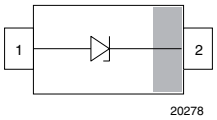
Surface Mount ESD Protection Diodes



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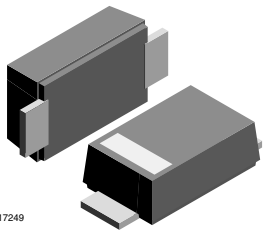
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FEATURES

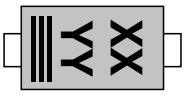
- For surface mounted applications
- Low-profile package
- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 61000-4-2 (IEC 801-2)
- Ideal for EFT protection of data lines in accordance with IEC 61000-4-4 (IEC 801-4)
- ESD-protection acc. IEC 61000-4-2
  ± 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 %
- “Low-Noise” technology - very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- e3 - Sn
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE Available

MARKING (example only)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Bar = cathode marking
YY = type code (see table below)
XX = date code

ORDERING INFORMATION

PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE				PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS		TIN PLATED	3K PER 7" REEL (8 mm TAPE), 30K/BOX = MOQ	10K PER 13" REEL (8 mm TAPE), 50K/BOX = MOQ	
		STANDARD	HALOGEN-FREE				
SMF5V0A-		E		3	-08		SMF5V0A-E3-08
SMF5V0A-			M	3	-08		SMF5V0A-M3-08
SMF5V0A-	H	E		3	-08		SMF5V0A-HE3-08
SMF5V0A-	H		M	3	-08		SMF5V0A-HM3-08
SMF5V0A-		E		3		-18	SMF5V0A-E3-18
SMF5V0A-			M	3		-18	SMF5V0A-M3-18
SMF5V0A-	H	E		3		-18	SMF5V0A-HE3-18
SMF5V0A-	H		M	3		-18	SMF5V0A-HM3-18

PACKAGE DATA

PACKAGE NAME	MOLDING COMPOUND	WEIGHT (mg)	HEIGHT MAX. (mm)	LENGTH MAX. (mm)	WIDTH MAX. (mm)	MOLDING COMPOUND	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SMF (DO-219AB)	Standard	15	1.08	3.9	1.9	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals
	Halogen-free							

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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	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		200	W
Peak forward surge current	8.3 ms single half sine-wave	I_{FSM}	50	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 = 50A, t_p = 400 µs	V_F	2.5	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	**TYPE CODE**		**REVERSE BREAKDOWN VOLTAGE at I_T, t_p = 5 ms**	**TEST CURRENT**	**REVERSE WORKING VOLTAGE**	**REVERSE CURRENT at V_{RWM}**	**PEAK PULSE CURRENT t_p = 10/1000 µs**	**REVERSE CLAMPING VOLTAGE at I_{PPM}**	**CAPACITANCE at V_R = 0 V, f = 1 MHz**	**PROTECTION PATHS**
	STD.	**HALOGEN-FREE**	**V_{BR} MIN. (V)**	**I_T (mA)**	**V_{RWM} (V)**	**I_R (µA)**	**I_{PPM} (A)**	**V_C MAX. (V)**	**C_D TYP. (pF)**	**$N_{channel}$**
SMF5V0A	AE	NE	6.40	10	5	5	21.7	9.2	1120	1
SMF6V0A	AG	NG	6.67	10	6	26	19.4	10.3	1063	1
SMF6V5A	AK	NK	7.22	10	6.5	20	17.9	11.2	938	1
SMF7V0A	AM	NM	7.78	10	7	3	16.7	12	843	1
SMF7V5A	AP	NP	8.33	1	7.5	0.1	15.5	12.9	773	1
SMF8V0A	AR	NR	8.89	1	8	0.1	14.7	13.6	706	1
SMF8V5A	AT	NT	9.44	1	8.5	0.1	13.9	14.4	674	1
SMF9V0A	AV	NV	10	1	9	0.1	13.5	15.4	640	1
SMF10A	AX	NX	11.1	1	10	0.1	11.8	17	562	1
SMF11A	AZ	NZ	12.2	1	11	0.1	11	18.2	509	1
SMF12A	BE	OE	13.3	1	12	0.1	10.1	19.9	483	1
SMF13A	BG	OG	14.4	1	13	0.1	9.3	21.5	423	1
SMF14A	BK	OK	15.6	1	14	0.1	8.6	23.2	392	1
SMF15A	BM	OM	16.7	1	15	0.1	8.2	24.4	367	1
SMF16A	BP	OP	17.8	1	16	0.1	7.7	26	343	1
SMF17A	BR	OR	18.9	1	17	0.1	7.2	27.6	324	1
SMF18A	BT	OT	20	1	18	0.1	6.8	29.2	320	1
SMF20A	BV	OV	22.2	1	20	0.1	6.2	32.4	283	1
SMF22A	BX	OX	24.4	1	22	0.1	5.6	35.5	271	1
SMF24A	BZ	OZ	26.7	1	24	0.1	5.1	38.9	244	1
SMF26A	CE	PE	28.9	1	26	0.1	4.8	42.1	230	1
SMF28A	CG	PG	31.1	1	28	0.1	4.4	45.4	227	1
SMF30A	CK	PK	33.3	1	30	0.1	4.1	48.4	207	1
SMF33A	CM	PM	36.7	1	33	0.1	3.8	53.3	198	1
SMF36A	CP	PP	40	1	36	0.1	3.4	58.1	178	1
SMF40A	CR	PR	44.4	1	40	0.1	3.1	64.5	172	1
SMF43A	CT	PT	47.8	1	43	0.1	2.9	69.4	165	1
SMF45A	CV	PV	50	1	45	0.1	2.8	72.7	162	1
SMF48A	CX	PX	53.3	1	48	0.1	2.6	77.4	161	1
SMF51A	CZ	PZ	56.7	1	51	0.1	2.4	82.4	151	1
SMF54A	CA	PA	60	1	54	0.1	2.25	88	148	1
SMF58A	CC	PC	64.4	1	58	0.1	2.1	95	144	1

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

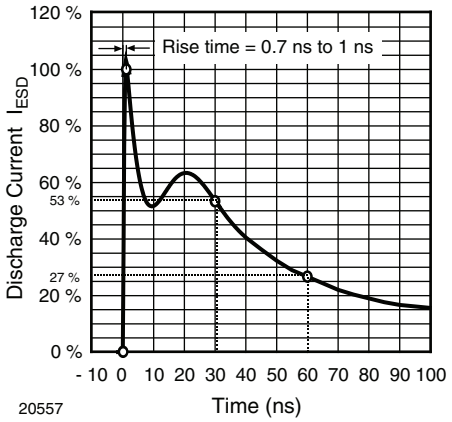

Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150pF)

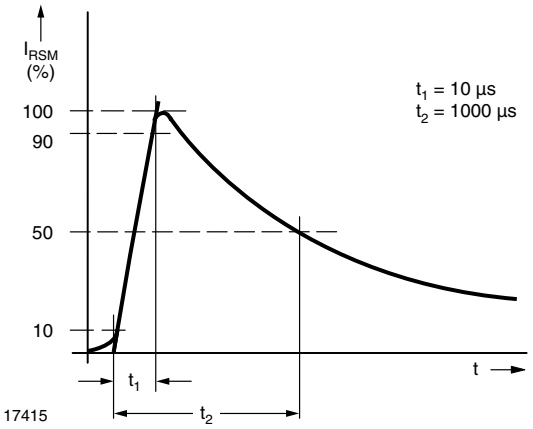

Fig. 4 - Pulse Waveform

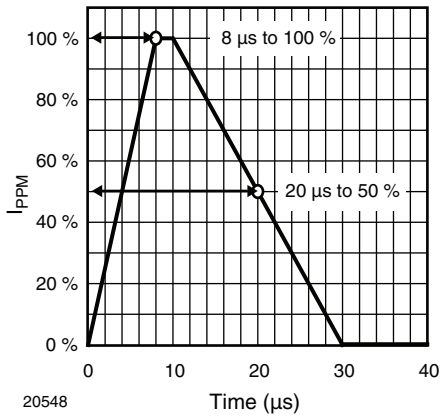

Fig. 2 - 8/20 µs Peak Pulse Current Wave Form acc. IEC 61000-4-5

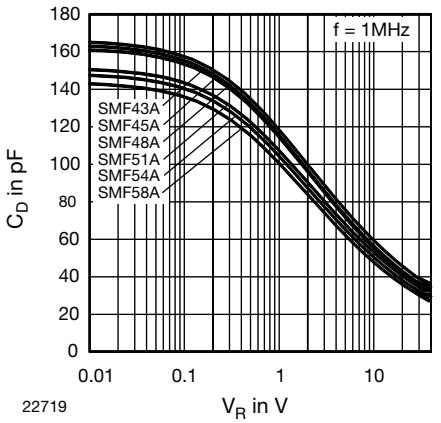

Fig. 5 - Typical Capacitance C_D vs. Reverse Voltage V_R

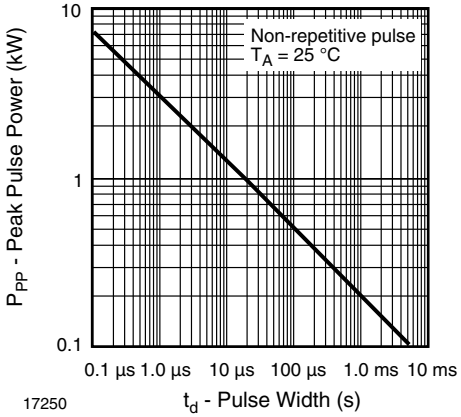

Fig. 3 - Peak Pulse Power Rating

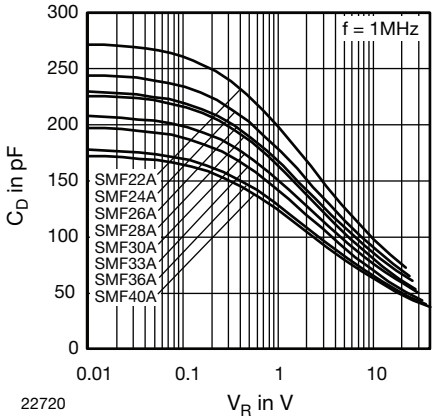

Fig. 6 - Typical Capacitance C_D vs. Reverse Voltage V_R

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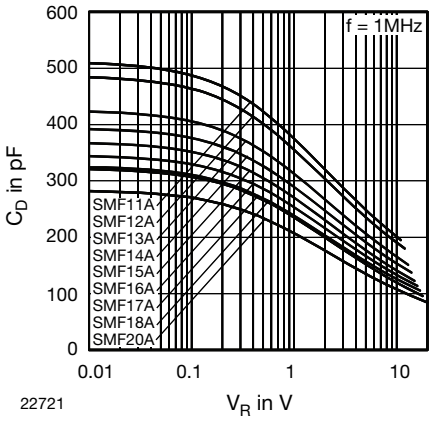

Fig. 7 - Typical Capacitance C_D vs. Reverse Voltage V_R

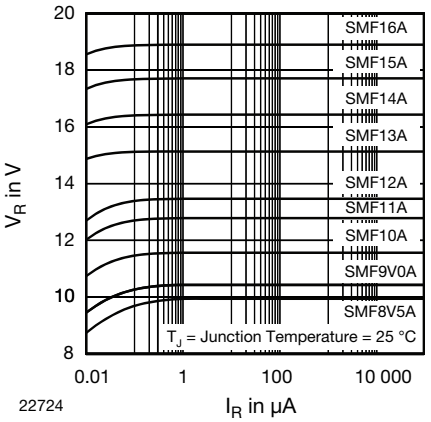

Fig. 10 - Typical Reverse Voltage V_R vs. Reverse Current I_R

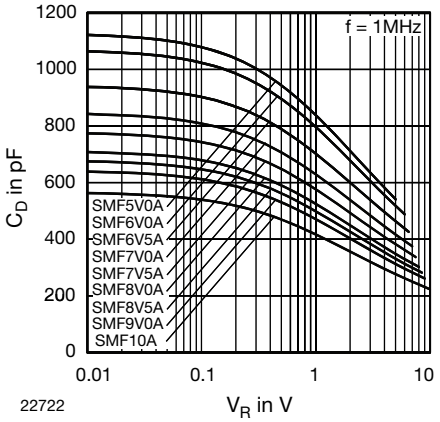

Fig. 8 - Typical Capacitance C_D vs. Reverse Voltage V_R

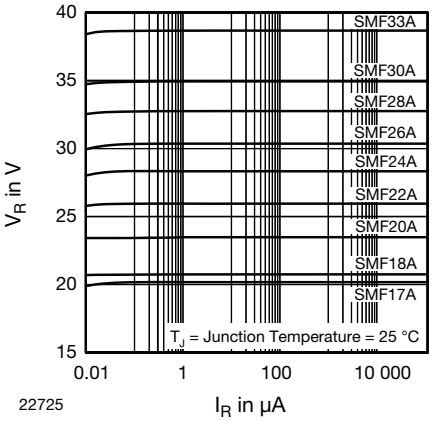

Fig. 11 - Typical Reverse Voltage V_R vs. Reverse Current I_R

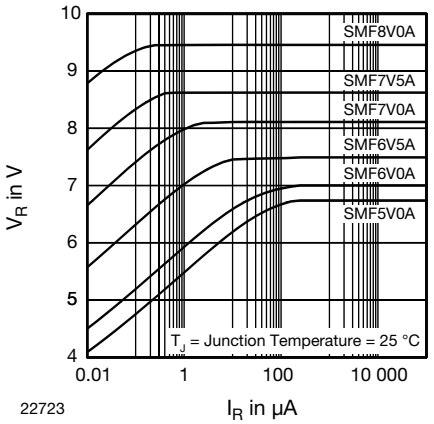

Fig. 9 - Typical Reverse Voltage V_R vs. Reverse Current I_R

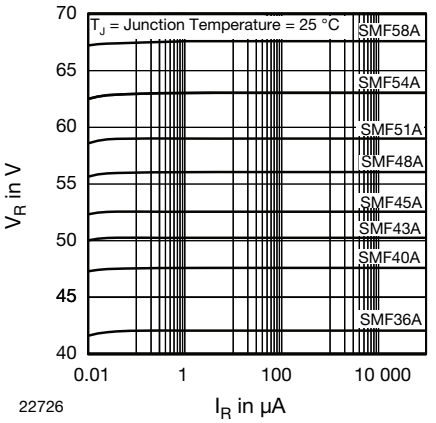

Fig. 12 - Typical Reverse Voltage V_R vs. Reverse Current I_R

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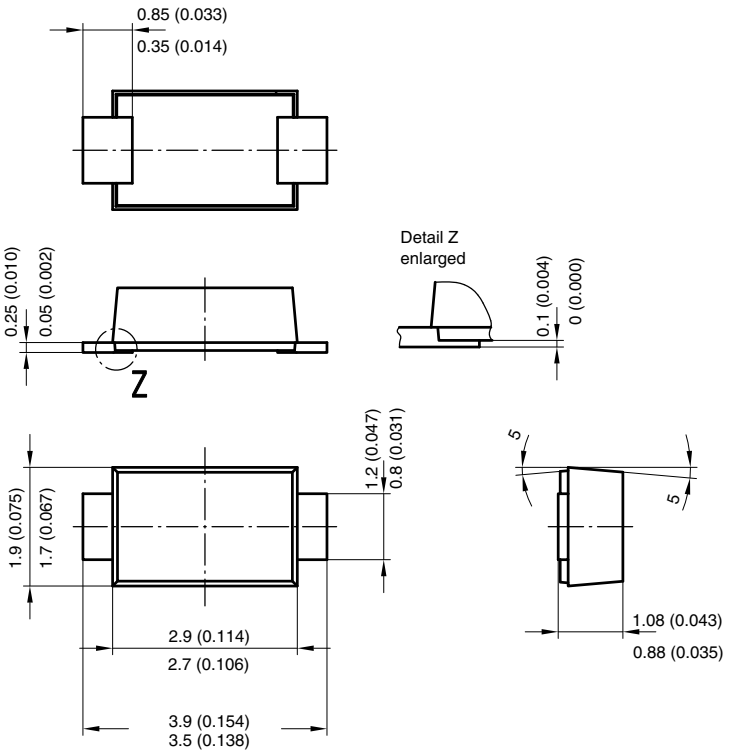
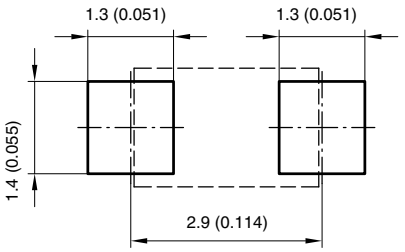
PACKAGE DIMENSIONS in millimeters (inches): **SMF**



Foot print recommendation:



Created - Date: 15. February 2005
Rev. 3 - Date: 13. March 2007
Document no.:S8-V-3915.01-001 (4)
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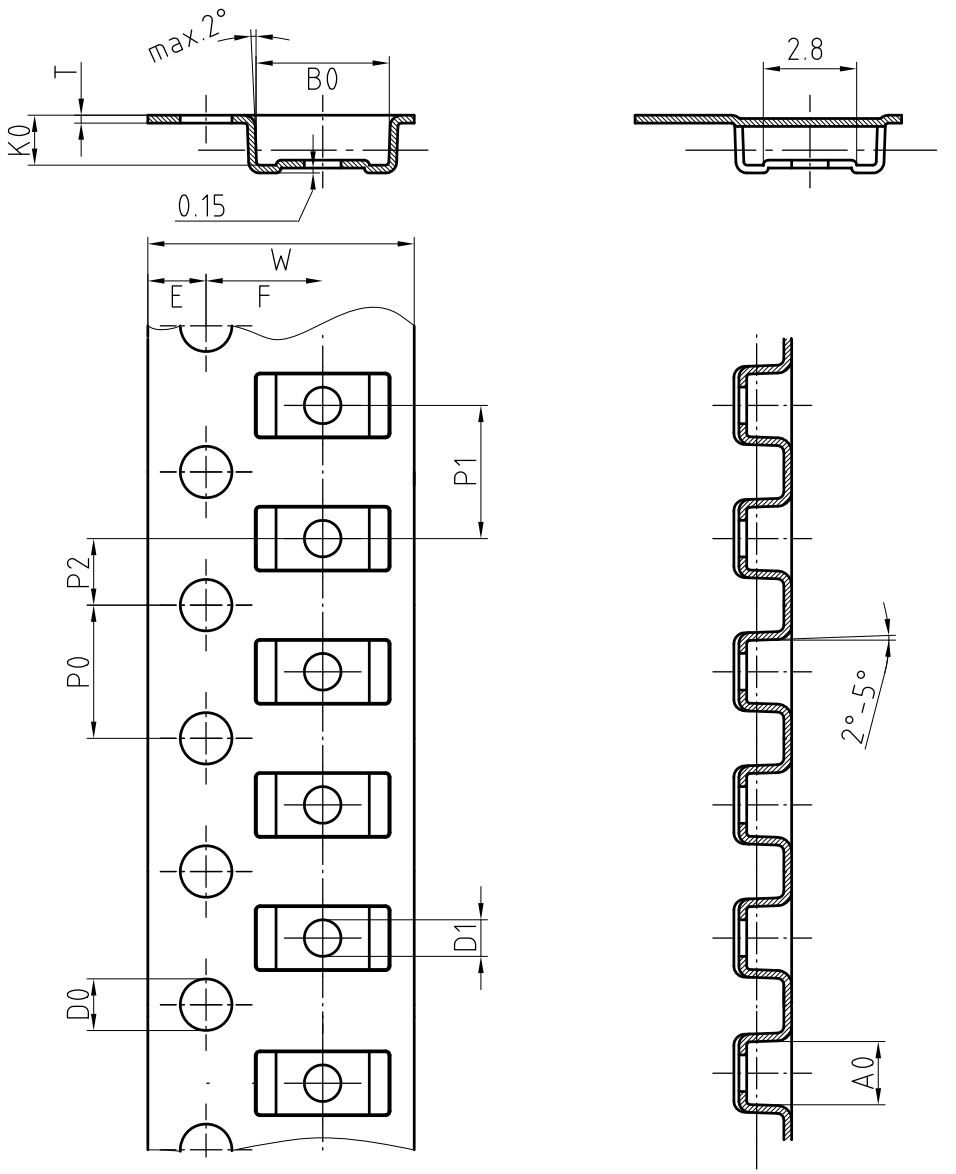
BLISTERTAPE DIMENSIONS in millimeters (inches)



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

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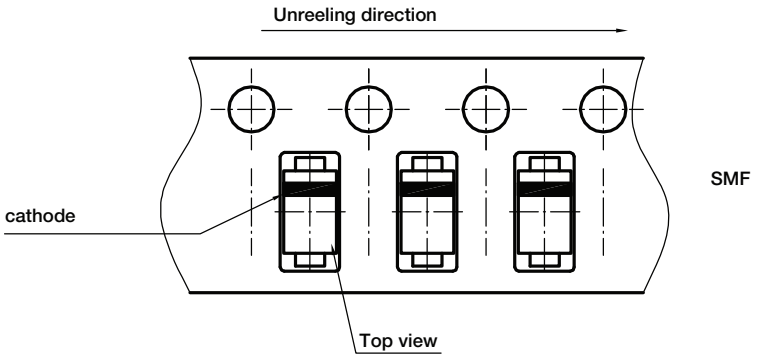
ORIENTATION IN CARRIER TAPE - SMF



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