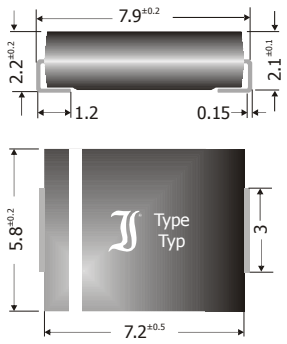
Diotec Semiconductor

1.5SMCJ5.0 ... 1.5SMCJ170CA

Surface mount unidirectional and bidirectional Transient Voltage Suppressor Diodes
Unidirektionale und bidirektionale Spannungs-Begrenzer-Dioden für die Oberflächenmontage

Version 2012-04-04



Dimensions - Maße [mm]

Peak pulse power dissipation Impuls-Verlustleistung	1500 W
Nominal Stand-off voltage Nominale Sperrspannung	5.0...170 V
Plastic case Kunststoffgehäuse	~ SMC ~ DO-214AB
Weight approx. – Gewicht ca.	0.21 g
Plastic material has UL classification 94V-0 Gehäusematerial UL94V-0 klassifiziert	
Standard packaging taped and reeled Standard Lieferform gegurtet auf Rollen	

For bidirectional types (add suffix "C" or "CA"), electrical characteristics apply in both directions.
Für bidirektionale Dioden (ergänze Suffix "C" oder "CA") gelten die elektrischen Werte in beiden Richtungen.

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

Peak pulse power dissipation (10/1000 µs waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 µs)	T_A = 25°C	P_{PPM}	1500 W [1]
Steady state power dissipation Verlustleistung im Dauerbetrieb	T_T = 75°C	$P_{M(AV)}$	5 W
Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwelle	T_A = 25°C	I_{FSM}	100 A [2]
Max. instantaneous forward voltage Augenblickswert der Durchlass-Spannung	I_F = 25 A	V_F	< 3.0 V [2]
Operating junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_S	-50...+150°C -50...+150°C
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 33 K/W [3]
Thermal resistance junction to terminal Wärmewiderstand Sperrschicht – Anschluss		R_{thT}	< 10 K/W

Datasheet Directory

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

1 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)
2 Unidirectional diodes only – Nur für unidirektionale Dioden
3 Mounted on P.C. board with 50 mm² copper pads at each terminal
Montage auf Leiterplatte mit 50 mm² Kupferbelag (Lötpad) an jedem Anschluss

Maximum ratings — Grenzwerte

Type Typ	Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V_{WM}	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)	
	V_{WM} [V]	I_D [µA]	V_{BR} min [V]	V_{BR} max [V]	V_C [V]	I_{PPM} [A]
1.5SMCJ5.0	5.0	800	6.4 *)	7.8 *)	10.3	146
1.5SMCJ5.0A	5.0	800	6.4 *)	7.2 *)	9.2	163
1.5SMCJ6.5	6.5	500	7.2 *)	8.8 *)	12.3	122
1.5SMCJ6.5A	6.5	500	7.2 *)	8.0 *)	11.2	134
1.5SMCJ7.0	7.0	200	7.8 *)	9.5 *)	13.3	113
1.5SMCJ7.0A	7.0	200	7.8 *)	8.7 *)	12.0	125
1.5SMCJ7.5	7.5	100	8.3	10.1	14.3	105
1.5SMCJ7.5A	7.5	100	8.3	9.2	12.9	116
1.5SMCJ8.0	8.0	50	8.9	10.9	15.0	100
1.5SMCJ8.0A	8.0	50	8.9	9.9	13.6	110
1.5SMCJ8.5	8.5	10	9.4	11.5	15.9	94.3
1.5SMCJ8.5A	8.5	10	9.4	10.4	14.4	104.2
1.5SMCJ9.0	9.0	5	10.0	12.2	16.9	88.8
1.5SMCJ9.0A	9.0	5	10.0	11.1	15.4	97.4
1.5SMCJ10	10	5	11.1	13.5	18.8	79.8
1.5SMCJ10A	10	5	11.1	12.3	17.0	88.2
1.5SMCJ11	11	5	12.2	14.9	20.1	74.6
1.5SMCJ11A	11	5	12.2	13.5	18.2	82.4
1.5SMCJ12	12	5	13.3	16.2	22.0	68.2
1.5SMCJ12A	12	5	13.3	14.8	19.9	75.4
1.5SMCJ13	13	5	14.4	17.6	23.8	63.0
1.5SMCJ13A	13	5	14.4	16.0	21.5	69.8
1.5SMCJ14	14	5	15.6	19.0	25.8	58.1
1.5SMCJ14A	14	5	15.6	17.3	23.2	64.7
1.5SMCJ15	15	5	16.7	20.4	26.9	55.8
1.5SMCJ15A	15	5	16.7	18.6	24.4	61.5
1.5SMCJ16	16	5	17.8	21.7	28.8	52.1
1.5SMCJ16A	16	5	17.8	19.8	26.0	57.7
1.5SMCJ17	17	5	18.9	23.1	30.5	49.2
1.5SMCJ17A	17	5	18.9	21.0	27.6	54.3
1.5SMCJ18	18	5	20.0	24.4	32.2	46.6
1.5SMCJ18A	18	5	20.0	22.2	29.2	51.4
1.5SMCJ20	20	5	22.2	27.1	35.8	41.9
1.5SMCJ20A	20	5	22.2	24.6	32.4	46.3
1.5SMCJ22	22	5	24.4	29.8	39.4	38.1
1.5SMCJ22A	22	5	24.4	27.1	35.5	42.3
1.5SMCJ24	24	5	26.7	32.6	43.0	34.9
1.5SMCJ24A	24	5	26.7	29.6	38.9	38.6
1.5SMCJ26	26	5	28.9	35.3	46.6	32.2
1.5SMCJ26A	26	5	28.9	32.1	42.1	35.6
1.5SMCJ28	28	5	31.1	37.9	50.0	30.0
1.5SMCJ28A	28	5	31.1	34.5	45.4	33.0
1.5SMCJ30	30	5	33.3	40.1	53.5	28.0
1.5SMCJ30A	30	5	33.3	36.9	48.4	31.0
1.5SMCJ33	33	5	36.7	44.8	59.0	25.4

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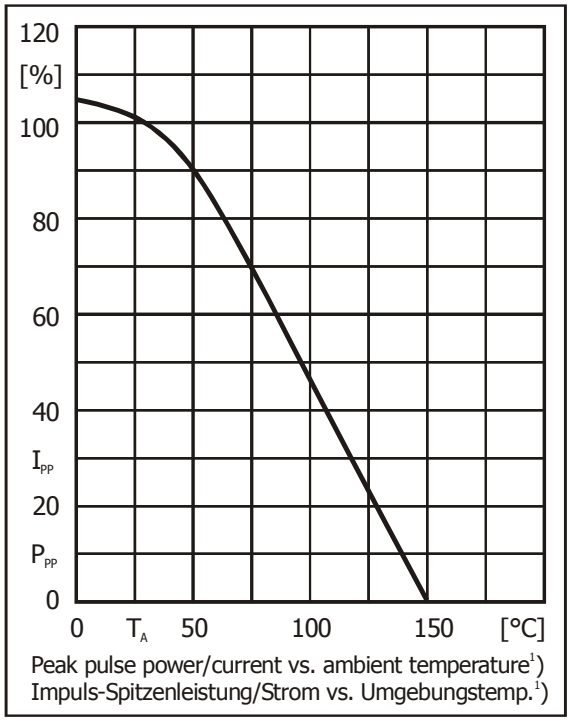
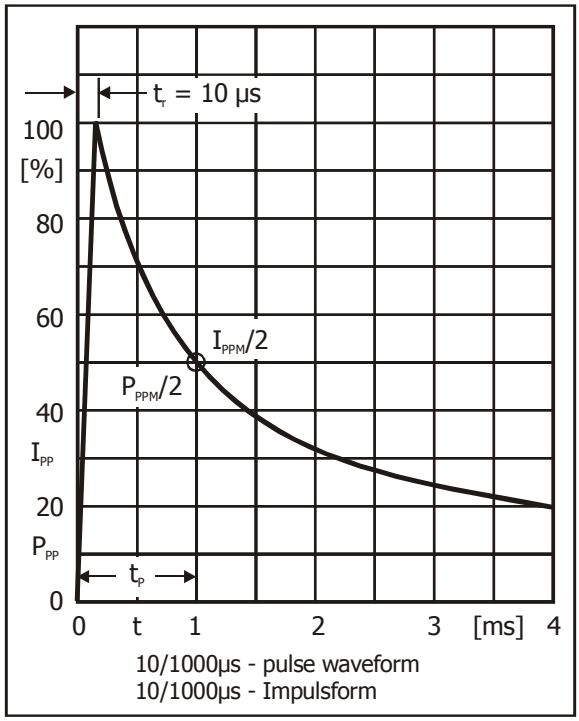
Maximum ratings — Grenzwerte

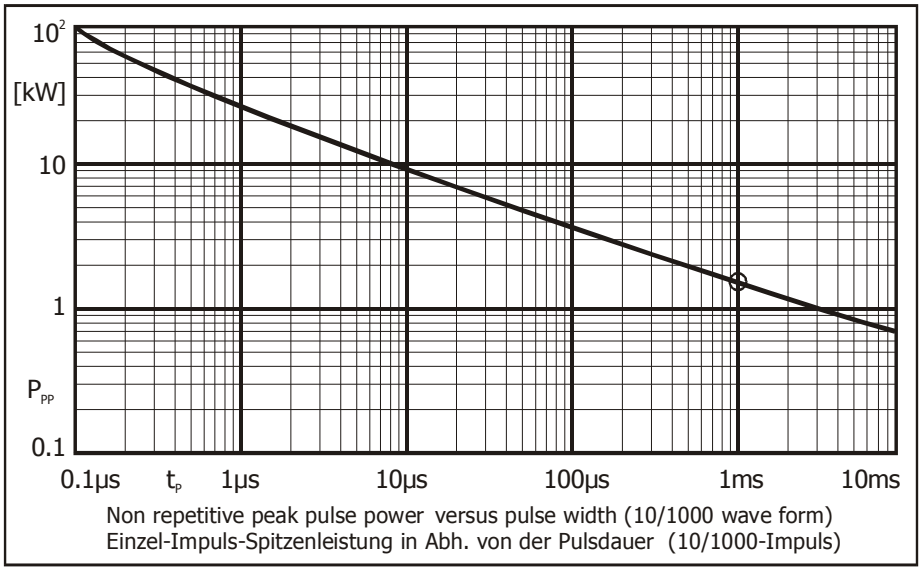
Type Typ	Stand-off voltage Sperrspannung	Max. rev. current Max. Sperrstrom at / bei V_{WM}	Breakdown voltage at I_T = 1 mA Abbruch-Spannung bei I_T = 1 mA *) I_T = 10 mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei I_{PPM} (10/1000 µs)	
	V_{WM} [V]	I_D [µA]	V_{BR} min [V]	V_{BR} max [V]	V_C [V]	I_{PPM} [A]
1.5SMCJ33A	33	5	36.7	40.7	53.3	28.1
1.5SMCJ36	36	5	40.0	48.4	64.3	23.3
1.5SMCJ36A	36	5	40.0	44.4	58.1	25.8
1.5SMCJ40	40	5	44.4	54.2	71.4	21.0
1.5SMCJ40A	40	5	44.4	49.3	64.5	23.3
1.5SMCJ43	43	5	47.8	58.3	76.7	19.6
1.5SMCJ43A	43	5	47.8	53.1	69.4	21.6
1.5SMCJ45	45	5	50.0	61.0	80.3	18.7
1.5SMCJ45A	45	5	50.0	55.5	72.7	20.6
1.5SMCJ48	48	5	53.3	65.0	85.5	17.5
1.5SMCJ48A	48	5	53.3	59.2	77.4	19.4
1.5SMCJ51	51	5	56.7	69.2	91.1	16.5
1.5SMCJ51A	51	5	56.7	62.9	82.4	18.2
1.5SMCJ54	54	5	60.0	73.2	96.3	15.6
1.5SMCJ54A	54	5	60.0	66.6	87.1	17.2
1.5SMCJ58	58	5	64.4	78.6	103	14.6
1.5SMCJ58A	58	5	64.4	71.5	93.6	16.0
1.5SMCJ60	60	5	66.7	81.4	107	14.0
1.5SMCJ60A	60	5	66.7	74.0	96.8	15.5
1.5SMCJ64	64	5	71.1	86.7	114	13.2
1.5SMCJ64A	64	5	71.1	78.9	103	14.6
1.5SMCJ70	70	5	77.8	94.9	125	12.0
1.5SMCJ70A	70	5	77.8	86.4	113	13.3
1.5SMCJ75	75	5	83.3	102	134	11.2
1.5SMCJ75A	75	5	83.3	92.5	121	12.4
1.5SMCJ78	78	5	86.7	106	139	10.8
1.5SMCJ78A	78	5	86.7	96.2	126	11.9
1.5SMCJ85	85	5	94.4	115	151	9.9
1.5SMCJ85A	85	5	94.4	105	137	10.9
1.5SMCJ90	90	5	100	122	160	9.4
1.5SMCJ90A	90	5	100	111	146	10.3
1.5SMCJ100	100	5	111	135	179	8.4
1.5SMCJ100A	100	5	111	123	162	9.3
1.5SMCJ110	110	5	122	149	196	7.7
1.5SMCJ110A	110	5	122	135	177	8.5
1.5SMCJ120	120	5	133	162	214	7.0
1.5SMCJ120A	120	5	133	148	193	7.8
1.5SMCJ130	130	5	144	176	231	6.5
1.5SMCJ130A	130	5	144	160	209	7.2
1.5SMCJ150	150	5	167	204	268	5.6
1.5SMCJ150A	150	5	167	185	243	6.2
1.5SMCJ160	160	5	178	217	287	5.2
1.5SMCJ160A	160	5	178	198	259	5.8
1.5SMCJ170	170	5	189	231	304	4.9
1.5SMCJ170A	170	5	189	210	275	5.5



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)

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

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

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