

# GSESMCJ Series

## Transient Voltage Suppressor

### Product Description

The SMCJ Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

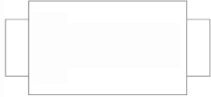


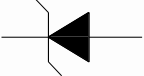
### Features

- 1500W Peak Pulse Power Capability at 10/1000 $\mu$ s Waveform, Repetition Rate (Duty Cycle): 0.01%
- Uni- and Bi-Directional Type Selectable
- Glass Passivated Chip

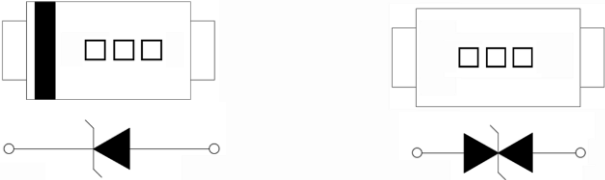
### Mechanical Data

- SMC (DO-214AB) Package
- RoHS Compliant and Halogen Free
- Epoxy : UL 94V-0 Rate Flame Retardant
- Lead: Solderable per MIL-STD-750, Method 2026
- Polarity : Color Band denotes Cathode End for Uni-directional Type only

### Package and Pin Assignment

SMC (DO-214AB)	
	 <b>Bi-Directional</b>
 * Color Band denotes Cathode End	 <b>Uni-Directional</b>

## Ordering and Marking Information

Part Number	Package	Marking	Quantity/Reel
See Table	SMC (DO-214AB)	□□□	3000 PCS/Reel
Ordering Information			
<b>GSESMCJ</b> <span style="border: 1px solid black; padding: 0 2px;">1</span> <span style="border: 1px solid black; padding: 0 2px;">1</span> <span style="border: 1px solid black; padding: 0 2px;">1</span> <span style="border: 1px solid black; padding: 0 2px;">2</span> <b>A F</b>			
<ul style="list-style-type: none"> <li>- <b>Product Code:</b> GSESMCJ</li> <li>- <b>Tolerance Code:</b> <b>A</b> for 5% <math>V_{BR}</math> Voltage Tolerance</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Voltage Code:</b> <span style="border: 1px solid black; padding: 0 2px;">1</span><span style="border: 1px solid black; padding: 0 2px;">1</span><span style="border: 1px solid black; padding: 0 2px;">1</span> is <math>V_{RWM}</math> Voltage For examples 7.0 is 7V and 70 is 70V etc.</li> <li>- <b>Green Level:</b> <b>F</b> for RoHS Compliant and Halogen Free</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Type Code:</b> <span style="border: 1px solid black; padding: 0 2px;">2</span> for type of direction. Blank: Uni-direction C: Bi-direction</li> </ul>	
Marking Information			
			
<p>* Marking Code (PN Code) can be checked from the section of Electrical Characteristics for selected part number.</p>			

## Absolute Maximum Ratings

( $T_A=25^\circ\text{C}$  Unless Otherwise Specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Symbol	Parameter	Rating	Unit
$P_{PP}$	Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform <sup>(1), (2)</sup>	1500	W
$I_{PP}$	Peak pulse current with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup>	See Next Table	A
$I_{FSM}$	Peak Forward Surge Current 8.3ms single half sine-wave for unidirectional only <sup>(3)</sup>	200	A
$P_D$	Steady state power dissipation at $T_A=50^\circ\text{C}$ (Fig.5)	6.5	W
$T_J$	Operating Temperature Range	-55 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

### Note :

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
2. Mounted on 8.0mm $\times$ 8.0mm copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

## Electrical Characteristics ( $T_A=25^\circ\text{C}$ Unless Otherwise Specified)

Part Number (Uni-Directional)	Part Number (Bi-Directional)	MARKING CODE		Breakdown Voltage $V_{BR}@I_T$			$V_{RWM}$ (V)	$I_R@V_{RWM}$ ( $\mu\text{A}$ )	$V_C@I_{PP}$ (V)	$I_{PP\max}$ (A)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
GSESMCJ5.0AF	GSESMCJ5.0CAF	GDE	BDE	6.40	7.00	10	5.0	800	9.2	163.0
GSESMCJ6.0AF	GSESMCJ6.0CAF	GDG	BDG	6.67	7.37	10	6.0	800	10.3	145.7
GSESMCJ6.5AF	GSESMCJ6.5CAF	GDK	BDK	7.22	7.98	10	6.5	500	11.2	134.0
GSESMCJ7.0AF	GSESMCJ7.0CAF	GDM	BDM	7.78	8.60	10	7.0	200	12.0	125.0
GSESMCJ7.5AF	GSESMCJ7.5CAF	GDP	BDP	8.33	9.21	1.0	7.5	100	12.9	116.3
GSESMCJ8.0AF	GSESMCJ8.0CAF	GDR	BDR	8.89	9.83	1.0	8.0	50	13.6	110.3
GSESMCJ8.5AF	GSESMCJ8.5CAF	GDT	BDT	9.44	10.40	1.0	8.5	20	14.4	104.2
GSESMCJ9.0AF	GSESMCJ9.0CAF	GDV	BDV	10.0	11.10	1.0	9.0	10	15.4	97.4
GSESMCJ10AF	GSESMCJ10CAF	GDX	BDX	11.1	12.3	1.0	10	5	17.0	88.3
GSESMCJ11AF	GSESMCJ11CAF	GDZ	BDZ	12.2	13.5	1.0	11	1	18.2	82.5
GSESMCJ12AF	GSESMCJ12CAF	GEE	BEE	13.3	14.7	1.0	12	1	19.9	75.4
GSESMCJ13AF	GSESMCJ13CAF	GEG	BEG	14.4	15.9	1.0	13	1	21.5	69.8
GSESMCJ14AF	GSESMCJ14CAF	GEK	BEK	15.6	17.2	1.0	14	1	23.3	64.7
GSESMCJ15AF	GSESMCJ15CAF	GEM	BEM	16.7	18.5	1.0	15	1	24.4	61.5
GSESMCJ16AF	GSESMCJ16CAF	GEP	BEP	17.8	19.7	1.0	16	1	26.0	57.7
GSESMCJ17AF	GSESMCJ17CAF	GER	BER	18.9	20.9	1.0	17	1	27.6	54.4
GSESMCJ18AF	GSESMCJ18CAF	GET	BET	20.0	22.1	1.0	18	1	29.2	51.4
GSESMCJ20AF	GSESMCJ20CAF	GEV	BEV	22.2	24.5	1.0	20	1	32.4	46.3
GSESMCJ22AF	GSESMCJ22CAF	GEX	BEX	24.4	26.9	1.0	22	1	35.5	42.3
GSESMCJ24AF	GSESMCJ24CAF	GEZ	BEZ	26.7	29.5	1.0	24	1	38.9	38.6

Part Number (Uni-Directional)	Part Number (Bi-Directional)	MARKING CODE		Breakdown Voltage $V_{BR}@I_T$			$V_{RWM}$ (V)	$I_R@V_{RWM}$ ( $\mu$ A)	$V_C@I_{PP}$ (V)	$I_{PP\ max}$ (A)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
GSESMCJ26AF	GSESMCJ26CAF	GFE	BFE	28.9	31.9	1.0	26	1	42.1	35.7
GSESMCJ28AF	GSESMCJ28CAF	GFG	BFG	31.1	34.4	1.0	28	1	45.4	33.1
GSESMCJ30AF	GSESMCJ30CAF	GFK	BFK	33.3	36.8	1.0	30	1	48.4	31.0
GSESMCJ33AF	GSESMCJ33CAF	GFM	BFM	36.7	40.6	1.0	33	1	53.3	28.2
GSESMCJ36AF	GSESMCJ36CAF	GFP	BFP	40.0	44.2	1.0	36	1	58.1	25.9
GSESMCJ40AF	GSESMCJ40CAF	GFR	BFR	44.4	49.1	1.0	40	1	64.5	23.3
GSESMCJ43AF	GSESMCJ43CAF	GFT	BFT	47.8	52.8	1.0	43	1	69.4	21.7
GSESMCJ45AF	GSESMCJ45CAF	GFV	BFV	50.0	55.3	1.0	45	1	72.7	20.6
GSESMCJ48AF	GSESMCJ48CAF	GFX	BFX	53.3	58.9	1.0	48	1	77.4	19.4
GSESMCJ51AF	GSESMCJ51CAF	GFZ	BFZ	56.7	62.7	1.0	51	1	82.4	18.2
GSESMCJ54AF	GSESMCJ54CAF	GGE	BGE	60.0	66.3	1.0	54	1	87.1	17.3
GSESMCJ58AF	GSESMCJ58CAF	GGG	BGG	64.4	71.2	1.0	58	1	93.6	16.1
GSESMCJ60AF	GSESMCJ60CAF	GGK	BGK	66.7	73.7	1.0	60	1	96.8	15.5
GSESMCJ64AF	GSESMCJ64CAF	GGM	BGM	71.1	78.6	1.0	64	1	103	14.0
GSESMCJ70AF	GSESMCJ70CAF	GGP	BGP	77.8	86.0	1.0	70	1	113	13.3
GSESMCJ75AF	GSESMCJ75CAF	GGR	BGR	83.3	92.1	1.0	75	1	121	12.4
GSESMCJ78AF	GSESMCJ78CAF	GGT	BGT	86.7	95.8	1.0	78	1	126	11.9
GSESMCJ85AF	GSESMCJ85CAF	GGV	BGV	94.4	104	1.0	85	1	137	11.0
GSESMCJ90AF	GSESMCJ90CAF	GGX	BGX	100	111	1.0	90	1	146	10.3
GSESMCJ100AF	GSESMCJ100CAF	GGZ	BGZ	111	123	1.0	100	1	162	9.3
GSESMCJ110AF	GSESMCJ110CAF	GHE	BHE	122	135	1.0	110	1	177	8.5
GSESMCJ120AF	GSESMCJ120CAF	GHG	BHG	133	147	1.0	120	1	193	7.8
GSESMCJ130AF	GSESMCJ130CAF	GHK	BHK	144	159	1.0	130	1	209	7.2
GSESMCJ150AF	GSESMCJ150CAF	GHM	BHM	167	185	1.0	150	1	243	6.2
GSESMCJ160AF	GSESMCJ160CAF	GHP	BHP	178	197	1.0	160	1	259	5.8
GSESMCJ170AF	GSESMCJ170CAF	GHR	BHR	189	209	1.0	170	1	275	5.5
GSESMCJ180AF	GSESMCJ180CAF	GHT	BHT	200	220	1.0	180	1	292	5.1
GSESMCJ190AF	GSESMCJ190CAF	GHU	BHU	211	232	1.0	190	1	308	4.8
GSESMCJ200AF	GSESMCJ200CAF	GHV	BHV	224	247	1.0	200	1	324	4.6
GSESMCJ210AF	GSESMCJ210CAF	GHW	BHW	237	263	1.0	210	1	340	4.4
GSESMCJ220AF	GSESMCJ220CAF	GHX	BHX	246	272	1.0	220	1	356	4.2
GSESMCJ250AF	GSESMCJ250CAF	GHZ	BHZ	279	309	1.0	250	1	405	3.7
GSESMCJ300AF	GSESMCJ300CAF	GJE	BJE	335	371	1.0	300	1	486	3.1
GSESMCJ350AF	GSESMCJ350CAF	GJG	BJG	391	432	1.0	350	1	567	2.6
GSESMCJ400AF	GSESMCJ400CAF	GJK	BJK	447	494	1.0	400	1	648	2.3
GSESMCJ440AF	GSESMCJ440CAF	GJM	BJM	492	543	1.0	440	1	713	2.1

**Note :**

4. Suffix 'A' denotes  $V_{BR}$  5% tolerance device.

**Typical Characteristics** ( $T_A=25^\circ\text{C}$  Unless Otherwise Specified)

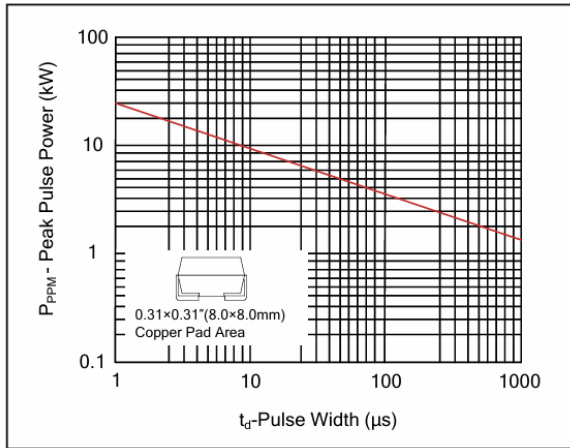


Figure 1. Peak Pulse Power Rating Curve

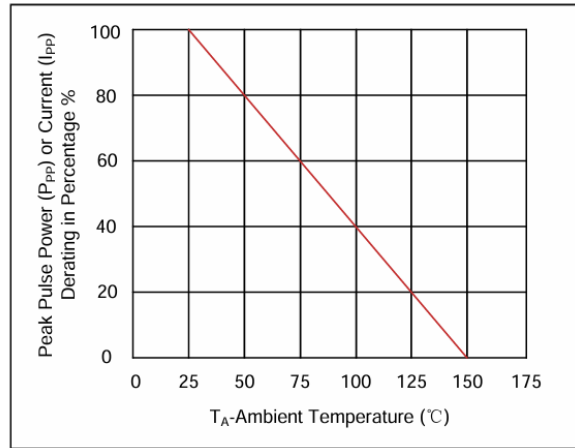


Figure 2. Pulse Derating Curve

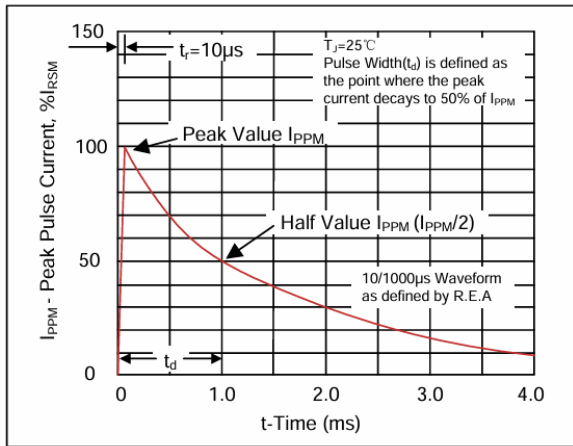


Figure 3. Pulse Waveform

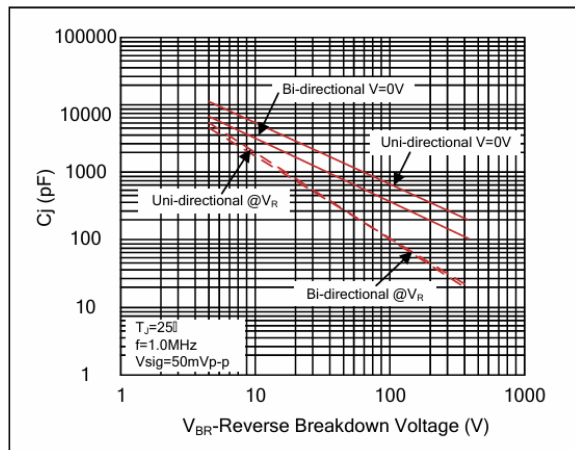


Figure 4. Typical Junction Capacitance

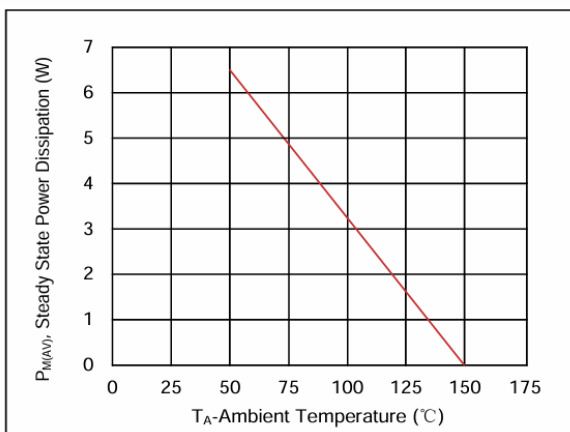


Figure 5. Steady State Power Dissipation Derating Curve

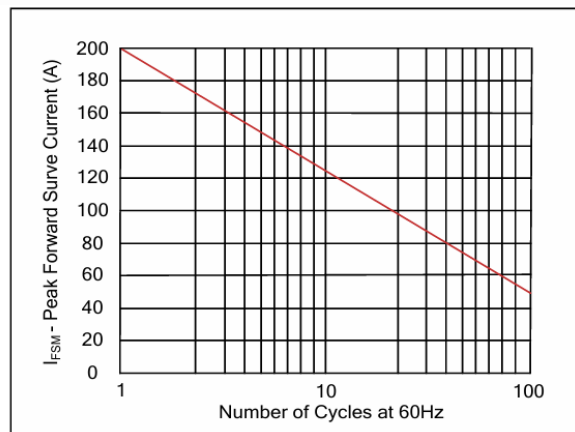
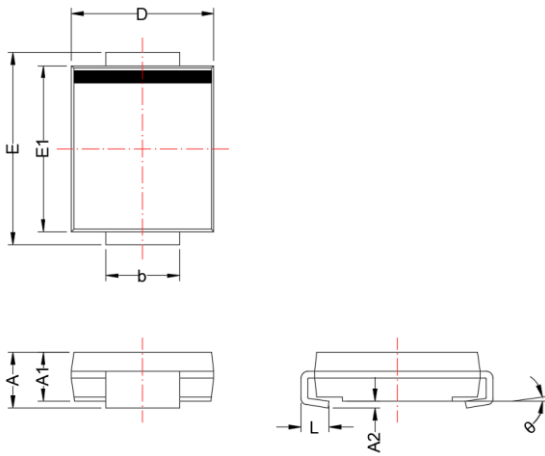


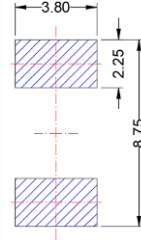
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

# SMC (DO-214AB)

## Package Dimension



## Recommended Land Pattern



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.95	2.80	0.077	0.110
A1	1.90	---	0.075	---
A2	0.00	0.30	0.000	0.012
b	2.90	3.20	0.114	0.126
D	5.55	6.25	0.219	0.246
E	7.75	8.15	0.305	0.321
E1	6.60	7.15	0.260	0.281
L	0.75	1.60	0.030	0.063
$\theta$	0°	8°	0°	8°





**NOTE:**



Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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