

GSESMDJ Series

Surface Mount Unidirectional and Bidirectional TVS

Product Description

Peak Pulse Power Dissipation : 3000W
Voltage Range : 5V to 440V

Features

- Glass passivated chip
- 3000W peak pulse power capability with a 10/1000 μ s waveform repetitive rate(duty cycle):0.01%
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- Halogen-free parts.

Mechanical Data

Case : Molded plastic
Epoxy : UL94V-0 rate flame retardant
Lead : Solderable per MIL-STD-750,Method 2026
Polarity : Color band denotes cathode end except Bipolar
Mounting position : Any

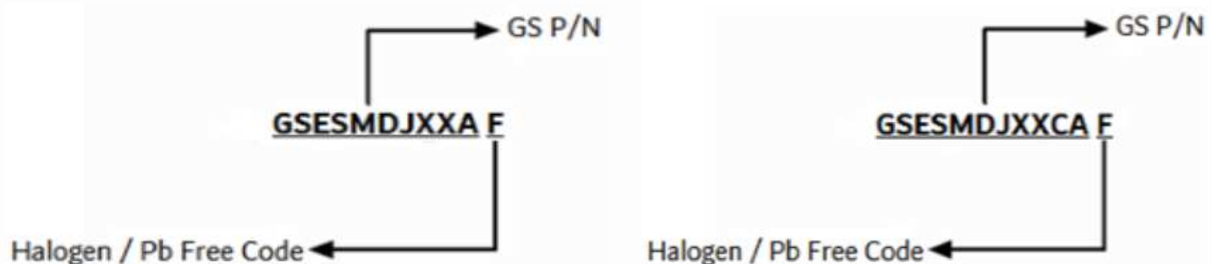
Packages



SMC

Ordering Information

Part Number	Package	Quantity Reel
GSESMDJXXAF/CAF	SMC	3000 PCS



Absolute Maximum Ratings

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Symbol	Conditions	Values	Unit
P _{PP}	Peak power dissipation with a 10/1000µs waveform(1)	3000	W
I _{PP}	Peak pulse current with a 10/1000µs waveform(1)	See Next Table	A
P _D	Power dissipation on infinite heatsink at TL = 75 °C	6.0	W
I _{FSM}	Peak Forward Surge Current 8.3ms Single Half Sine-Wave unidirectional only(2)	300	A
V _F	Maximum instantaneous forward voltage at 100 A for unidirectional only(3)	3.5/5.0	V
T _J	Operating temperature range	-55 to +150	°C
T _{STG}	Storage temperature range	-55 to +150	°C

Note (1): Non-repetitive current pulse per Fig.5 and derated above TA=25°C per Fig.1.

Note (2): Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

Note (3): V_F < 3.5V for devices of V_{BR} < 200V and V_F < 5.0V for devices of V_{BR} > 201V

Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Part Number (Uni-Polar)	Part Number (Bi-Polar)	Marking Code		Breakdown Voltage V _{BR} @I _T			V _{RWM} (V)	V _C @I _{PP} (V)	I _{PP} (A)	I _R @V _R WM (µA)
		Uni	Bi	Min (V)	Max (V)	I _T (mA)				
GSESMDJ5.0AF	GSESMDJ5.0CAF	SMDJ 5.0A	SMDJ 5.0CA	6.40	7.0	50	5.0	9.2	326.09	5000
GSESMDJ6.0AF	GSESMDJ6.0CAF	SMDJ 6.0A	SMDJ 6.0CA	6.67	7.37	50	6.0	10.3	291.26	5000
GSESMDJ6.5AF	GSESMDJ6.5CAF	SMDJ 6.5A	SMDJ 6.5CA	7.22	7.98	50	6.5	11.2	267.86	2000
GSESMDJ7.0AF	GSESMDJ7.0CAF	SMDJ 7.0A	SMDJ 7.0CA	7.78	8.60	50	7.0	12	250	1000
GSESMDJ7.5AF	GSESMDJ7.5CAF	SMDJ 7.5A	SMDJ 7.5CA	8.33	9.21	5	7.5	12.9	232.56	250
GSESMDJ8.0AF	GSESMDJ8.0CAF	SMDJ 8.0A	SMDJ 8.0CA	8.89	9.83	5	8.0	13.6	220.59	150
GSESMDJ8.5AF	GSESMDJ8.5CAF	SMDJ 8.5A	SMDJ 8.5CA	9.44	10.4	5	8.5	14.4	208.33	50
GSESMDJ9.0AF	GSESMDJ9.0CAF	SMDJ 9.0A	SMDJ 9.0CA	10	11.1	5	9.0	15.4	194.81	20
GSESMDJ10AF	GSESMDJ10CAF	SMDJ 10A	SMDJ 10CA	10.1	12.3	5	10	17	176.47	15
GSESMDJ11AF	GSESMDJ11CAF	SMDJ 11A	SMDJ 11CA	12.2	13.5	5	11	18.2	164.84	2
GSESMDJ12AF	GSESMDJ12CAF	SMDJ 12A	SMDJ 12CA	13.3	14.7	5	12	19.9	150.75	2
GSESMDJ13AF	GSESMDJ13CAF	SMDJ 13A	SMDJ 13CA	14.4	15.9	5	13	21.5	139.53	2
GSESMDJ14AF	GSESMDJ14CAF	SMDJ 14A	SMDJ 14CA	15.6	17.2	5	14	23.2	129.31	2
GSESMDJ15AF	GSESMDJ15CAF	SMDJ 15A	SMDJ 15CA	16.7	18.5	5	15	24.4	122.95	2

Part Number (Uni-Polar)	Part Number (Bi-Polar)	Marking Code		Breakdown Voltage $V_{BR@I_T}$			V_{RWM} (V)	$V_C@I_{PP}$ (V)	I_{PP} (A)	$I_R@V_{RWM}$ (μ A)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMDJ16AF	GSESMDJ16CAF	SMDJ 16A	SMDJ 16CA	17.8	19.7	5	16	26.0	115.38	2
GSESMDJ17AF	GSESMDJ17CAF	SMDJ 17A	SMDJ 17CA	18.9	20.9	5	17	27.6	108.7	2
GSESMDJ18AF	GSESMDJ18CAF	SMDJ 18A	SMDJ 18CA	20.0	22.1	5	18	29.2	102.74	2
GSESMDJ19AF	GSESMDJ19CAF	SMDJ 19A	SMDJ 19CA	21.1	23.3	5	19	30.8	97.47	2
GSESMDJ20AF	GSESMDJ20CAF	SMDJ 20A	SMDJ 20CA	22.2	24.5	5	20	32.4	92.59	2
GSESMDJ22AF	GSESMDJ22CAF	SMDJ 22A	SMDJ 22CA	24.4	26.9	5	22	35.5	84.51	2
GSESMDJ24AF	GSESMDJ24CAF	SMDJ 24A	SMDJ 24CA	26.7	29.5	5	24	38.9	77.12	2
GSESMDJ26AF	GSESMDJ26CAF	SMDJ 26A	SMDJ 26CA	28.9	31.9	5	26	42.1	71.26	2
GSESMDJ28AF	GSESMDJ28CAF	SMDJ 28A	SMDJ 28CA	31.1	34.4	5	28	45.4	66.08	2
GSESMDJ30AF	GSESMDJ30CAF	SMDJ 30A	SMDJ 30CA	33.3	36.8	5	30	48.4	61.98	2
GSESMDJ33AF	GSESMDJ33CAF	SMDJ 33A	SMDJ 33CA	36.7	40.6	5	33	53.3	56.29	2
GSESMDJ36AF	GSESMDJ36CAF	SMDJ 36A	SMDJ 36CA	40.0	44.2	5	36	58.1	51.64	2
GSESMDJ40AF	GSESMDJ40CAF	SMDJ 40A	SMDJ 40CA	44.4	49.1	5	40	64.5	46.51	2
GSESMDJ43AF	GSESMDJ43CAF	SMDJ 43A	SMDJ 43CA	47.8	52.8	5	43	69.4	43.23	2
GSESMDJ45AF	GSESMDJ45CAF	SMDJ 45A	SMDJ 45CA	50.0	55.3	5	45	72.7	41.27	2
GSESMDJ48AF	GSESMDJ48CAF	SMDJ 48A	SMDJ 48CA	53.3	58.9	5	48	77.4	38.76	2
GSESMDJ51AF	GSESMDJ51CAF	SMDJ 51A	SMDJ 51CA	56.7	62.7	5	51	82.4	36.41	2
GSESMDJ54AF	GSESMDJ54CAF	SMDJ 54A	SMDJ 54CA	60.0	66.3	5	54	87.1	34.44	2
GSESMDJ58AF	GSESMDJ58CAF	SMDJ 58A	SMDJ 58CA	64.4	71.2	5	58	93.6	32.05	2
GSESMDJ60AF	GSESMDJ60CAF	SMDJ 60A	SMDJ 60CA	66.7	73.7	5	60	96.8	30.99	2
GSESMDJ64AF	GSESMDJ64CAF	SMDJ 64A	SMDJ 64CA	71.1	78.6	5	64	103	29.13	2
GSESMDJ70AF	GSESMDJ70CAF	SMDJ 70A	SMDJ 70CA	77.8	86	5	70	113	26.55	2
GSESMDJ75AF	GSESMDJ75CAF	SMDJ 75A	SMDJ 75CA	83.3	92.1	5	75	121	24.79	2
GSESMDJ78AF	GSESMDJ78CAF	SMDJ 78A	SMDJ 78CA	86.7	95.8	5	78	126	23.81	2
GSESMDJ80AF	GSESMDJ80CAF	SMDJ 80A	SMDJ 80CA	88.8	97.6	5	80	129.6	23.15	2
GSESMDJ85AF	GSESMDJ85CAF	SMDJ 85A	SMDJ 85CA	94.4	104	5	85	137	21.9	2

Part Number (Uni-Polar)	Part Number (Bi-Polar)	Marking Code		Breakdown Voltage $V_{BR}@I_T$			V_{RWM} (V)	$V_C@I_{PP}$ (V)	I_{PP} (A)	$I_{R@V_R}$ WM (μ A)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMDJ90AF	GSESMDJ90CAF	SMDJ 90A	SMDJ 90CA	100	111	5	90	146	20.5	2
GSESMDJ100AF	GSESMDJ100CAF	SMDJ 100A	SMDJ 100CA	111	123	5	100	162	18.52	2
GSESMDJ110AF	GSESMDJ110CAF	SMDJ 110A	SMDJ 110CA	122	135	5	110	177.7	16.95	2
GSESMDJ120AF	GSESMDJ120CAF	SMDJ 120A	SMDJ 120CA	133	147	5	120	193	15.54	2
GSESMDJ130AF	GSESMDJ130CAF	SMDJ 130A	SMDJ 130CA	144	159	5	130	209	14.35	2
GSESMDJ140AF	GSESMDJ140CAF	SMDJ 140A	SMDJ 140CA	155	171	5	140	226.8	13.23	2
GSESMDJ150AF	GSESMDJ150CAF	SMDJ 150A	SMDJ 150CA	167	185	5	150	243	12.35	2
GSESMDJ160AF	GSESMDJ160CAF	SMDJ 160A	SMDJ 160CA	178	197	5	160	259	11.58	2
GSESMDJ170AF	GSESMDJ170CAF	SMDJ 170A	SMDJ 170CA	189	209	5	170	275	10.91	2
GSESMDJ180AF	GSESMDJ180CAF	SMDJ 180A	SMDJ 180CA	200	220	5	180	291.6	10.29	2
GSESMDJ190AF	GSESMDJ190CAF	SMDJ 190A	SMDJ 190CA	211	232	5	190	307.8	9.75	2
GSESMDJ200AF	GSESMDJ200CAF	SMDJ 200A	SMDJ 200CA	224	247	5	200	324	9.26	2
GSESMDJ220AF	GSESMDJ220CAF	SMDJ 220A	SMDJ 220CA	246	272	5	220	356	8.43	2
GSESMDJ250AF	GSESMDJ250CAF	SMDJ 250A	SMDJ 250CA	279	309	5	250	405	7.41	2
GSESMDJ300AF	GSESMDJ300CAF	SMDJ 300A	SMDJ 300CA	335	371	5	300	486	6.17	2
GSESMDJ350AF	GSESMDJ350CAF	SMDJ 350A	SMDJ 350CA	391	432	5	350	567	5.29	2
GSESMDJ400AF	GSESMDJ400CAF	SMDJ 400A	SMDJ 400CA	447	494	5	400	648	4.63	2
GSESMDJ440AF	GSESMDJ440CAF	SMDJ 440A	SMDJ 440CA	492	543	5	440	713	4.21	2

Note :

1. Suffix 'A' denotes 5% tolerance device.
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

Typical Characteristics

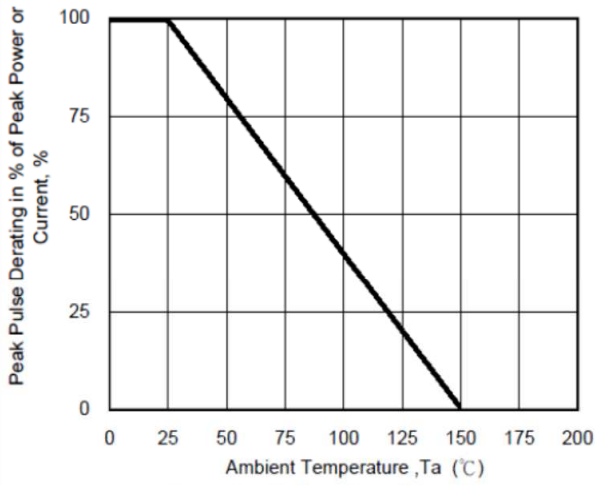


Fig. 1 - Pulse Derating Curve

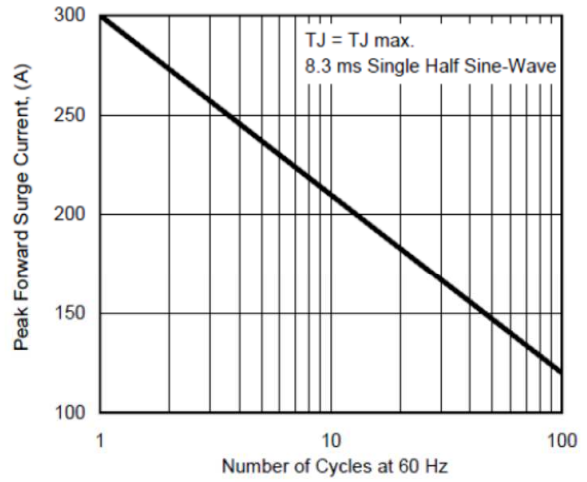


Fig. 2 - Maximum Non-Repetitive Surge Current

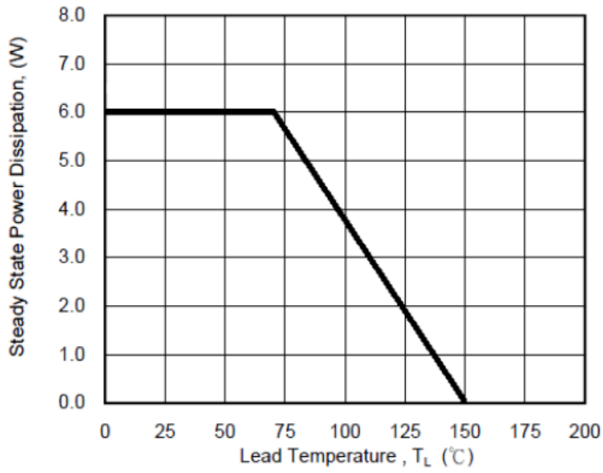


Fig. 3 - Steady State Power Derating Curve

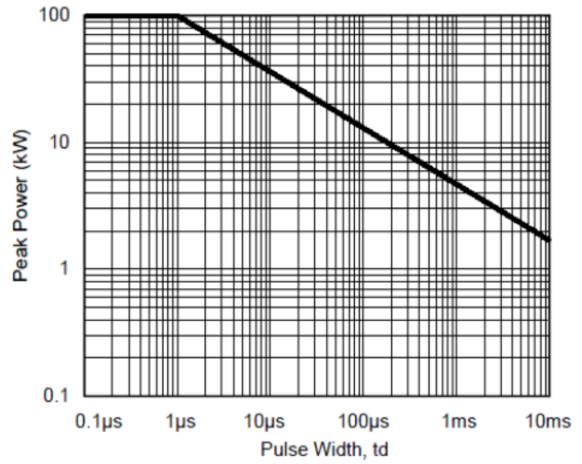


Fig. 4 - Peak Pulse Power Rating Curve

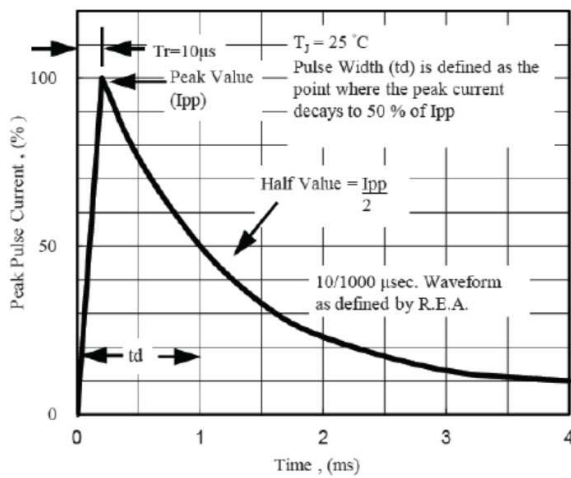


Fig. 5 - Pulse Waveform

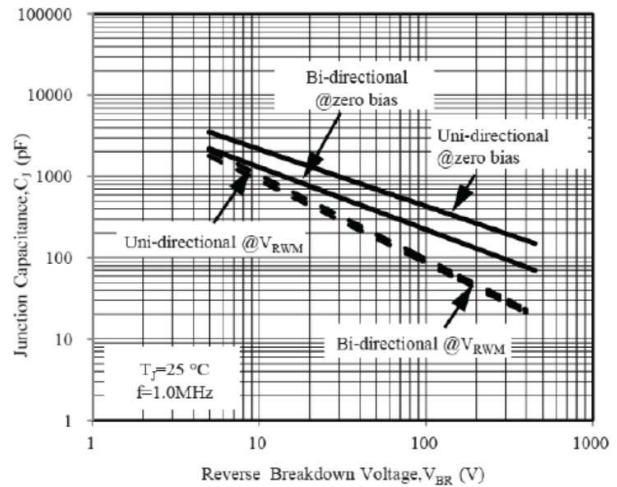
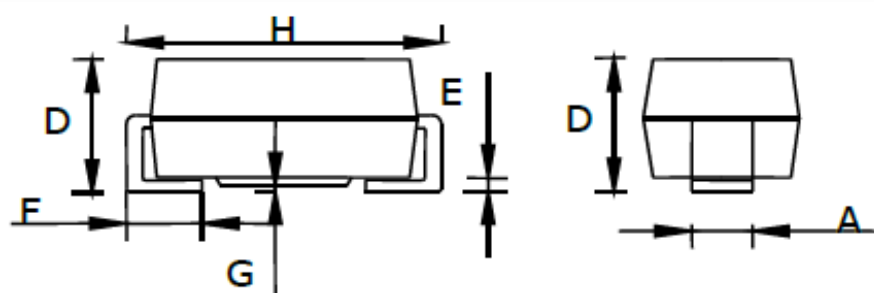
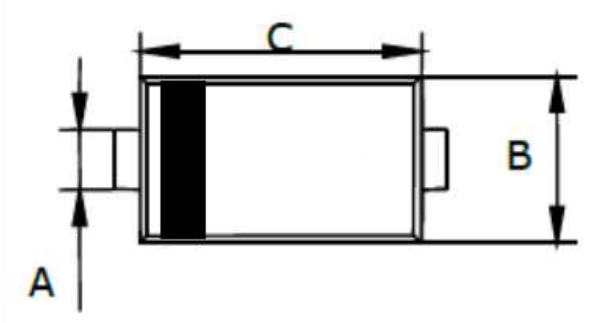


Fig. 6 - Typical Junction Capacitance

Package Dimension

SMC









Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	2.75	3.25	0.108	0.128
B	5.52	6.22	0.220	0.245
C	6.52	7.11	0.260	0.280
D	2.00	2.62	0.079	0.103
E	0.152	0.305	0.006	0.012
F	0.76	1.52	0.030	0.060
G	0.00	0.203	0.000	0.008
H	7.64	8.13	0.305	0.320

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