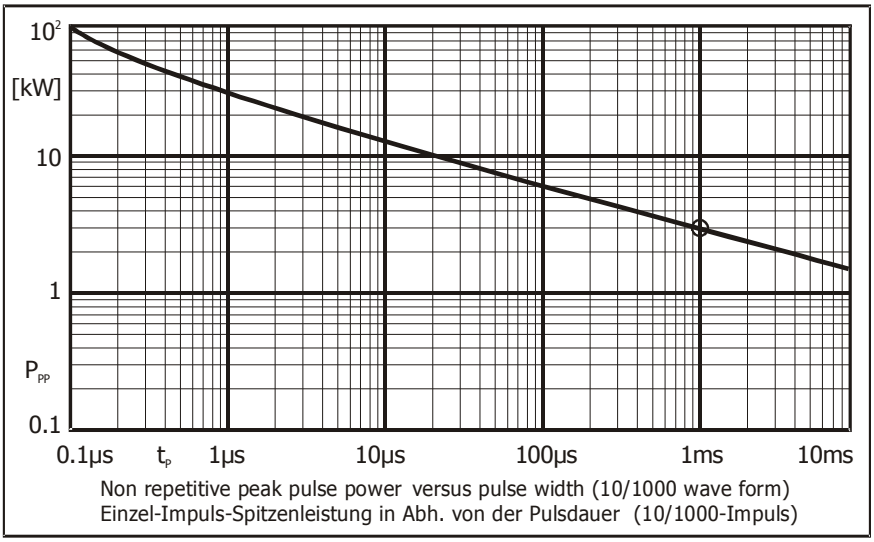
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Peak pulse power/current vs. ambient temperature[1])
Impuls-Spitzenleistung/Strom vs. Umgebungstemp.[1])



10/1000µs - pulse waveform
10/1000µs - Impulsform



Non repetitive peak pulse power versus pulse width (10/1000 wave form)
Einzel-Impuls-Spitzenleistung in Abh. von der Pulsdauer (10/1000-Impuls)

Disclaimer: See data book page 2 or website
Haftungssauschluss: Siehe Datenbuch Seite 2 oder Internet

1 Mounted on P.C. board with 25 mm² copper pads at each terminal
Montage auf Leiterplatte mit 25 mm² Kupferbelag (Lötpad) an jedem Anschluss