

GSE5.0SMDJ Series

Surface Mount Unidirectional and Bidirectional TVS

Product Description

Peak Pulse Power Dissipation : 5000W
Voltage Range : 11 to 440V

Features

- Glass passivated chip
- 5000W 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

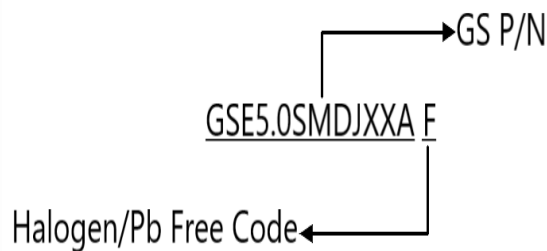
Packages



SMC

Ordering Information

Part Number	Package	Quantity Reel
GSE5.0SMDJXXAF/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)	5000	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	6.5	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@IT}			V _{RWM} (V)	V _{CC@I_{PP}} (V)	I _{PP} (A)	I _{R@} V _{RWM} (µA)
		Uni	Bi	Min (V)	Max (V)	I _T (mA)				
GSE5.0SMDJ11A	GSE5.0SMDJ11CA	5SMDJ 11A	5SMDJ 11CA	12.2	13.5	10	11	18.2	274.7	800
GSE5.0SMDJ12A	GSE5.0SMDJ12CA	5SMDJ 12A	5SMDJ 12CA	13.3	14.7	10	12	19.9	251.3	800
GSE5.0SMDJ13A	GSE5.0SMDJ13CA	5SMDJ 13A	5SMDJ 13CA	14.4	15.9	10	13	21.5	232.6	500
GSE5.0SMDJ14A	GSE5.0SMDJ14CA	5SMDJ 14A	5SMDJ 14CA	15.6	17.2	10	14	23.2	215.5	200
GSE5.0SMDJ15A	GSE5.0SMDJ15CA	5SMDJ 15A	5SMDJ 15CA	16.7	18.5	1	15	24.4	204.9	100
GSE5.0SMDJ16A	GSE5.0SMDJ16CA	5SMDJ 16A	5SMDJ 16CA	17.8	19.7	1	16	26.0	192.3	50
GSE5.0SMDJ17A	GSE5.0SMDJ17CA	5SMDJ 17A	5SMDJ 17CA	18.9	20.9	1	17	27.6	181.2	20
GSE5.0SMDJ18A	GSE5.0SMDJ18CA	5SMDJ 18A	5SMDJ 18CA	20.0	22.1	1	18	29.2	171.2	10
GSE5.0SMDJ19A	GSE5.0SMDJ19CA	5SMDJ 19A	5SMDJ 19CA	21.1	23.3	1	19	30.8	162.4	10
GSE5.0SMDJ20A	GSE5.0SMDJ20CA	5SMDJ 20A	5SMDJ 20CA	22.2	24.5	1	20	32.4	154.3	5
GSE5.0SMDJ22A	GSE5.0SMDJ22CA	5SMDJ 22A	5SMDJ 22CA	24.4	26.9	1	22	35.5	140.8	5
GSE5.0SMDJ24A	GSE5.0SMDJ24CA	5SMDJ 24A	5SMDJ 24CA	26.7	29.5	1	24	38.9	128.5	5

Electrical Characteristics(Continue)

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)				
GSE5.0SMDJ26A	GSE5.0SMDJ26CA	5SMDJ 26A	5SMDJ 26CA	28.9	31.9	1	26	42.1	118.8	5
GSE5.0SMDJ28A	GSE5.0SMDJ28CA	5SMDJ 28A	5SMDJ 28CA	31.1	34.4	1	28	45.4	110.1	5
GSE5.0SMDJ30A	GSE5.0SMDJ30CA	5SMDJ 30A	5SMDJ 30CA	33.3	36.8	1	30	48.4	103.3	5
GSE5.0SMDJ33A	GSE5.0SMDJ33CA	5SMDJ 33A	5SMDJ 33CA	36.7	40.6	1	33	53.3	93.8	5
GSE5.0SMDJ36A	GSE5.0SMDJ36CA	5SMDJ 36A	5SMDJ 36CA	40.0	44.2	1	36	58.1	86.1	5
GSE5.0SMDJ40A	GSE5.0SMDJ40CA	5SMDJ 40A	5SMDJ 40CA	44.4	49.1	1	40	64.5	77.5	5
GSE5.0SMDJ43A	GSE5.0SMDJ43CA	5SMDJ 43A	5SMDJ 43CA	47.8	52.8	1	43	69.4	72.0	5
GSE5.0SMDJ45A	GSE5.0SMDJ45CA	5SMDJ 45A	5SMDJ 45CA	50.0	55.3	1	45	72.7	68.8	5
GSE5.0SMDJ48A	GSE5.0SMDJ48CA	5SMDJ 48A	5SMDJ 48CA	53.3	58.9	1	48	77.4	64.6	5
GSE5.0SMDJ51A	GSE5.0SMDJ51CA	5SMDJ 51A	5SMDJ 51CA	56.7	62.7	1	51	82.4	60.7	5
GSE5.0SMDJ54A	GSE5.0SMDJ54CA	5SMDJ 54A	5SMDJ 54CA	60.0	66.3	1	54	87.1	57.4	5
GSE5.0SMDJ58A	GSE5.0SMDJ58CA	5SMDJ 58A	5SMDJ 58CA	64.4	71.2	1	58	93.6	53.4	5
GSE5.0SMDJ60A	GSE5.0SMDJ60CA	5SMDJ 60A	5SMDJ 60CA	66.7	73.7	1	60	96.8	51.7	5
GSE5.0SMDJ64A	GSE5.0SMDJ64CA	5SMDJ 64A	5SMDJ 64CA	71.1	78.6	1	64	103	48.5	5
GSE5.0SMDJ70A	GSE5.0SMDJ70CA	5SMDJ 70A	5SMDJ 70CA	77.8	86	1	70	113	44.2	5
GSE5.0SMDJ75A	GSE5.0SMDJ75CA	5SMDJ 75A	5SMDJ 75CA	83.3	92.1	1	75	121	41.3	5
GSE5.0SMDJ78A	GSE5.0SMDJ78CA	5SMDJ 78A	5SMDJ 78CA	86.7	95.8	1	78	126	39.7	5
GSE5.0SMDJ80A	GSE5.0SMDJ80CA	5SMDJ 80A	5SMDJ 80CA	88.8	97.6	1	80	129.6	38.6	5
GSE5.0SMDJ85A	GSE5.0SMDJ85CA	5SMDJ 85A	5SMDJ 85CA	94.4	104	1	85	137	36.5	5
GSE5.0SMDJ90A	GSE5.0SMDJ90CA	5SMDJ 90A	5SMDJ 90CA	100	111	1	90	146	34.2	5

Electrical Characteristics(Continue)

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)				
GSE5.0SMDJ100A	GSE5.0SMDJ100CA	5SMDJ 100A	5SMDJ 100CA	111	123	1	100	162	30.9	5
GSE5.0SMDJ110A	GSE5.0SMDJ110CA	5SMDJ 110A	5SMDJ 110CA	122	135	1	110	177.7	28.2	5
GSE5.0SMDJ120A	GSE5.0SMDJ120CA	5SMDJ 120A	5SMDJ 120CA	133	147	1	120	193	25.9	5
GSE5.0SMDJ130A	GSE5.0SMDJ130CA	5SMDJ 130A	5SMDJ 130CA	144	159	1	130	209	23.9	5
GSE5.0SMDJ140A	GSE5.0SMDJ140CA	5SMDJ 140A	5SMDJ 140CA	155	171	1	140	226.8	22.0	5
GSE5.0SMDJ150A	GSE5.0SMDJ150CA	5SMDJ 150A	5SMDJ 150CA	167	185	1	150	243	20.6	5
GSE5.0SMDJ160A	GSE5.0SMDJ160CA	5SMDJ 160A	5SMDJ 160CA	178	197	1	160	259	19.3	5
GSE5.0SMDJ170A	GSE5.0SMDJ170CA	5SMDJ 170A	5SMDJ 170CA	189	209	1	170	275	18.2	5
GSE5.0SMDJ180A	GSE5.0SMDJ180CA	5SMDJ 180A	5SMDJ 180CA	200	220	1	180	291.6	17.1	5
GSE5.0SMDJ190A	GSE5.0SMDJ190CA	5SMDJ 190A	5SMDJ 190CA	211	232	1	190	307.8	16.2	5
GSE5.0SMDJ200A	GSE5.0SMDJ200CA	5SMDJ 200A	5SMDJ 200CA	224	247	1	200	324	15.4	5
GSE5.0SMDJ220A	GSE5.0SMDJ220CA	5SMDJ 220A	5SMDJ 220CA	246	272	1	220	356	14.0	5
GSE5.0SMDJ250A	GSE5.0SMDJ250CA	5SMDJ 250A	5SMDJ 250CA	279	309	1	250	405	12.3	5
GSE5.0SMDJ300A	GSE5.0SMDJ300CA	5SMDJ 300A	5SMDJ 300CA	335	371	1	300	486	10.3	5
GSE5.0SMDJ350A	GSE5.0SMDJ350CA	5SMDJ 350A	5SMDJ 350CA	391	432	1	350	567	8.8	5
GSE5.0SMDJ400A	GSE5.0SMDJ400CA	5SMDJ 400A	5SMDJ 400CA	447	494	1	400	648	7.7	5
GSE5.0SMDJ440A	GSE5.0SMDJ440CA	5SMDJ 440A	5SMDJ 440CA	492	543	1	440	713	7.0	5

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

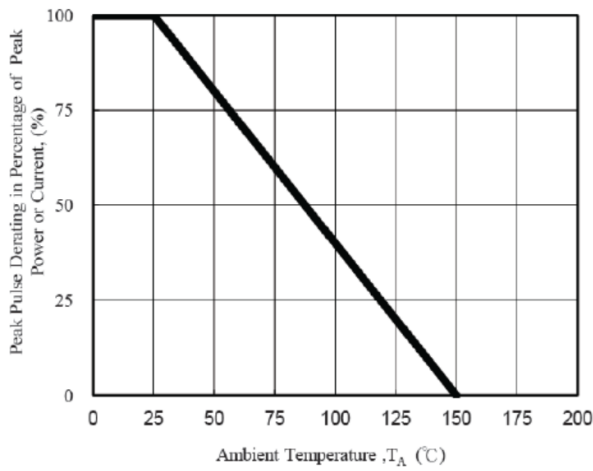


Fig. 1 - Pulse Derating Curve

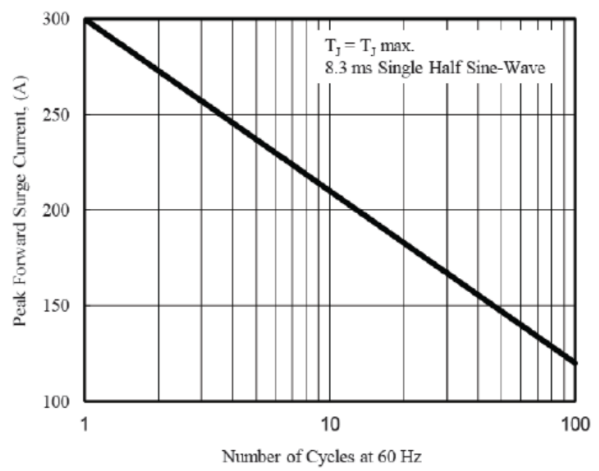


Fig. 2 - Maximum Non-Repetitive Surge Current

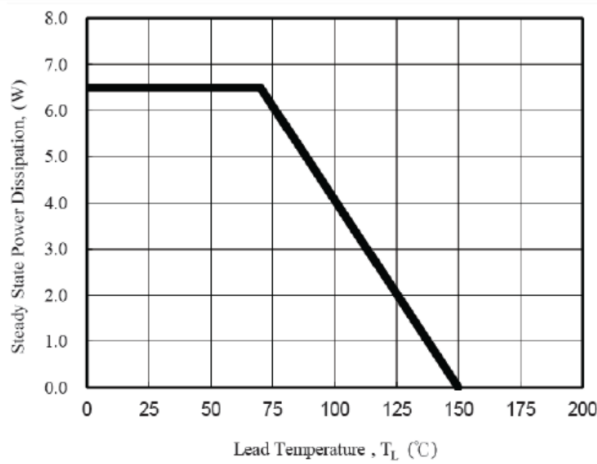


Fig. 3 - Steady State Power Derating Curve

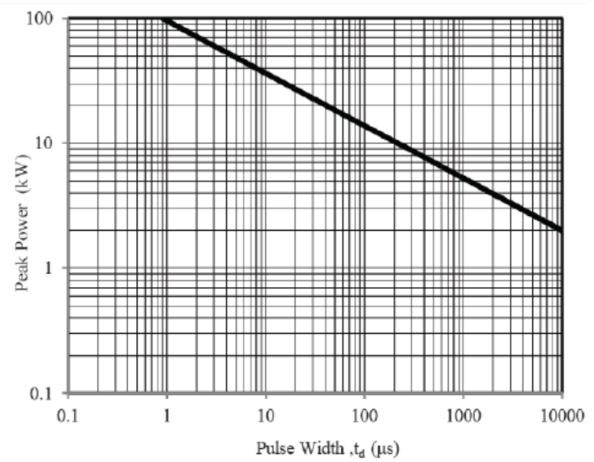


Fig. 4 - Peak Pulse Power Rating Curve

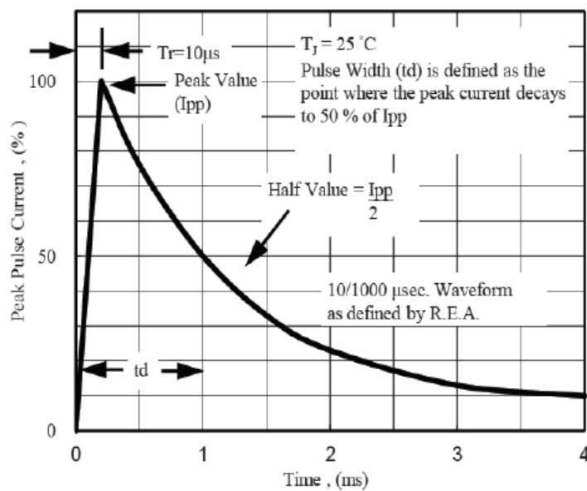


Fig. 5 - Pulse Waveform

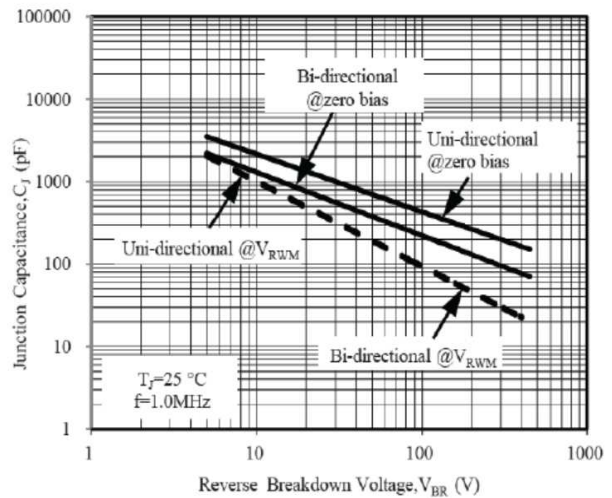
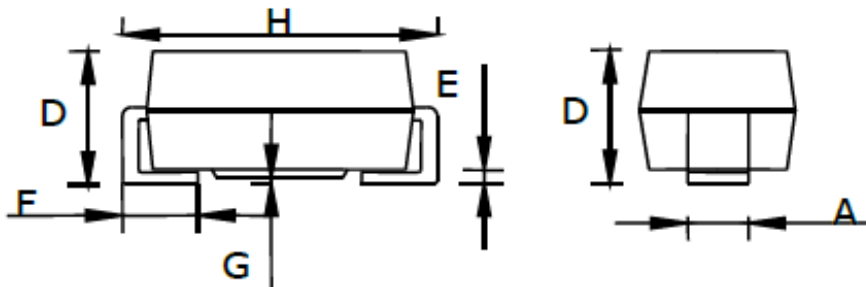
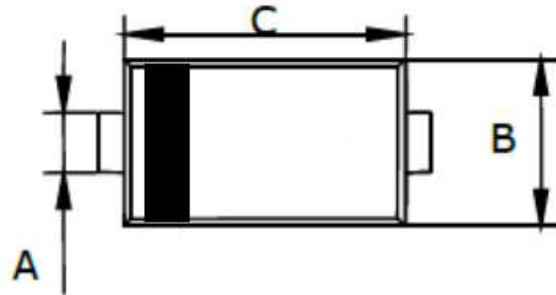


Fig. 6 - Typical Junction Capacitance

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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