Surface Mount TRANSZORB® Transient Voltage Suppressors

DO-215AB (SMCG)

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 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

PRIMARY CHARACTERISTICS	
V_{WM}	5.0 V to 188 V
V_{BR} (uni-directional)	6.4 V to 231 V
V_{BR} (bi-directional)	6.4 V to 231 V
P_{PPM}	1500 W
P_D	6.5 W
I_{FSM}	200 A
T_J max.	150 °C
Polarity	Uni-directional, bi-directional
Package	DO-215AB (SMCG)

DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional devices use CA suffix (e.g. SMCG188CA).

Electrical characteristics apply in both directions.

TYPICAL APPLCIATIONS

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.

MECHANICAL DATA

Case: DO-215AB (SMCG)
Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
M3 suffix meets JESD 201 class 2 whisker test

Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse power dissipation with a 10/1000 µs waveform (1)(2)	P_{PPM}	1500	W
Peak pulse current with a 10/1000 µs waveform (1)	I_{PPM}	See next table	A
Power dissipation on infinite heatsink T_A = 50 °C	P_D	6.5	W
Peak forward surge current 8.3 ms single half sine-wave uni-directional only (2)	I_{FSM}	200	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes

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

(2) Mounted on 0.31" x 0.31" (8.0 mm x 8.0 mm) copper pads to each terminal

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

DEVICE TYPE MODIFIED GULL WING	DEVICE MARKING CODE		BREAKDOWN VOLTAGE V_{BR} AT I_T (V) (1)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μA) (3)	MAXIMUM PEAK PULSE CURRENT I_{PPM} (A) (2)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
	UNI	BI	MIN.	MAX.					
(+)SMCG5.0A (5)	GDE	GDE	6.40	7.07	10.0	5.0	1000	163.0	9.2
(+)SMCG6.0A	GDG	GDG	6.67	7.37	10.0	6.0	1000	145.6	10.3
(+)SMCG6.5A	GDK	BDK	7.22	7.98	10.0	6.5	500	133.9	11.2
(+)SMCG7.0A	GDM	GDM	7.78	8.60	10.0	7.0	200	125.0	12.0
(+)SMCG7.5A	GDP	BDP	8.33	9.21	1.0	7.5	100	116.3	12.9
(+)SMCG8.0A	GDR	BDR	8.89	9.83	1.0	8.0	50	110.3	13.6
(+)SMCG8.5A	GDT	BDT	9.44	10.4	1.0	8.5	20	104.2	14.4
(+)SMCG9.0A	GDV	BDV	10.0	11.1	1.0	9.0	10	97.4	15.4
(+)SMCG10A	GDX	BDX	11.1	12.3	1.0	10	5.0	88.2	17.0
(+)SMCG11A	GDZ	GDZ	12.2	13.5	1.0	11	5.0	82.4	18.2
(+)SMCG12A	GEE	BEE	13.3	14.7	1.0	12	5.0	75.4	19.9
(+)SMCG13A	GEG	GEG	14.4	15.9	1.0	13	1.0	69.8	21.5
(+)SMCG14A	GEK	BEK	15.6	17.2	1.0	14	1.0	64.7	23.2
(+)SMCG15A	GEM	BEM	16.7	18.5	1.0	15	1.0	61.5	24.4
(+)SMCG16A	GEP	GEP	17.8	19.7	1.0	16	1.0	57.7	26.0
(+)SMCG17A	GER	GER	18.9	20.9	1.0	17	1.0	54.3	27.6
(+)SMCG18A	GET	BET	20.0	22.1	1.0	18	1.0	51.4	29.2
(+)SMCG20A	GEV	BEV	22.2	24.5	1.0	20	1.0	46.3	32.4
(+)SMCG22A	GEX	BEX	24.4	26.9	1.0	22	1.0	42.3	35.5
(+)SMCG24A	GEZ	BEZ	26.7	29.5	1.0	24	1.0	38.6	38.9
(+)SMCG26A	GFE	BFE	28.9	31.9	1.0	26	1.0	35.6	42.1
(+)SMCG28A	GFG	BFG	31.1	34.4	1.0	28	1.0	33.0	45.4
(+)SMCG30A	GFK	BFK	33.3	36.8	1.0	30	1.0	31.0	48.4
(+)SMCG33A	GFM	BFM	36.7	40.6	1.0	33	1.0	28.1	53.3
(+)SMCG36A	GFP	BFP	40.0	44.2	1.0	36	1.0	25.8	58.1
(+)SMCG40A	GFR	BFR	44.4	49.1	1.0	40	1.0	23.3	64.5
(+)SMCG43A	GFT	BFT	47.8	52.8	1.0	43	1.0	21.6	69.4
(+)SMCG45A	GFV	GFV	50.0	55.3	1.0	45	1.0	20.6	72.7
(+)SMCG48A	GFX	GFX	53.3	58.9	1.0	48	1.0	19.4	77.4
(+)SMCG51A	GFZ	GFZ	56.7	62.7	1.0	51	1.0	18.2	82.4
(+)SMCG54A	GGE	GGE	60.0	66.3	1.0	54	1.0	17.2	87.1
(+)SMCG58A	GGG	GGG	64.4	71.2	1.0	58	1.0	16.0	93
(+)SMCG60A	GGK	GGK	66.7	73.7	1.0	60	1.0	15.5	96
(+)SMCG64A	GGM	GGM	71.1	78.6	1.0	64	1.0	14.6	103
(+)SMCG70A	GGP	GGP	77.8	86.0	1.0	70	1.0	13.3	113
(+)SMCG75A	GGR	GGR	83.3	92.1	1.0	75	1.0	12.4	121
(+)SMCG78A	GGT	GGT	86.7	95.8	1.0	78	1.0	11.9	126
(+)SMCG85A	GGV	GGV	94.4	104	1.0	85	1.0	10.9	137
(+)SMCG90A	GGX	GGX	100	111	1.0	90	1.0	10.3	146
(+)SMCG100A	GGZ	GGZ	111	123	1.0	100	1.0	9.3	162
(+)SMCG110A	GHE	GHE	122	135	1.0	110	1.0	8.5	177
(+)SMCG120A	GHG	GHG	133	147	1.0	120	1.0	7.8	193
(+)SMCG130A	GHK	GHK	144	159	1.0	130	1.0	7.2	209
(+)SMCG150A	GHM	GHM	167	185	1.0	150	1.0	6.2	243
(+)SMCG160A	GHP	GHP	178	197	1.0	160	1.0	5.8	259
(+)SMCG170A	GHR	GHR	189	209	1.0	170	1.0	5.5	275
SMCG188A	GHS	GHS	209	231	1.0	188	1.0	4.6	328

Notes

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

(2) Surge current waveform per fig. 3 and derate per fig. 2

(3) For bi-directional types having V_{WM} of 10 V and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE CA62.35

(5) For the bi-directional SMCG5.0CA, the maximum V_{BR} is 7.25 V

(6) V_F = 3.5 V at I_F = 100 A (uni-directional only)

(+) Underwriters laboratory recognition for the classification of protectors (QVGQ2) under the UL standard for safety 497B and file number E136766 for both uni-directional and bi-directional devices

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Typical thermal resistance, junction to ambient	$R_{\theta JA}$ (1)	75	°C/W
Typical thermal resistance, junction to lead	$R_{\theta JL}$	15	°C/W

Note

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SMCG5.0A-M3/57T	0.211	57T	850	7" diameter plastic tape and reel
SMCG5.0A-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

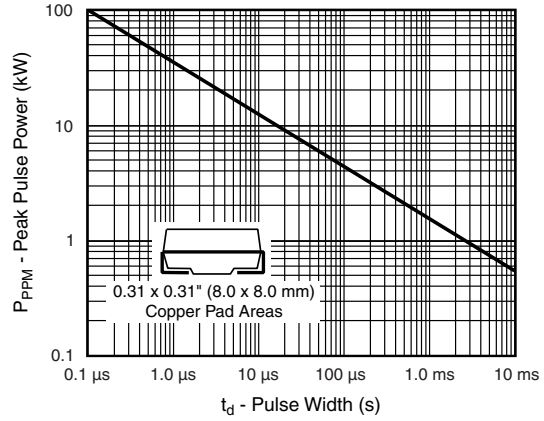


Fig. 1 - Peak Pulse Power Rating Curve

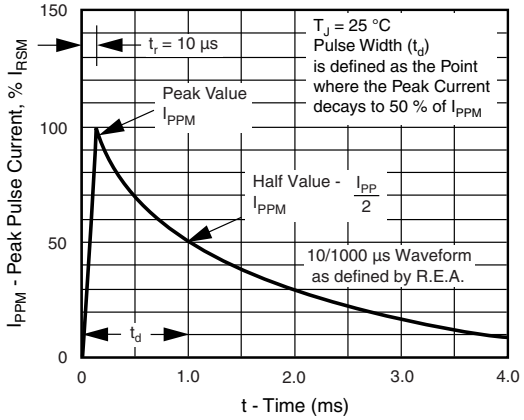


Fig. 3 - Pulse Waveform

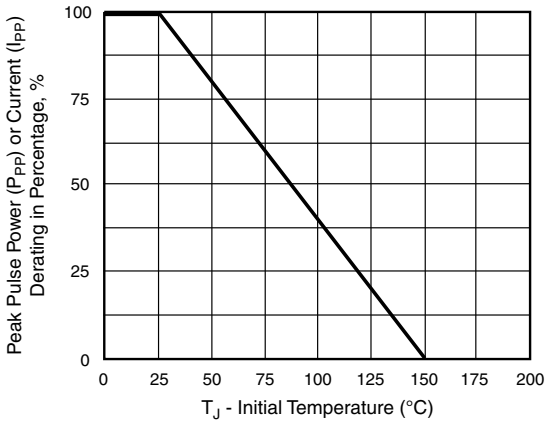


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

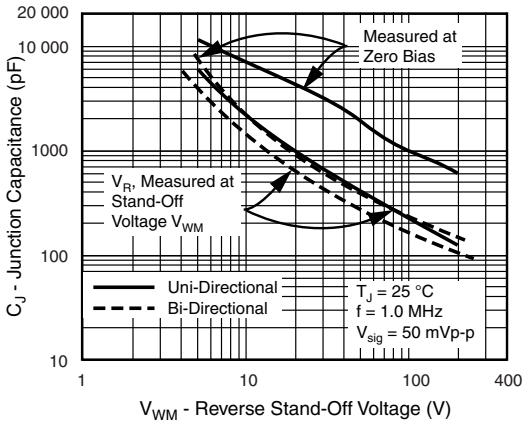


Fig. 4 - Typical Junction Capacitance Uni-Directional

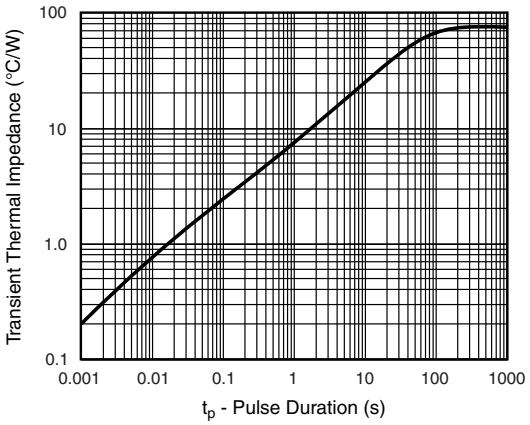


Fig. 5 - Typical Transient Thermal Impedance

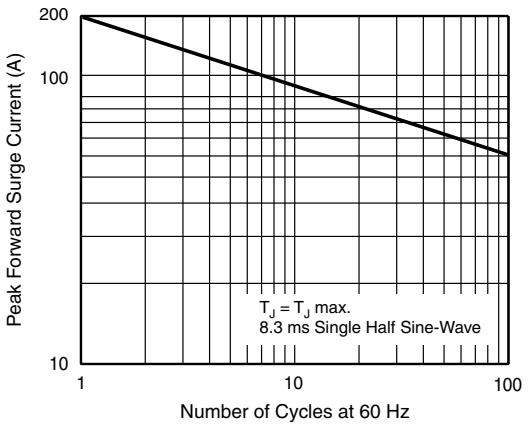
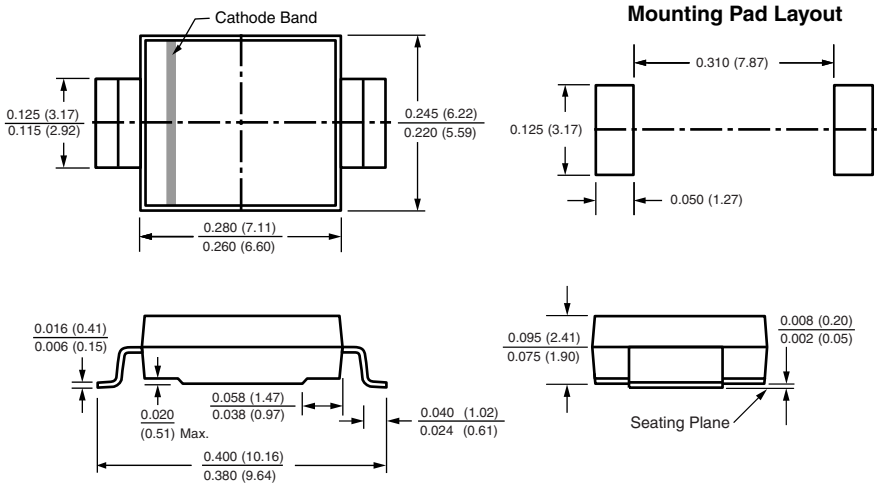


Fig. 6 - Maximum Non-Repetitive Forward Surge Current
Uni-Directional Use Only

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-215AB (SMCG)



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