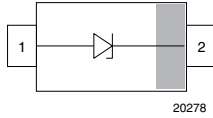
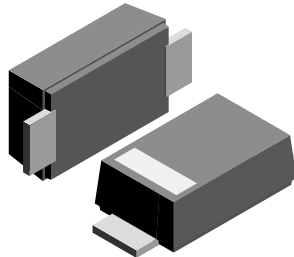


Surface-Mount ESD Protection Diodes

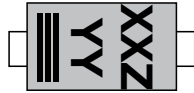
eSMP® Series



20278


SMF (DO-219AB)

MARKING (example only)



22623

Bar = cathode marking

YY = type code (see table below)

XX = date code

Z = location code (optional)

FEATURES

- 200 W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01 %
- Low profile package
- Wave and reflow solderable
- ESD immunity acc. IEC 61000-4-2 \pm 30 kV contact discharge \pm 30 kV air discharge
- ESD capability according to AEC-Q101: human body model: class H3B: > 8 kV
- Low incremental surge resistance, excellent clamping capability
- “Low Noise” technology - very fast response time
- AEC-Q101 qualified available
- Compatible to SOD-123W package case outline or SOD-123F and SOD-123FL
- Material categorization: for definitions of compliance please see www.vishay.com/doc?999912

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



3D Models



Simulation Tools



SPICE Models

ORDERING INFORMATION

PART NUMBER (EXAMPLE)	ENVIRONMENTAL AND QUALITY CODE			REVISION CODE	PACKAGING CODE		ORDERING CODE (EXAMPLE)
	AEC-Q101 QUALIFIED	RoHS-COMPLIANT + LEAD (Pb)-FREE TERMINATIONS	TIN PLATED		3K PER 7" REEL (8 mm TAPE), MOQ = 30K	10K PER 13" REEL (8 mm TAPE), MOQ = 50K	
SMF5V0A-		M	3	-	08		SMF5V0A-M3-08
SMF5V0A-	H	M	3	_A	08		SMF5V0A-HM3_A08
SMF5V0A-		M	3	-		18	SMF5V0A-M3-18
SMF5V0A-	H	M	3	_A		18	SMF5V0A-HM3_A18

PACKAGE DATA

PACKAGE NAME	WEIGHT (mg)	HEIGHT MAX. (mm)	LENGTH MAX. (mm)	WIDTH MAX. (mm)	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	WHISKER TEST ACC. JESD 201	SOLDERING CONDITIONS
SMF (DO-219AB)	15	1.08	3.9	1.9	UL 94 V-0	MSL level 1 (acc. J-STD-020)	Class 2	Peak temperature max. 260 °C



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
Junction temperature		T _J	175	°C
Storage temperature range		T _{stg}	-65 to +175	°C
Operating temperature range		T _{op}	-65 to +175	°C

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)										
PART NUMBER	MARKING CODE	REVERSE BREAKDOWN VOLTAGE at I _T , t _p = 5 ms		TEST CURRENT I _T (mA)	STAND-OFF VOLTAGE V _{RWM} (V)	MAXIMUM REVERSE CURRENT I _R (μA)	MAXIMUM PEAK PULSE CURRENT I _{PPM} (A)	MAXIMUM REVERSE CLAMPING VOLTAGE at I _{PPM} V _C MAX. (V)	TYPICAL CAP. at V _R = 0 V, f = 1 MHz C _D TYP. (pF)	PROTECTION PATHS N _{channel}
		V _{BR} MIN. (V)	V _{BR} MAX. (V)							
SMF5V0A	NE	6.40	7.1	10	5	5	21.7	9.2	1120	1
SMF6V0A	NG	6.67	7.4	10	6	26	19.4	10.3	1063	1
SMF6V5A	NK	7.22	8	10	6.5	20	17.9	11.2	938	1
SMF7V0A	NM	7.78	8.6	10	7	3	16.7	12	843	1
SMF7V5A	NP	8.33	9.3	1	7.5	0.1	15.5	12.9	773	1
SMF8V0A	NR	8.89	9.9	1	8	0.1	14.7	13.6	706	1
SMF8V5A	NT	9.44	10.5	1	8.5	0.1	13.9	14.4	674	1
SMF9V0A	NV	10	11.2	1	9	0.1	13.5	15.4	640	1
SMF10A	NX	11.1	12.3	1	10	0.1	11.8	17	562	1
SMF11A	NZ	12.2	13.5	1	11	0.1	11	18.2	509	1
SMF12A	OE	13.3	14.7	1	12	0.1	10.1	19.9	483	1
SMF13A	OG	14.4	16	1	13	0.1	9.3	21.5	423	1
SMF14A	OK	15.6	17.3	1	14	0.1	8.6	23.2	392	1
SMF15A	OM	16.7	18.5	1	15	0.1	8.2	24.4	367	1
SMF16A	OP	17.8	19.7	1	16	0.1	7.7	26	343	1
SMF17A	OR	18.9	20.9	1	17	0.1	7.2	27.6	324	1
SMF18A	OT	20	22.3	1	18	0.1	6.8	29.2	320	1
SMF20A	OV	22.2	24.6	1	20	0.1	6.2	32.4	283	1
SMF22A	OX	24.4	27	1	22	0.1	5.6	35.5	271	1
SMF24A	OZ	26.7	29.6	1	24	0.1	5.1	38.9	244	1
SMF26A	PE	28.9	32	1	26	0.1	4.8	42.1	230	1
SMF28A	PG	31.1	34.4	1	28	0.1	4.4	45.4	227	1
SMF30A	PK	33.3	36.9	1	30	0.1	4.1	48.4	207	1
SMF33A	PM	36.7	40.6	1	33	0.1	3.8	53.3	198	1
SMF36A	PP	40	44.3	1	36	0.1	3.4	58.1	178	1
SMF40A	PR	44.4	49.1	1	40	0.1	3.1	64.5	172	1
SMF43A	PT	47.8	52.9	1	43	0.1	2.9	69.4	165	1
SMF45A	PV	50	55.3	1	45	0.1	2.8	72.7	162	1
SMF48A	PX	53.3	59	1	48	0.1	2.6	77.4	161	1
SMF51A	PZ	56.7	62.7	1	51	0.1	2.4	82.4	151	1
SMF54A	PA	60	66	1	54	0.1	2.25	88	148	1
SMF58A	PC	64.4	70.8	1	58	0.1	2.1	95	144	1

TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

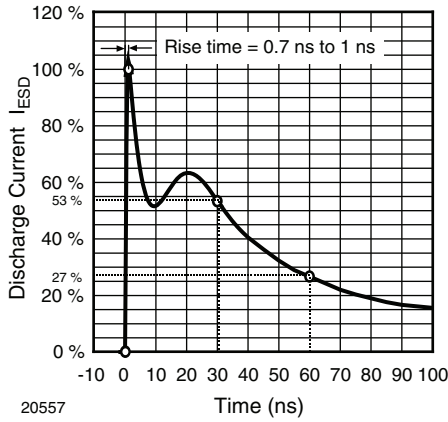


Fig. 1 - ESD Discharge Current Wave Form acc. IEC 61000-4-2 (330 Ω/150pF)

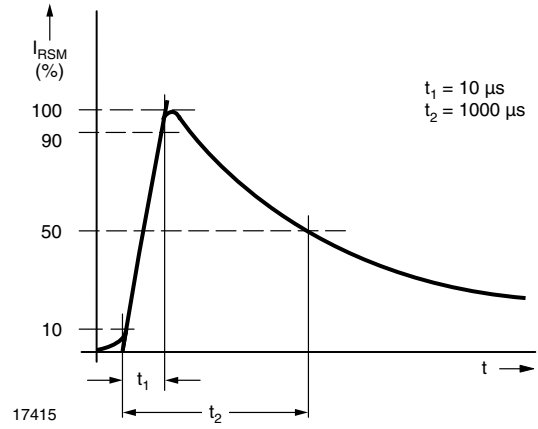


Fig. 4 - Pulse Waveform

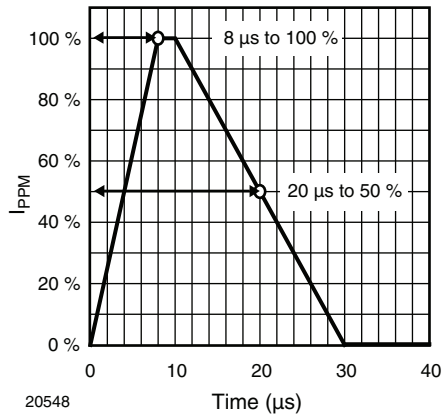


Fig. 2 - 8/20 μs Peak Pulse Current Wave Form acc. IEC 61000-4-5

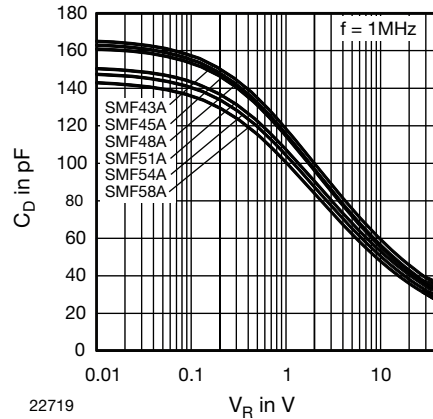


Fig. 5 - Typical Capacitance C_D vs. Reverse Voltage V_R

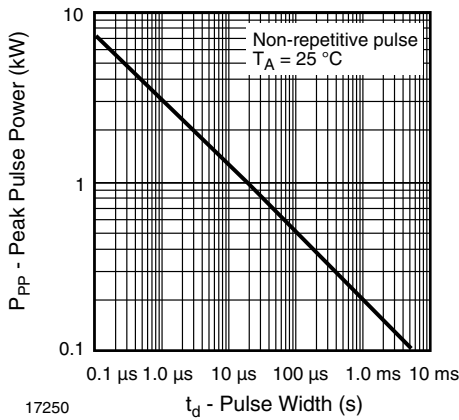


Fig. 3 - Peak Pulse Power Rating

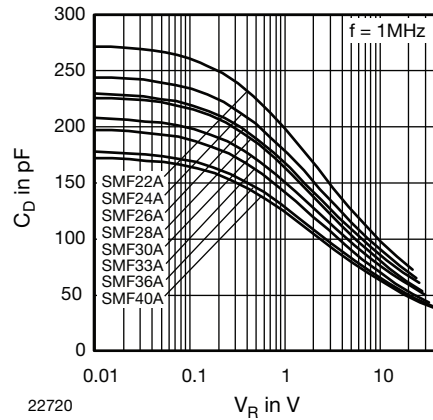


Fig. 6 - Typical Capacitance C_D vs. Reverse Voltage V_R

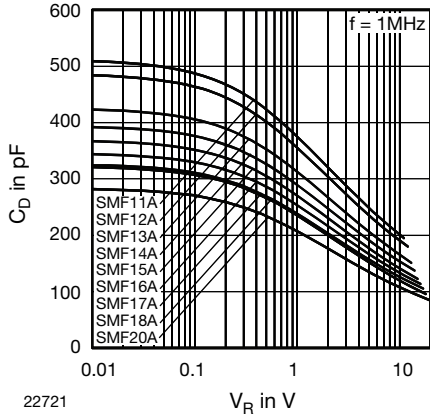


Fig. 7 - Typical Capacitance C_D vs. Reverse Voltage V_R

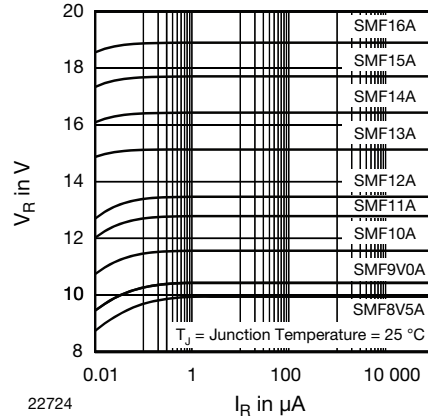


Fig. 10 - Typical Reverse Voltage V_R vs. Reverse Current I_R

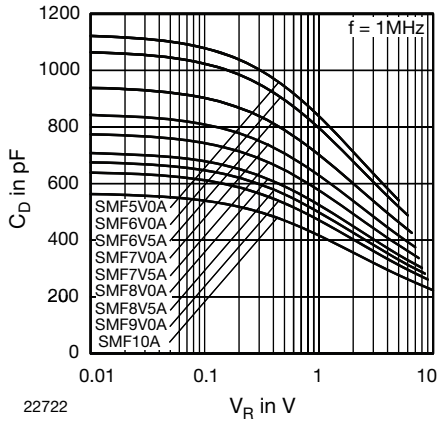


Fig. 8 - Typical Capacitance C_D vs. Reverse Voltage V_R

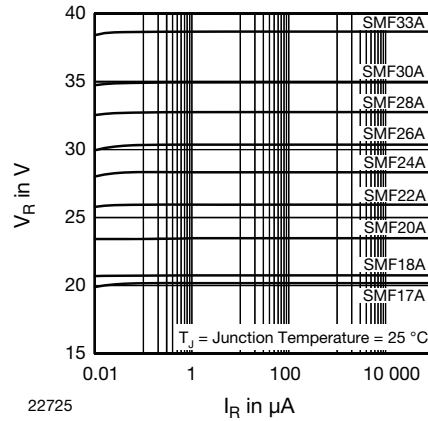


Fig. 11 - Typical Reverse Voltage V_R vs. Reverse Current I_R

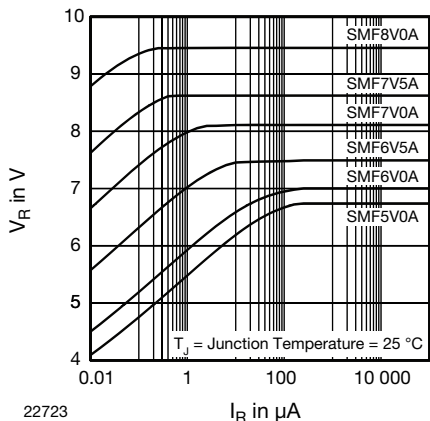


Fig. 9 - Typical Reverse Voltage V_R vs. Reverse Current I_R

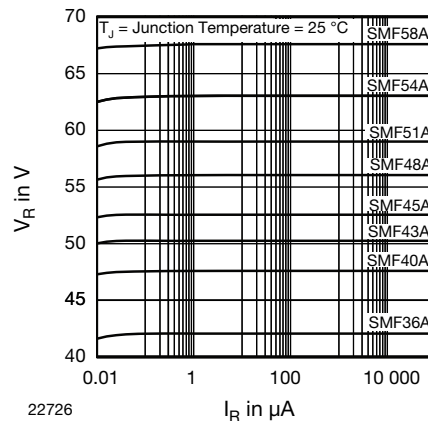
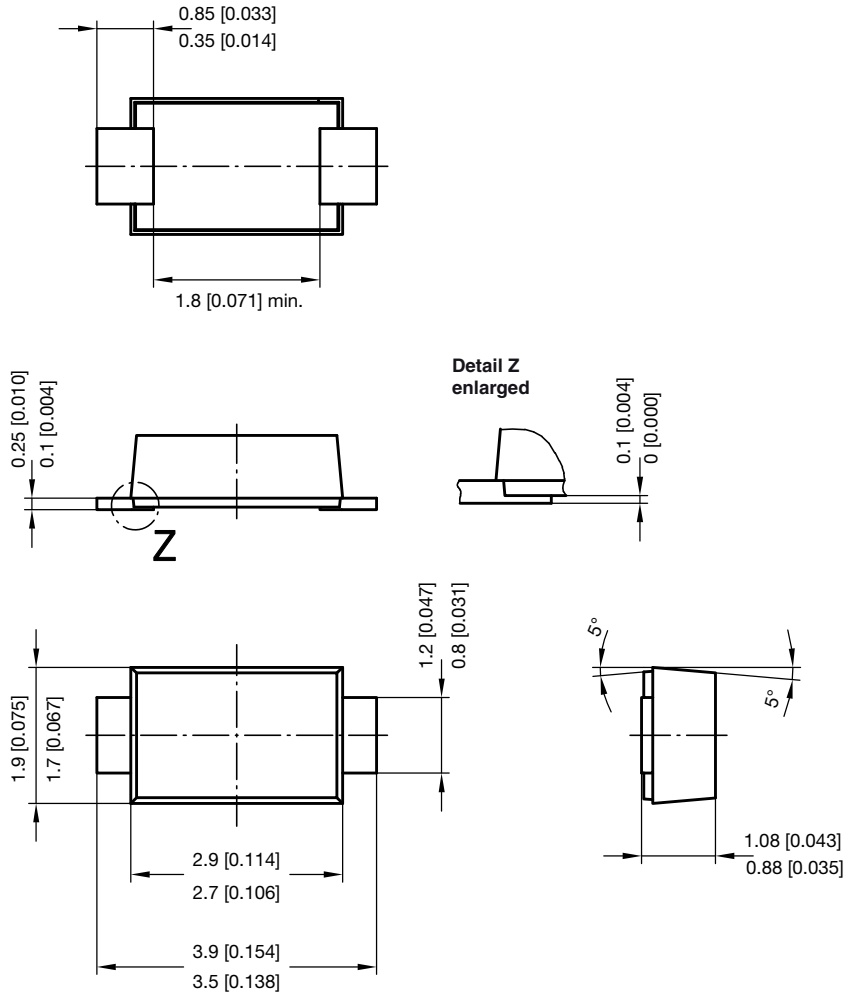


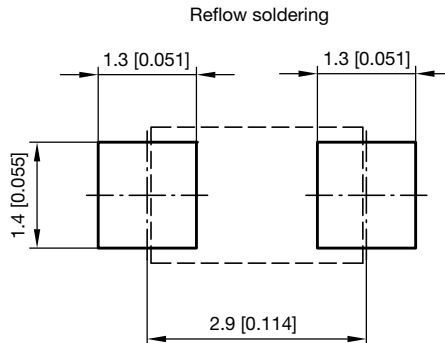
Fig. 12 - Typical Reverse Voltage V_R vs. Reverse Current I_R



PACKAGE DIMENSIONS in millimeters (inches): SMF (DO-219AB)



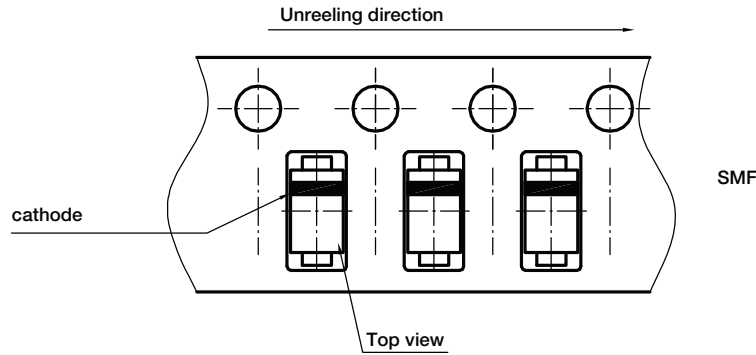
foot print recommendation:



Created - Date: 15. February 2005
 Rev. 6 - Date: 24.Feb.2021
 Document no.: S8-V-3915.01-001 (4)
 22989



ORIENTATION IN CARRIER TAPE - SMF (DO-219AB)



Document no.: S8-V-3717.02-003 (4)
Created - Date: 09. Feb. 2010
22670



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