

Surface Mount TRANSZORB® Transient Voltage Suppressors


SMC (DO-214AB)


LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
V_{BR}	11.1 V to 104 V
V_{WM}	10 V to 85 V
P_{PPM}	5000 W
T_J max.	175 °C
Polarity	Bidirectional
Package	SMC (DO-214AB)

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication.

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 μ s waveform (Fig.1)	P_{PPM} ⁽¹⁾	5000	W
Peak pulse current with a 10/1000 μ s waveform (Fig.3)	I_{PPM} ⁽¹⁾	See next table	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	°C

Note

⁽¹⁾ Non-repetitive current pulse, per fig.3 and derated above $T_A = 25$ °C, per fig.2

FEATURES

- Bidirectional
- Peak pulse power:
 - 5000 W (10/1000 μ s)
 - 40 kW (8/20 μ s)
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and industrial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test

Polarity: no cathode band for bidirectional types

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

DEVICE TYPE	DEVICE MARKING CODE	BREAKDOWN VOLTAGE $V_{BR}^{(1)}$ (V) AT I_T		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA)	MAXIMUM CLAMPING VOLTAGE V_C (V) AT I_{PPM}	MAXIMUM CLAMPING VOLTAGE V_C (V) AT I_{PPM}			
		10/1000 μs					8/20 μs				
		MIN.	MAX.				(V)	(A)			
SMC5K10CA	5GDX	11.1	12.3	1.0	10	10.0	17.0	294			
SMC5K12CA	5GEE	13.3	14.7	1.0	12	5.0	19.9	251			
SMC5K13CA	5GEG	14.4	15.9	1.0	13	2.0	21.5	233			
SMC5K14CA	5GEK	15.6	17.2	1.0	14	2.0	23.2	216			
SMC5K15CA	5GEM	16.7	18.5	1.0	15	2.0	24.4	205			
SMC5K16CA	5GEP	17.8	19.7	1.0	16	2.0	26.0	192			
SMC5K17CA	5GER	18.9	20.9	1.0	17	2.0	27.6	181			
SMC5K18CA	5GET	20.0	22.1	1.0	18	2.0	29.2	171			
SMC5K20CA	5GEV	22.2	24.5	1.0	20	2.0	32.4	154			
SMC5K22CA	5GEX	24.4	26.9	1.0	22	1.0	35.5	141			
SMC5K24CA	5GEZ	26.7	29.5	1.0	24	1.0	38.9	129			
SMC5K26CA	5GFE	28.9	31.9	1.0	26	1.0	42.1	119			
SMC5K28CA	5GFG	31.1	34.4	1.0	28	1.0	45.4	110			
SMC5K30CA	5GFK	33.3	36.8	1.0	30	1.0	48.4	103			
SMC5K33CA	5GFM	36.7	40.6	1.0	33	1.0	53.3	93.8			
SMC5K36CA	5GFP	40.0	44.2	1.0	36	1.0	58.1	86.1			
SMC5K40CA	5GFR	44.4	49.1	1.0	40	1.0	64.5	77.5			
SMC5K43CA	5GFT	47.8	52.8	1.0	43	1.0	69.4	72.0			
SMC5K45CA	5GFV	50.0	55.3	1.0	45	1.0	72.7	68.8			
SMC5K48CA	5GFX	53.3	58.9	1.0	48	1.0	77.4	64.6			
SMC5K51CA	5GFZ	56.7	62.7	1.0	51	1.0	82.4	60.7			
SMC5K54CA	5GGE	60.0	66.3	1.0	54	1.0	87.1	57.4			
SMC5K58CA	5GGG	64.4	71.2	1.0	58	1.0	93.6	53.4			
SMC5K60CA	5GGK	66.7	73.7	1.0	60	1.0	96.8	51.7			
SMC5K64CA	5GGM	71.1	78.6	1.0	64	1.0	103	48.5			
SMC5K70CA	5GGP	77.8	86.0	1.0	70	1.0	113	44.2			
SMC5K75CA	5GGR	83.3	92.1	1.0	75	1.0	121	41.3			
SMC5K78CA	5GGT	86.7	95.8	1.0	78	1.0	126	39.7			
SMC5K85CA	5GGV	94.4	104	1.0	85	1.0	137	36.5			

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) All terms and symbols are consistent with ANSI/IEEE C62.35

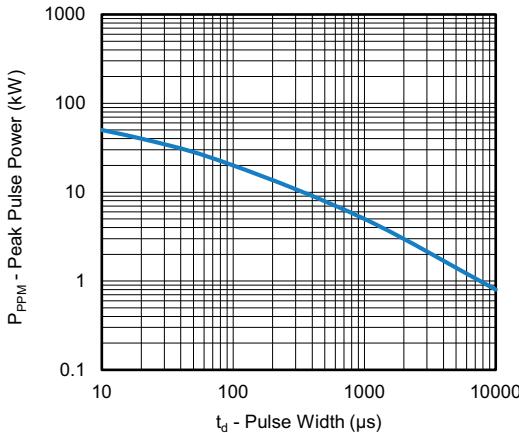
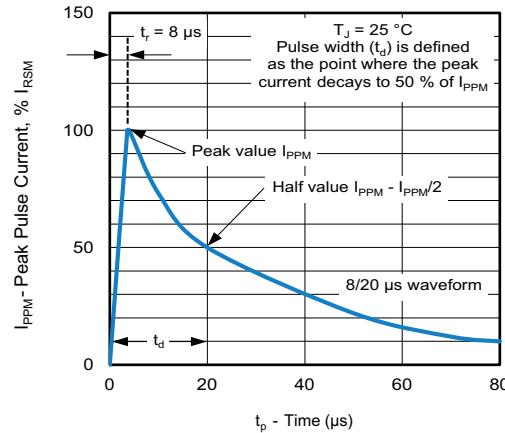
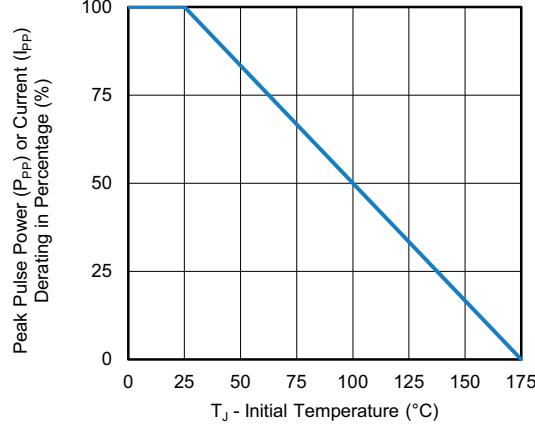
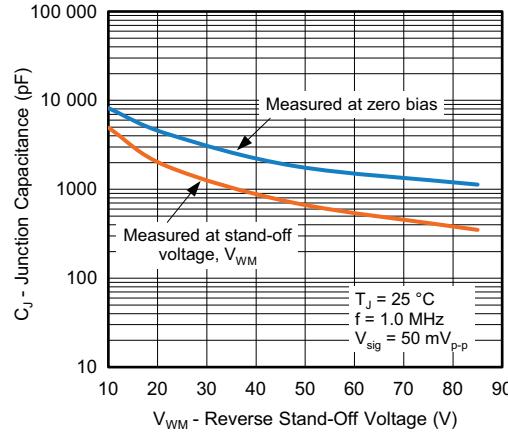
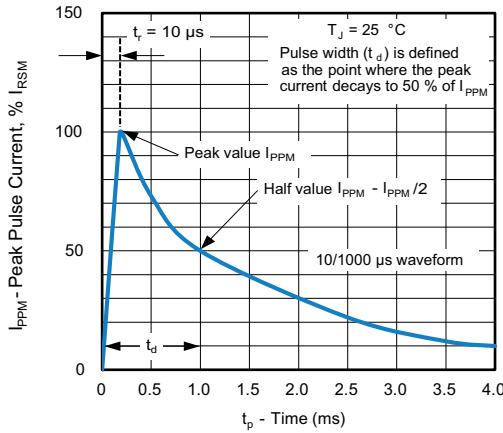
IMMUNITY TO STATIC ELECTRICAL DISCHARGE TO THE FOLLOWING STANDARDS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

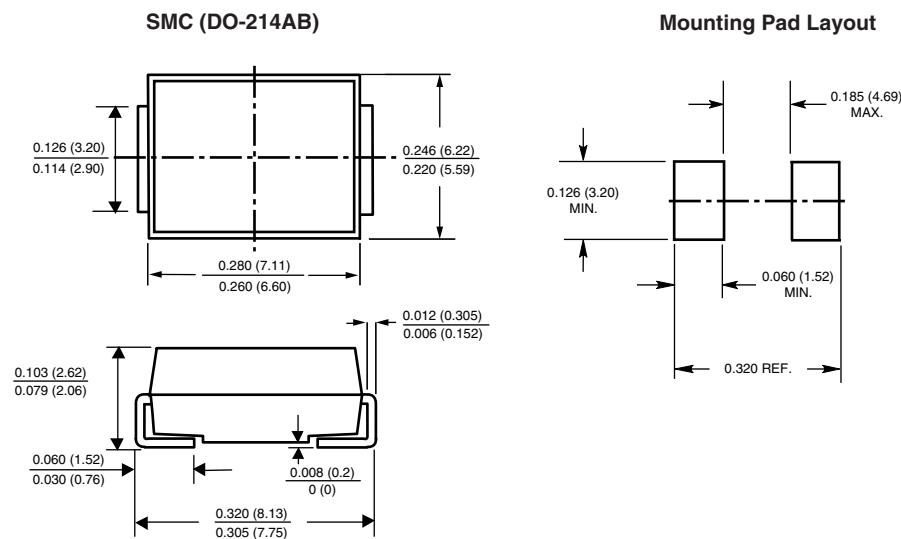
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	VALUE
IEC 61000-4-2	Human body model (contact mode)	$C = 150 \text{ pF}$, $R = 330 \Omega$	ESD	30 kV
	Human body model (air discharge mode)			30 kV

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SMC5K10CA-M3/H	0.257	H	850	7" diameter plastic tape and reel
SMC5K10CA-M3/I	0.257	I	3500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Peak Pulse Power Derating Curve

Fig. 4 - Pulse Waveform

Fig. 2 - Peak Pulse Power or Current vs. Initial Temperature

Fig. 5 - Typical Junction Capacitance

Fig. 3 - Pulse Waveform
Notes

- (1) Fig. 1 - Power calculation is based on I_{PPM} times defined maximum clamping voltage by pulse width
- (2) Fig. 1 - 10 000 μs P_{PPM} is actual test for $V_{WM} \leq 60$ V types, over 60 V types 10 000 P_{PPM} is curve extensional value

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)


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