GOOD-ARK
SEMICONDUCTOR

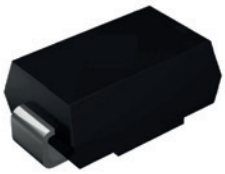
GS1.5SMCxxA Series

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Working Voltage 5.8V to 513V

Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in unidirectional and bidirectional
- 1500W peak pulse power capability with a 10/1000μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260°C/10s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

RoHS COMPLIANT



DO-214AB (SMC)

Mechanical Data

- Package: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating, RoHS compliant
- Terminals: Tin plated leads, solderable per STD-002 and JESD22-B102
- Polarity: For uni-directional type, the band denotes cathode end. No marking on bi-directional type

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, telecommunication.

Maximum Ratings (T_A=25°C unless otherwise noted)

Parameters	Symbol	Value	Unit
Maximum Peak Power Dissipation, with a 10/1000us Waveform[1,2]	P_{PPM}	1500	W
Maximum Power Dissipation, on Infinite Heat Sink at T_L=75°C[2]	P_D	6.5	W
Maximum Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Unidirectional only[3]	I_{FSM}	200	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only[4]	V_{FM}	3.5/5	V
Typical Thermal Resistance Junction to Ambient[5]	$R_{\theta JA}$	75	°C/W
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
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 x 8.0 mm) copper pads to each terminal
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
4. V_F=3.5V Max for devices of V_{BR} ≤220V, and V_F=5.0V Max for devices of V_{BR} > 220V.
5. Mounted on minimum recommended pad layout.

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Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)[3]	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)[2]	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min (V)	Max (V)	I_T (mA)[1]				
GS1.5SMC6.8A	GS1.5SMC6.8CA	6.46	7.14	10	1000	5.8	142.86	10.5
GS1.5SMC7.5A	GS1.5SMC7.5CA	7.13	7.88	10	500	6.4	132.74	11.3
GS1.5SMC8.2A	GS1.5SMC8.2CA	7.79	8.61	10	200	7.0	123.97	12.1
GS1.5SMC9.1A	GS1.5SMC9.1CA	8.65	9.56	1	50	7.8	111.94	13.4
GS1.5SMC10A	GS1.5SMC10CA	9.50	10.50	1	10	8.6	103.45	14.5
GS1.5SMC11A	GS1.5SMC11CA	10.45	11.55	1	5	9.4	96.15	15.6
GS1.5SMC12A	GS1.5SMC12CA	11.40	12.60	1	5	10.2	89.82	16.7
GS1.5SMC13A	GS1.5SMC13CA	12.35	13.65	1	5	11.1	82.42	18.2
GS1.5SMC15A	GS1.5SMC15CA	14.25	15.75	1	5	12.8	70.75	21.2
GS1.5SMC16A	GS1.5SMC16CA	15.20	16.80	1	5	13.6	66.67	22.5
GS1.5SMC18A	GS1.5SMC18CA	17.10	18.90	1	5	15.3	59.52	25.2
GS1.5SMC20A	GS1.5SMC20CA	19.00	21.00	1	5	17.1	54.15	27.7
GS1.5SMC22A	GS1.5SMC22CA	20.90	23.10	1	5	18.8	49.02	30.6
GS1.5SMC24A	GS1.5SMC24CA	22.80	25.20	1	5	20.5	45.18	33.2
GS1.5SMC27A	GS1.5SMC27CA	25.65	28.35	1	5	23.1	40.00	37.5
GS1.5SMC30A	GS1.5SMC30CA	28.50	31.50	1	5	25.6	36.23	41.4
GS1.5SMC33A	GS1.5SMC33CA	31.35	34.65	1	5	28.2	32.82	45.7
GS1.5SMC36A	GS1.5SMC36CA	34.20	37.80	1	5	30.8	30.06	50.0
GS1.5SMC39A	GS1.5SMC39CA	37.05	40.95	1	5	33.3	27.83	53.9
GS1.5SMC43A	GS1.5SMC43CA	40.85	45.15	1	5	36.8	25.30	59.3
GS1.5SMC47A	GS1.5SMC47CA	44.65	49.35	1	5	40.2	23.15	64.8
GS1.5SMC51A	GS1.5SMC51CA	48.45	53.55	1	5	43.6	21.40	70.1
GS1.5SMC56A	GS1.5SMC56CA	53.20	58.80	1	5	47.8	19.48	77.0
GS1.5SMC62A	GS1.5SMC62CA	58.90	65.10	1	5	53.0	17.65	85.0
GS1.5SMC68A	GS1.5SMC68CA	64.60	71.40	1	5	58.1	16.30	92.0
GS1.5SMC75A	GS1.5SMC75CA	71.25	78.75	1	5	64.1	14.56	103.0
GS1.5SMC82A	GS1.5SMC82CA	77.90	86.10	1	5	70.1	13.27	113.0
GS1.5SMC91A	GS1.5SMC91CA	86.45	95.35	1	5	77.8	12.00	125.0
GS1.5SMC100A	GS1.5SMC100CA	95.00	105.00	1	5	85.5	10.95	137.0
GS1.5SMC110A	GS1.5SMC110CA	104.50	115.50	1	5	94.0	9.87	152.0
GS1.5SMC120A	GS1.5SMC120CA	114.00	126.00	1	5	102.0	9.09	165.0

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Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)[3]	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)[2]	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min (V)	Max (V)	I_T (mA)[1]				
GS1.5SMC130A	GS1.5SMC130CA	123.50	136.50	1	5	111.0	8.38	179.0
GS1.5SMC150A	GS1.5SMC150CA	142.50	157.50	1	5	128.0	7.25	207.0
GS1.5SMC160A	GS1.5SMC160CA	152.00	168.00	1	5	136.0	6.85	219.0
GS1.5SMC170A	GS1.5SMC170CA	161.50	178.50	1	5	145.0	6.41	234.0
GS1.5SMC180A	GS1.5SMC180CA	171.00	189.00	1	5	154.0	6.10	246.0
GS1.5SMC200A	GS1.5SMC200CA	190.00	210.00	1	5	171.0	5.47	274.0
GS1.5SMC220A	GS1.5SMC220CA	209.00	231.00	1	5	185.0	4.57	328.0
GS1.5SMC250A	GS1.5SMC250CA	237.50	262.50	1	5	214.0	4.36	344.0
GS1.5SMC300A	GS1.5SMC300CA	285.00	315.00	1	5	256.0	3.62	414.0
GS1.5SMC350A	GS1.5SMC350CA	332.50	367.50	1	5	299.3	3.11	482.0
GS1.5SMC380A	GS1.5SMC380CA	361.00	399.00	1	5	324.9	2.86	524.4
GS1.5SMC400A	GS1.5SMC400CA	380.00	420.00	1	5	342.0	2.72	548.0
GS1.5SMC440A	GS1.5SMC440CA	418.00	462.00	1	5	376.2	2.47	602.0
GS1.5SMC500A	GS1.5SMC500CA	475.00	525.00	1	5	427.5	2.17	690.0
GS1.5SMC520A	GS1.5SMC520CA	494.00	546.00	1	5	444.6	2.09	717.6
GS1.5SMC550A	GS1.5SMC550CA	522.50	577.50	1	5	470.3	1.98	759.0
GS1.5SMC600A	GS1.5SMC600CA	570.00	630.00	1	5	513.0	1.81	828.0

Notes:

1. Pulse test: $t_p \leq 50ms$.
2. Surge current waveform per Fig 3 and derated per Fig 2.
3. For bi-directional types having V_{RWM} of 10V and less, the I_R limit is doubled.

Typical Characteristic Curves

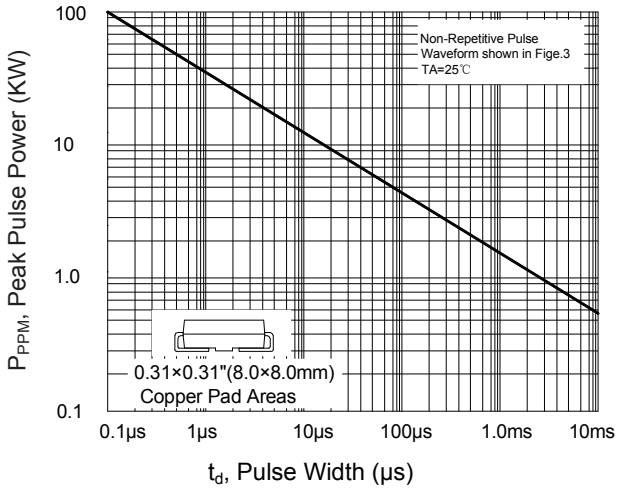

Figure 1. Peak Pulse Power Rating Curve

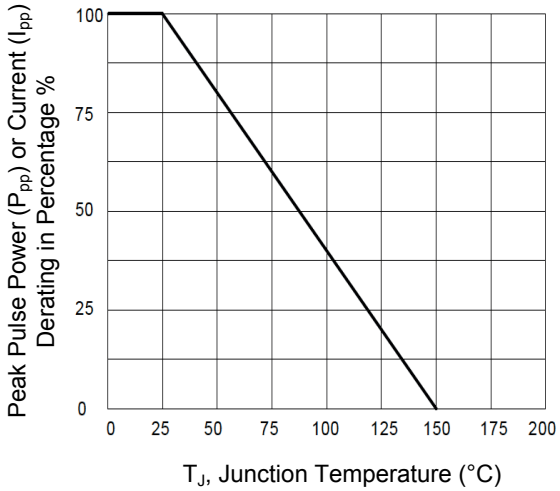

Figure 2. Pulse Power or Current vs. Initial T_J

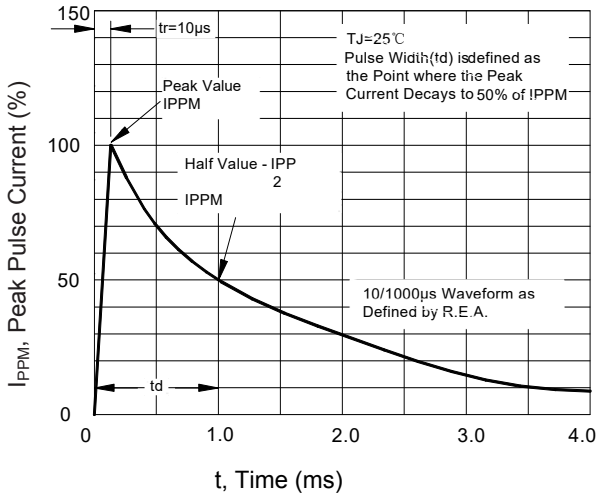

Figure 3. Pulse Waveform

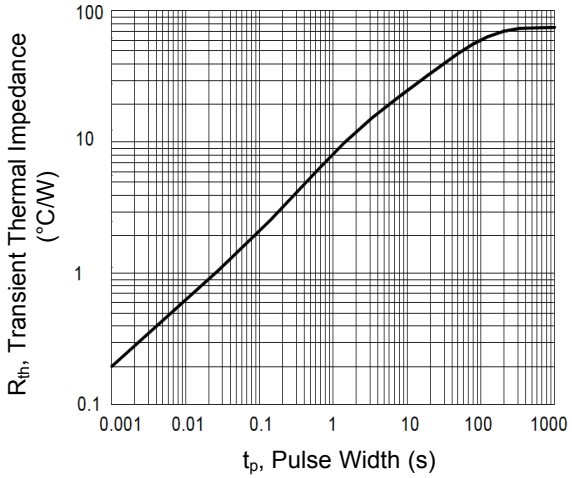

Figure 4. Typical Transient Thermal Impedance

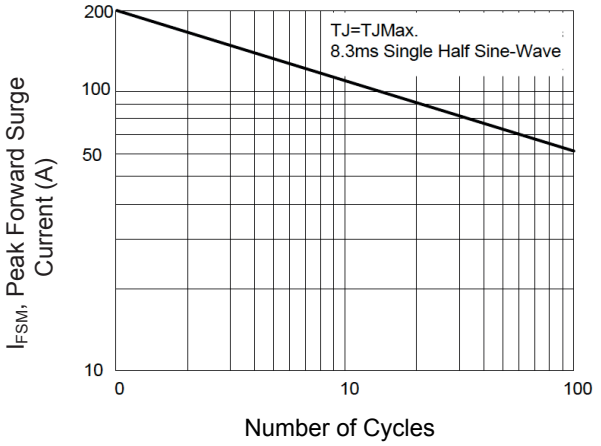

Figure 5. Maximum Non-Repetitive Surge Current

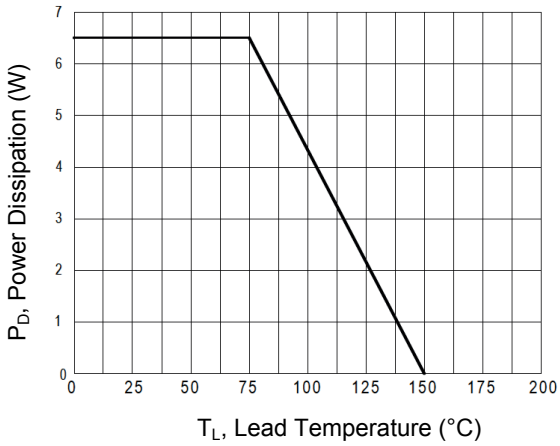

Figure 6. Steady State Power Dissipation

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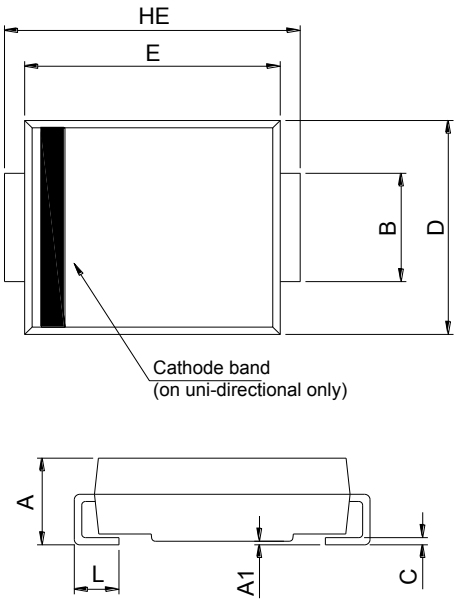
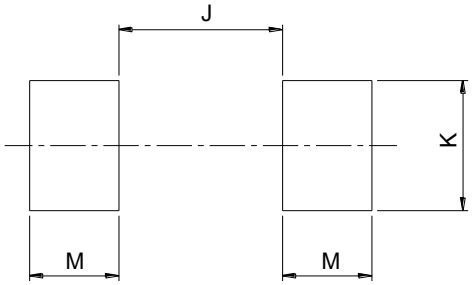
Package Outline Dimensions DO-214AB (SMC)



SMC (DO-214AB)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.00	0.20	0.000	0.008
B	2.90	3.20	0.114	0.126
C	0.15	0.31	0.006	0.012
D	5.58	6.22	0.220	0.245
E	6.60	7.15	0.260	0.281
HE	7.75	8.15	0.305	0.321
L	0.76	1.60	0.030	0.063

Recommended Pad Layout



SMC Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	4.60	-	0.181
K	3.20	-	0.126	-
M	2.00	-	0.079	-

Order Information

Device	Package	Carrier	Quantity
GS1.5SMCxxA Series	DO-214AB (SMC)	Tape & Reel	3,000 Pcs / Reel