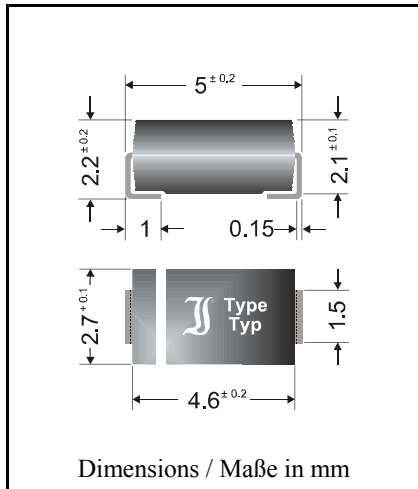


**Surface Mount  
unidirectional and bidirectional  
Transient Voltage Suppressor Diodes**

**Unidirektionale und bidirektionale  
Spannungs-Begrenzer-Dioden  
für die Oberflächenmontage**



Pulse power dissipation – Impuls-Verlustleistung	400 W
Maximum stand-off voltage	6.5...170 V
Maximale Sperrspannung	
Plastic case	~ SMA
Kunststoffgehäuse	~ DO-214AC
Weight approx. – Gewicht ca.	0.07 g
Plastic material has UL classification 94V-0	
Gehäusematerial UL94V-0 klassifiziert	
Standard packaging taped and reeled	see page 18
Standard Lieferform gegurtet auf Rolle	siehe Seite 18

Suffix “C” or “CA” for bidirectional types

Suffix “C” oder “CA” für bidirektionale Typen

**Maximum ratings and Characteristics**

**Grenz- und Kennwerte**

Peak pulse power dissipation (10/1000 $\mu$ s waveform) Impuls-Verlustleistung (Strom-Impuls 10/1000 $\mu$ s)	$T_A = 25^\circ\text{C}$	$P_{PPM}$	400 W <sup>1)</sup>
Steady state power dissipation Verlustleistung im Dauerbetrieb	$T_A = 25^\circ\text{C}$	$P_{M(AV)}$	1 W <sup>2)</sup>
Peak forward surge current, 60 Hz half sine-wave Stoßstrom für eine 60 Hz Sinus-Halbwelle	$T_A = 25^\circ\text{C}$	$I_{FSM}$	40 A <sup>3)</sup>
Operating junction temperature – Sperrschichttemperatur		$T_j$	- 50...+150°C
Storage temperature – Lagerungstemperatur		$T_s$	- 50...+150°C
Max. instantaneous forward voltage Augenblickswert der Durchlaßspannung	$I_F = 25\text{ A}$	$V_F$	< 3.5 V <sup>3)</sup>
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		$R_{thA}$	< 70 K/W <sup>2)</sup>
Thermal resistance junction to terminal Wärmewiderstand Sperrschicht – Anschluß		$R_{thT}$	< 30 K/W

<sup>1)</sup> Non-repetitive current pulse see curve  $I_{PPM} = f(t_r)$   
Höchstzulässiger Spitzenwert eines einmaligen Strom-Impulses, siehe Kurve  $I_{PPM} = f(t_r)$

<sup>2)</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 (Löt-pad) an jedem Anschluß

<sup>3)</sup> Unidirectional diodes only – nur für unidirektionale Dioden

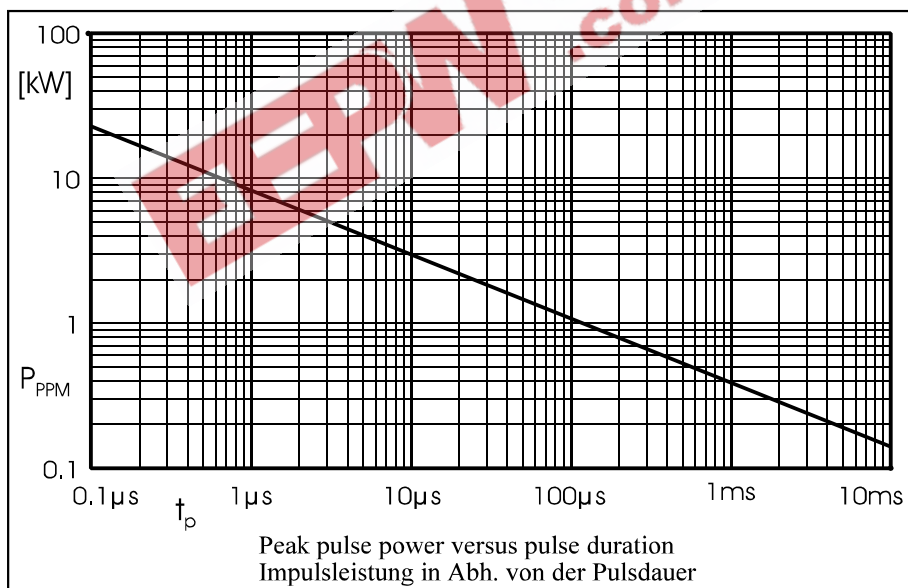
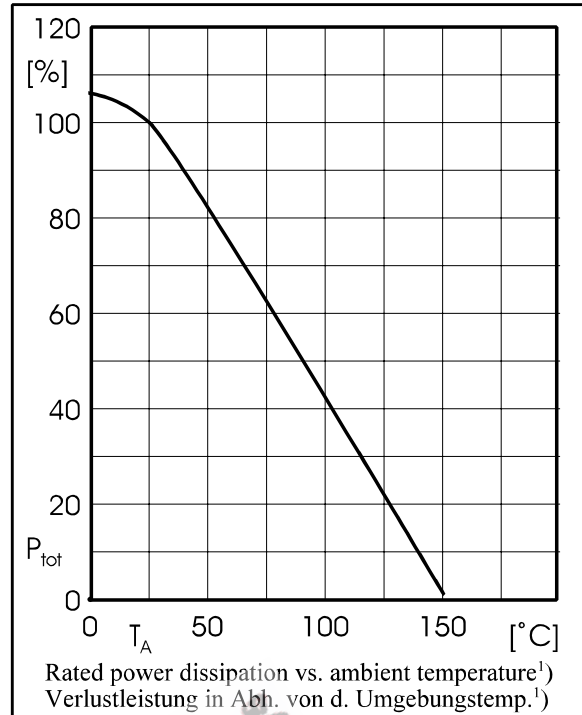
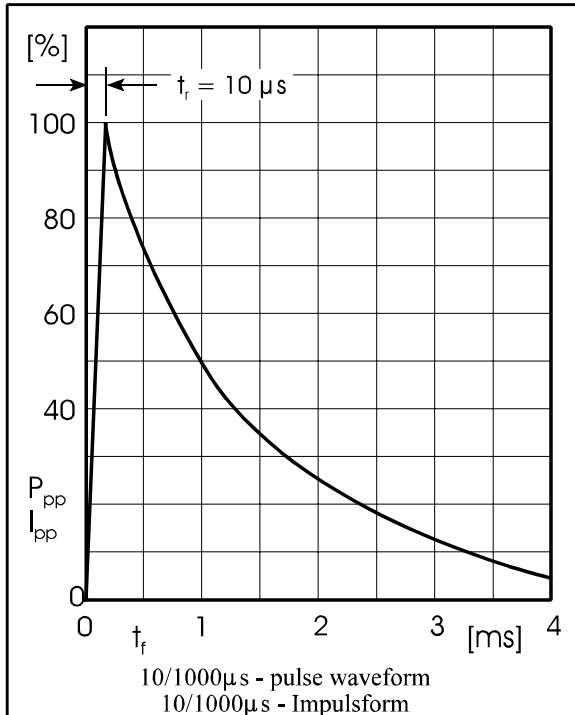
**Maximum ratings**
**Grenzwerte**

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 *) at / bei $I_T = 10$ mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei $I_{PPM} (10/1000\mu s)$	
	$V_{WM}$ [V]	$I_D$ [ $\mu A$ ]	$V_{BR}$ min. [V]	$V_{BR}$ max. [V]	$V_C$ [V]	$I_{PPM}$ [A]
P4 SMAJ 6.5	6.5	500	7.2 *)	8.8 *)	12.3	32.5
P4 SMAJ 6.5A	6.5	500	7.2 *)	8.0 *)	11.2	35.7
P4 SMAJ 7.0	7.0	200	7.8 *)	9.5 *)	13.3	30.1
P4 SMAJ 7.0A	7.0	200	7.8 *)	8.7 *)	12.0	33.3
P4 SMAJ 7.5	7.5	100	8.3	10.1	14.3	28.0
P4 SMAJ 7.5A	7.5	100	8.3	9.2	12.9	31.0
P4 SMAJ 8.0	8.0	50	8.9	10.9	15.0	26.7
P4 SMAJ 8.0A	8.0	50	8.9	9.9	13.6	29.4
P4 SMAJ 8.5	8.5	10	9.4	11.5	15.9	25.2
P4 SMAJ 8.5A	8.5	10	9.4	10.4	14.4	27.8
P4 SMAJ 9.0	9.0	5	10.0	12.2	16.9	23.7
P4 SMAJ 9.0A	9.0	5	10.0	11.1	15.4	26.0
P4 SMAJ 10	10	5	11.1	13.5	18.8	21.3
P4 SMAJ 10A	10	5	11.1	12.3	17.0	23.5
P4 SMAJ 11	11	5	12.2	14.9	20.1	19.9
P4 SMAJ 11A	11	5	12.2	13.5	18.2	22.0
P4 SMAJ 12	12	5	13.3	16.2	22.0	18.2
P4 SMAJ 12A	12	5	13.3	14.8	19.9	20.1
P4 SMAJ 13	13	5	14.4	17.6	23.8	16.8
P4 SMAJ 13A	13	5	14.4	16.0	21.5	18.6
P4 SMAJ 14	14	5	15.6	19.0	25.8	15.5
P4 SMAJ 14A	14	5	15.6	17.3	23.2	17.2
P4 SMAJ 15	15	5	16.7	20.4	26.9	14.9
P4 SMAJ 15A	15	5	16.7	18.6	24.4	16.4
P4 SMAJ 16	16	5	17.8	21.7	28.8	13.9
P4 SMAJ 16A	16	5	17.8	19.8	26.0	15.4
P4 SMAJ 17	17	5	18.9	23.1	30.5	13.1
P4 SMAJ 17A	17	5	18.9	21.0	27.6	14.5
P4 SMAJ 18	18	5	20.0	24.4	32.2	12.4
P4 SMAJ 18A	18	5	20.0	22.2	29.2	13.7
P4 SMAJ 20	20	5	22.2	27.1	35.8	11.2
P4 SMAJ 20A	20	5	22.2	24.6	32.4	12.3
P4 SMAJ 22	22	5	24.4	29.8	39.4	10.2
P4 SMAJ 22A	22	5	24.4	27.1	35.5	11.3
P4 SMAJ 24	24	5	26.7	32.6	43.0	9.3
P4 SMAJ 24A	24	5	26.7	29.6	38.9	10.3
P4 SMAJ 26	26	5	28.9	35.3	46.6	8.6
P4 SMAJ 26A	26	5	28.9	32.1	42.1	9.5
P4 SMAJ 28	28	5	31.1	37.9	50.0	8.0
P4 SMAJ 28A	28	5	31.1	34.5	45.4	8.8
P4 SMAJ 30	30	5	33.3	40.1	53.5	7.5
P4 SMAJ 30A	30	5	33.3	36.9	48.4	8.3
P4 SMAJ 33	33	5	36.7	44.8	59.0	6.8
P4 SMAJ 33A	33	5	36.7	40.7	53.3	7.5

## 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 ) at / bei $I_T = 10$ mA		Max. clamping voltage Max. Begrenzer-Spannung at / bei $I_{PPM}$ (10/1000 $\mu$ s)	
	$V_{WM}$ [V]	$I_D$ [ $\mu$ A]	$V_{BR}$ min. [V]	$V_{BR}$ max. [V]	$V_C$ [V]	$I_{PPM}$ [A]
P4 SMAJ 36	36	5	40.0	48.8	64.3	6.2
P4 SMAJ 36A	36	5	40.0	44.4	58.1	6.9
P4 SMAJ 40	40	5	44.4	54.2	71.4	5.6
P4 SMAJ 40A	40	5	44.4	49.3	64.5	6.2
P4 SMAJ 43	43	5	47.8	58.3	76.7	5.2
P4 SMAJ 43A	43	5	47.8	53.1	69.4	5.8
P4 SMAJ 45	45	5	50.0	61.0	80.3	5.0
P4 SMAJ 45A	45	5	50.0	55.5	72.7	5.5
P4 SMAJ 48	48	5	53.3	65.0	85.5	4.7
P4 SMAJ 48A	48	5	53.3	59.2	77.4	5.2
P4 SMAJ 51	51	5	56.7	69.2	91.1	4.4
P4 SMAJ 51A	51	5	56.7	62.9	82.4	4.9
P4 SMAJ 54	54	5	60.0	73.2	96.3	4.2
P4 SMAJ 54A	54	5	60.0	66.6	87.1	4.6
P4 SMAJ 58	58	5	64.4	78.6	103	3.9
P4 SMAJ 58A	58	5	64.4	71.5	93.6	4.3
P4 SMAJ 60	60	5	66.7	81.4	107	3.7
P4 SMAJ 60A	60	5	66.7	74.0	96.8	4.1
P4 SMAJ 64	64	5	71.1	86.7	114	3.5
P4 SMAJ 64A	64	5	71.1	78.9	103	3.9
P4 SMAJ 70	70	5	77.8	94.9	125	3.2
P4 SMAJ 70A	70	5	77.8	86.4	113	3.5
P4 SMAJ 75	75	5	83.3	102	134	3.0
P4 SMAJ 75A	75	5	83.3	92.5	121	3.3
P4 SMAJ 78	78	5	86.7	106	139	2.9
P4 SMAJ 78A	78	5	86.7	96.2	126	3.2
P4 SMAJ 85	85	5	94.4	115	151	2.6
P4 SMAJ 85A	85	5	94.4	105	137	2.9
P4 SMAJ 90	90	5	100	122	160	2.5
P4 SMAJ 90A	90	5	100	111	146	2.7
P4 SMAJ 100	100	5	111	135	179	2.2
P4 SMAJ 100A	100	5	111	123	162	2.5
P4 SMAJ 110	110	5	122	149	196	2.0
P4 SMAJ 110A	110	5	122	135	177	2.3
P4 SMAJ 120	120	5	133	162	214	1.9
P4 SMAJ 120A	120	5	133	148	193	2.1
P4 SMAJ 130	130	5	144	176	231	1.7
P4 SMAJ 130A	130	5	144	160	209	1.9
P4 SMAJ 150	150	5	167	204	268	1.5
P4 SMAJ 150A	150	5	167	185	243	1.6
P4 SMAJ 160	160	5	178	217	287	1.4
P4 SMAJ 160A	160	5	178	198	259	1.5
P4 SMAJ 170	170	5	189	231	304	1.3
P4 SMAJ 170A	170	5	189	210	275	1.4



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

<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