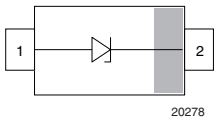
Surface Mount ESD Protection Diodes



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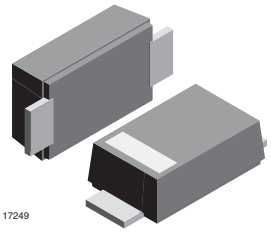
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FEATURES

- For surface mounted applications
- Low-profile package
- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 61000-4-2 (IEC 801-2)
- Ideal for EFT protection of data lines in accordance with IEC 61000-4-4 (IEC 801-4)
- ESD-protection acc. IEC 61000-4-2
  ± 30 kV contact discharge
  ± 30 kV air discharge
- Low incremental surge resistance, excellent clamping capability
- 200 W peak pulse power capability with a 10/1000 µs waveform, repetition rate (duty cycle): 0.01 %
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- e3 - Sn
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb e3 RoHS COMPLIANT

MARKING (example only)

20279

Bar = cathode marking
Y = type code (see table below)
X = date code

ORDERING INFORMATION

SMF5V0A-GSxx
- GS08 = 3K per 7" reel (8 mm tape), 30K/box
- GS18 = 10K per 13" reel (8 mm tape), 50K/box
- Part number

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SMF5V0A	SMF	AE	15 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
SMF6V5A		AK				
SMF7V0A		AM				
SMF7V5A		AP				
SMF8V0A		AR				
SMF8V5A		AT				
SMF9V0A		AV				
SMF10A		AX				
SMF11A		AZ				
SMF12A		BE				
SMF13A		BG				
SMF14A		BK				
SMF15A		BM				
SMF16A		BP				
SMF17A		BR				
SMF18A		BT				
SMF20A		BV				
SMF22A		BX				
SMF24A		BZ				

PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SMF26A	SMF	CE	15 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
SMF28A		CG				
SMF30A		CK				
SMF33A		CM				
SMF36A		CP				
SMF40A		CR				
SMF43A		CT				
SMF45A		CV				
SMF48A		CX				
SMF51A		CZ				

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	t_p = 10/1000 µs waveform acc. IEC 61000-4-5	I_{PPM}	see "Electrical Characteristics"	A
Peak pulse power	t_p = 8/20 µs waveform acc. IEC 61000-4-5	P_{PP}	1000	W
	t_p = 10/1000 µs waveform acc. IEC 61000-4-5		200	W
Peak forward surge current	8.3 ms single half sine-wave	I_{FSM}	20	A
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V_{ESD}	± 30	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		± 30	kV
Thermal resistance	Mounted on epoxy glass PCB with 3 mm x 3 mm, Cu pads (≥ 40 µm thick)	R_{thJA}	180	K/W
Forward clamping voltage	I_F = 12 A	V_F	3.5	V
Operating temperature	Junction temperature	T_J	- 55 to + 150	°C
Storage temperature		T_{STG}	- 55 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	REVERSE BREAKDOWN VOLTAGE at I_T, $t_p \leq 5$ ms	TEST CURRENT	REVERSE WORKING VOLTAGE	REVERSE CURRENT at V_{RWM}	MAXIMUM PEAK PULSE CURRENT t_p = 10/1000 s	REVERSE CLAMPING VOLTAGE at I_{PPM}	CAPACITANCE at V_R = 0 V, f = 1 MHz	PROTECTION PATHS
	V_{BR} MIN. (V)	I_T (mA)	V_{RWM} (V)	I_R (µA)	I_{PPM} (A)	V_C (V)	C_D TYP. (pF)	$N_{channel}$
SMF5V0A	6.40	10	5	400	21.7	9.2	1030	1
SMF6V0A	6.67	10	6	400	19.4	10.3	1010	1
SMF6V5A	7.22	10	6.5	250	17.9	11.2	850	1
SMF7V0A	7.78	10	7	100	16.7	12	750	1
SMF7V5A	8.33	1	7.5	50	15.5	12.9	730	1
SMF8V0A	8.89	1	8	25	14.7	13.6	670	1
SMF8V5A	9.44	1	8.5	10	13.9	14.4	660	1
SMF9V0A	10	1	9	5	13.5	15.4	620	1
SMF10A	11.1	1	10	2.5	11.8	17	570	1
SMF11A	12.2	1	11	2.5	11	18.2	460	1
SMF12A	13.3	1	12	2.5	10.1	19.9	440	1
SMF13A	14.4	1	13	1	9.3	21.5	420	1
SMF14A	15.6	1	14	1	8.6	23.2	370	1
SMF15A	16.7	1	15	1	8.2	24.4	350	1
SMF16A	17.8	1	16	1	7.7	26	340	1
SMF17A	18.9	1	17	1	7.2	27.6	310	1

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)								
PART NUMBER	**REVERSE BREAKDOWN VOLTAGE at I_T, $t_p \leq 5$ ms**	**TEST CURRENT**	**REVERSE WORKING VOLTAGE**	**REVERSE CURRENT at V_{RWM}**	**MAXIMUM PEAK PULSE CURRENT t_p = 10/1000 s**	**REVERSE CLAMPING VOLTAGE at I_{PPM}**	**CAPACITANCE at V_R = 0 V, f = 1 MHz**	**PROTECTION PATHS**
	V_{BR} MIN. (V)	**I_T (mA)**	**V_{RWM} (V)**	**I_R (µA)**	**I_{PPM} (A)**	**V_C (V)**	**C_D TYP. (pF)**	**$N_{channel}$**
SMF18A	20	1	18	1	5.8	29.2	305	1
SMF20A	22.2	1	20	1	6.2	32.4	207	1
SMF22A	24.4	1	22	1	5.6	35.5	265	1
SMF24A	26.7	1	24	1	5.1	38.9	240	1
SMF26A	28.9	1	26	1	4.8	42.1	225	1
SMF28A	31.1	1	28	1	4.4	45.4	210	1
SMF30A	33.3	1	30	1	4.1	48.4	205	1
SMF33A	36.7	1	33	1	3.8	53.3	190	1
SMF36A	40	1	36	1	3.4	58.1	180	1
SMF40A	44.4	1	40	1	3.1	64.5	165	1
SMF43A	47.8	1	43	1	2.9	69.4	160	1
SMF45A	50	1	45	1	2.8	72.7	155	1
SMF48A	53.3	1	48	1	2.6	77.4	150	1
SMF51A	56.7	1	51	1	2.4	82.4	145	1

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

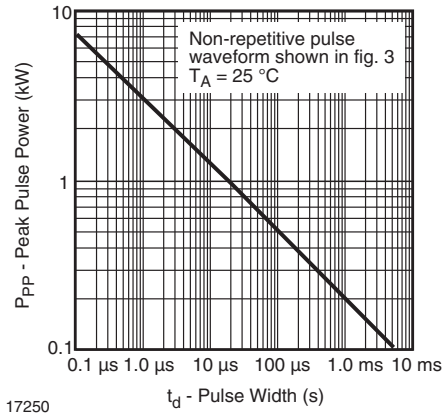


Fig. 1 - Peak Pulse Power Rating

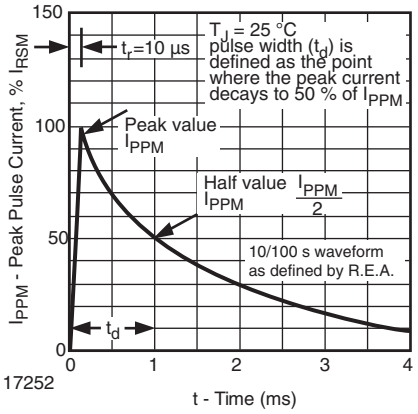


Fig. 3 - Pulse Waveform

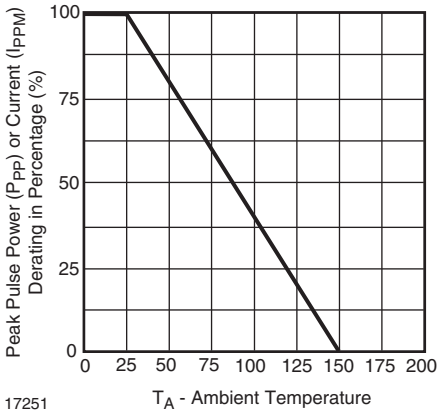
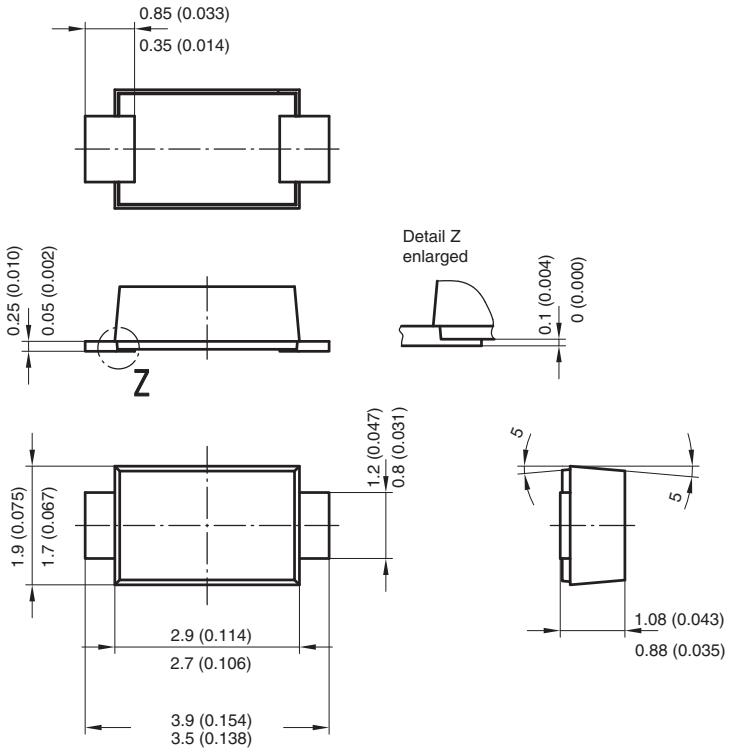
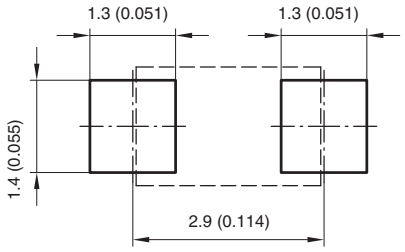


Fig. 2 - Pulse Derating Curve

PACKAGE DIMENSIONS in millimeters (inches): SMF



Foot print recommendation:



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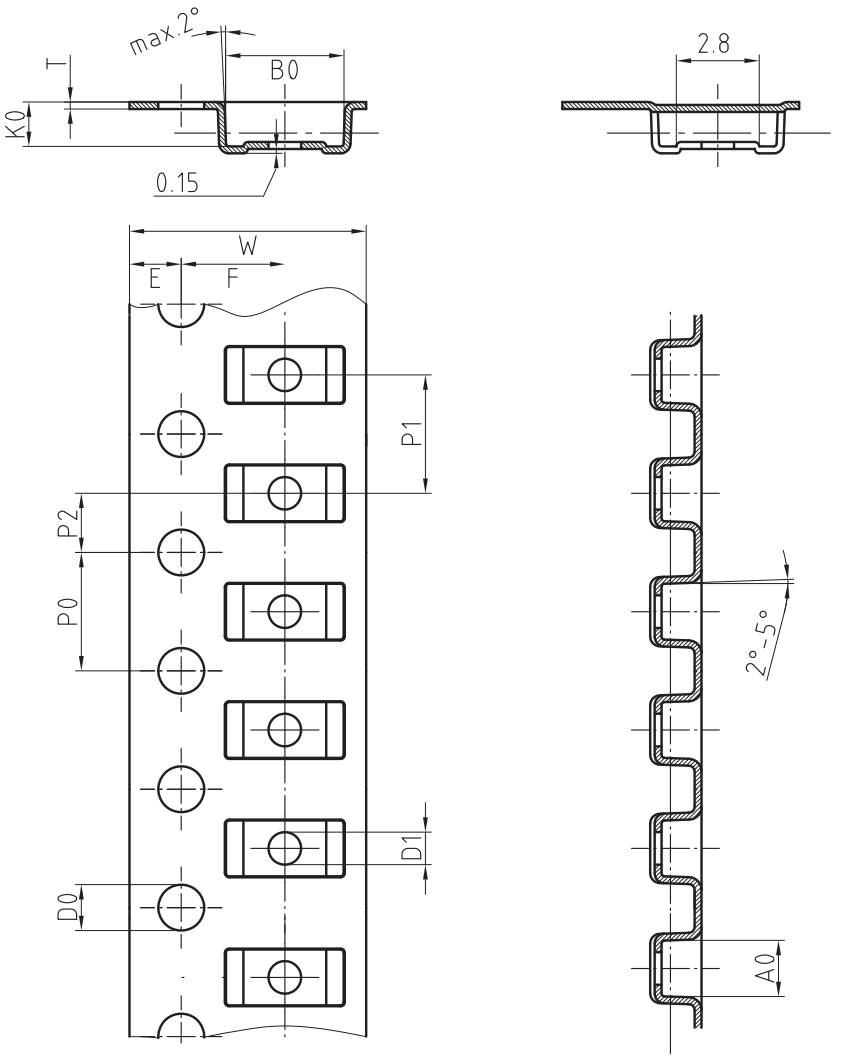
Rev. 3 - Date: 13. March 2007
Document no.:S8-V-3915.01-001 (4)
17247

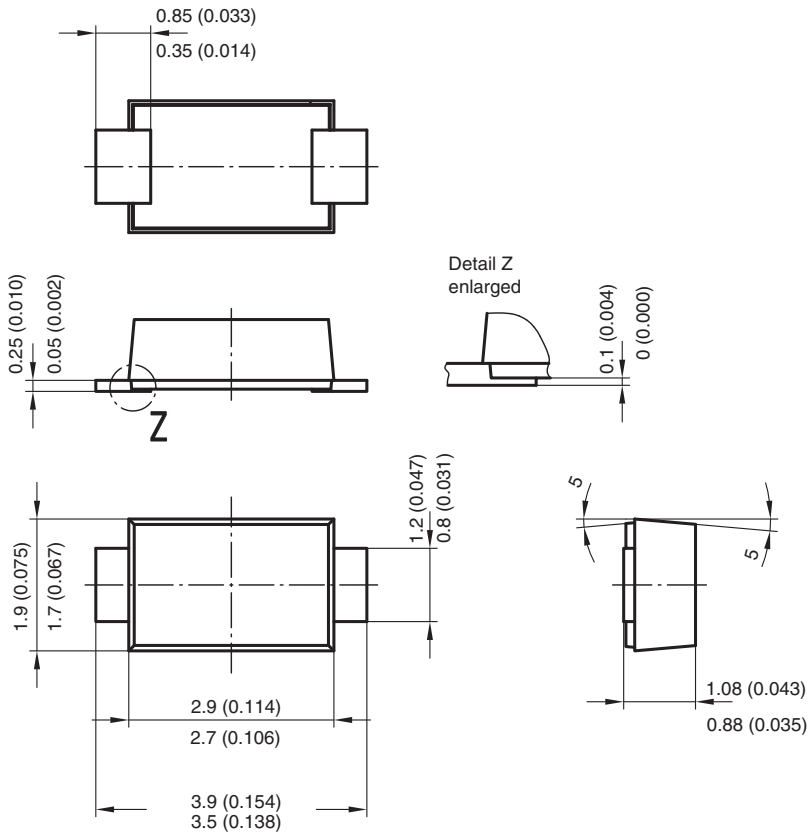
BLISTERTAPE DIMENSIONS in millimeters (inches)



Mat:	A0	B0	K0	W	T	P0	P2	P1	D0	D1	E	F
PS	1.9	4.0	1.5	8.0	0.235	4.0	2.0	4.0	1.5	1	1.75	3.5

Document-No.: S8-V-3717.02-001 (3)
18513

PACKAGE DIMENSIONS in millimeters (inches)



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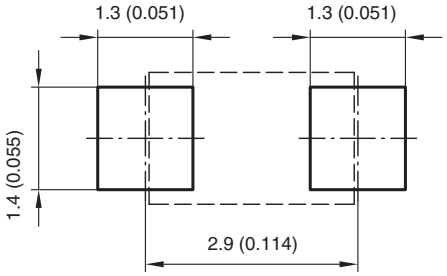

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