

# GSESMAJ Series

## Surface Mount TVS

### Product Description

Peak Pulse Power Dissipation: 400W  
Working Voltage: 5.0 to 120 V

### Features

- For surface mounted application in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  for unidirectional types
- Typical  $I_R$  less than 1 $\mu$ A above 10V

### Mechanical Data

- Case: Molded plastic, SMA Package
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denoted positive end (cathode) except Bidirectional
- Mounting position: Any

### Packages



SMA

### Absolute Maximum Ratings

Rating at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Symbol	Conditions	Values	Unit
$P_{PPM}$	Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1,2)	400	W
$I_{PP}$	Peak pulse current with a 10/1000 $\mu$ s waveform (Note 1)	See Next Table 1	A
$I_{FSM}$	Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 2,3)	40	A
$T_J$	Operating junction temperature range	-55 to +150	°C
$T_{STG}$	Storage temperature range	-55 to +150	°C

Note 1: Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.

Note 2: Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.

Note 3: 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulse per minutes maximum.

## Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Part Number (Uni-Polar)	Part Number (Bi-Polar)	Breakdown Voltage $V_{BR@I_T}$			$V_{RWM}$ (V)	$V_C@I_{PP}$ (V)	$I_{PP}$ (A)	$I_R@V_{RWM}$ ( $\mu$ A)
		Min (V)	Max (V)	$I_T$ (mA)				
GSESMAJ5.0AF	GSESMAJ5.0CAF	6.40	7.25	10	5.0	9.2	43.5	800
GSESMAJ6.0AF	GSESMAJ6.0CAF	6.67	7.67	10	6.0	10.3	38.8	800
GSESMAJ6.5AF	GSESMAJ6.5CAF	7.22	7.98	10	6.5	11.2	35.7	500
GSESMAJ7.0AF	GSESMAJ7.0CAF	7.78	8.95	10	7.0	12.0	33.3	200
GSESMAJ7.5AF	GSESMAJ7.5CAF	8.33	9.58	1.0	7.5	12.9	31.0	100
GSESMAJ8.0AF	GSESMAJ8.0CAF	8.89	10.23	1.0	8.0	13.6	29.4	50
GSESMAJ8.5AF	GSESMAJ8.5CAF	9.44	10.82	1.0	8.5	14.4	27.7	20
GSESMAJ9.0AF	GSESMAJ9.0CAF	10.00	11.50	1.0	9.0	15.4	26.0	10
GSESMAJ10AF	GSESMAJ10CAF	11.10	12.80	1.0	10	17.0	23.5	5
GSESMAJ11AF	GSESMAJ11CAF	12.20	14.00	1.0	11	18.2	22.0	5
GSESMAJ12AF	GSESMAJ12CAF	13.30	15.30	1.0	12	19.9	20.1	5
GSESMAJ13AF	GSESMAJ13CAF	14.40	16.50	1.0	13	21.5	18.6	5
GSESMAJ14AF	GSESMAJ14CAF	15.60	17.90	1.0	14	23.2	17.2	5
GSESMAJ15AF	GSESMAJ15CAF	16.70	18.50	1.0	15	24.4	16.4	5
GSESMAJ16AF	GSESMAJ16CAF	17.80	19.70	1.0	16	26.0	15.4	5
GSESMAJ17AF	GSESMAJ17CAF	18.90	20.90	1.0	17	27.6	14.5	5
GSESMAJ18AF	GSESMAJ18CAF	20.00	22.10	1.0	18	29.2	13.7	5
GSESMAJ20AF	GSESMAJ20CAF	22.20	24.50	1.0	20	32.4	12.3	5
GSESMAJ22AF	GSESMAJ22CAF	24.40	26.90	1.0	22	35.5	11.3	5
GSESMAJ24AF	GSESMAJ24CAF	26.70	29.50	1.0	24	38.9	10.3	5
GSESMAJ26AF	GSESMAJ26CAF	28.90	31.90	1.0	26	42.1	9.5	5
GSESMAJ28AF	GSESMAJ28CAF	31.10	34.40	1.0	28	45.4	8.8	5
GSESMAJ30AF	GSESMAJ30CAF	33.30	36.80	1.0	30	48.4	8.3	5
GSESMAJ33AF	GSESMAJ33CAF	36.70	40.60	1.0	33	53.3	7.5	5
GSESMAJ36AF	GSESMAJ36CAF	40.00	44.20	1.0	36	58.1	6.9	5
GSESMAJ40AF	GSESMAJ40CAF	44.40	49.10	1.0	40	64.5	6.2	5
GSESMAJ43AF	GSESMAJ43CAF	47.80	52.80	1.0	43	69.4	5.8	5
GSESMAJ45AF	GSESMAJ45CAF	50.00	55.30	1.0	45	72.7	5.5	5
GSESMAJ48AF	GSESMAJ48CAF	53.30	58.90	1.0	48	77.4	5.2	5
GSESMAJ51AF	GSESMAJ51CAF	56.70	62.70	1.0	51	82.4	4.9	5
GSESMAJ54AF	GSESMAJ54CAF	60.00	66.30	1.0	54	87.1	4.6	5
GSESMAJ58AF	GSESMAJ58CAF	64.40	71.20	1.0	58	93.6	4.3	5
GSESMAJ60AF	GSESMAJ60CAF	66.70	73.70	1.0	60	96.8	4.1	5
GSESMAJ64AF	GSESMAJ64CAF	71.10	78.60	1.0	64	103	3.9	5
GSESMAJ70AF	GSESMAJ70CAF	77.80	86.00	1.0	70	113	3.5	5
GSESMAJ75AF	GSESMAJ75CAF	83.30	92.10	1.0	75	121	3.3	5
GSESMAJ78AF	GSESMAJ78CAF	86.70	95.80	1.0	78	126	3.2	5
GSESMAJ85AF	GSESMAJ85CAF	94	104	1.0	85	137	2.9	5
GSESMAJ90AF	GSESMAJ90CAF	100	111	1.0	90	146	2.7	5
GSESMAJ100AF	GSESMAJ100CAF	111	123	1.0	100	162	2.5	5
GSESMAJ110AF	GSESMAJ110CAF	122	135	1.0	110	177	2.3	5
GSESMAJ120AF	GSESMAJ120CAF	133	147	1.0	120	193	2.0	5

## Typical Characteristics

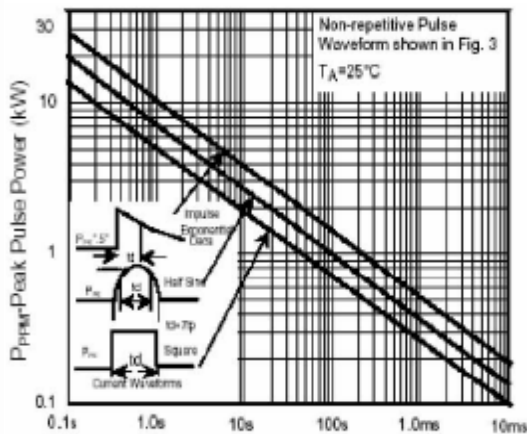


Fig.1 Peak Pulse Power Rating Curve

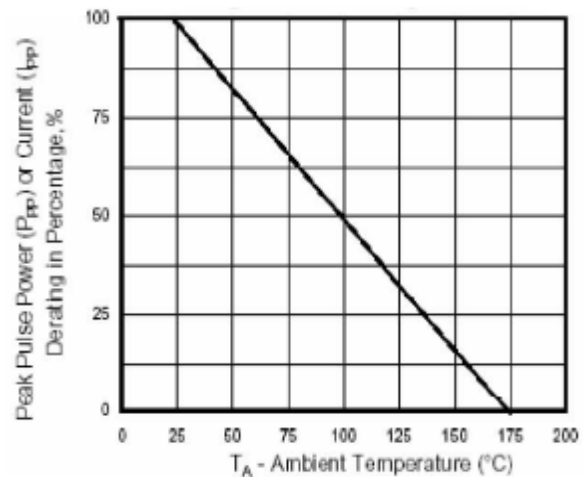


Fig.2 Power Derating Curve

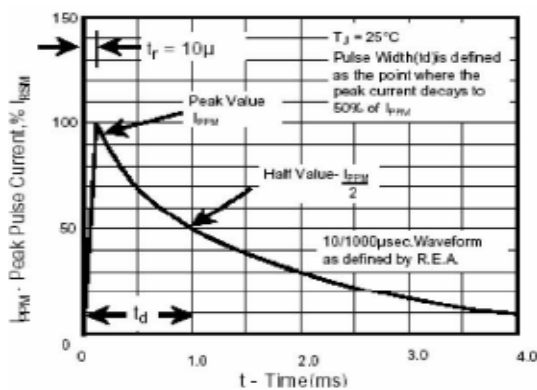


Fig.3 Pulse Waveform

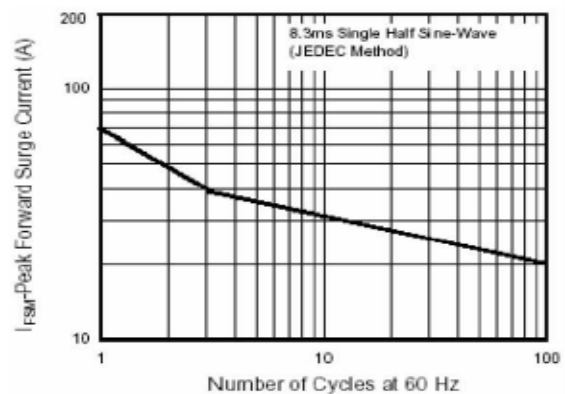


Fig.4 Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

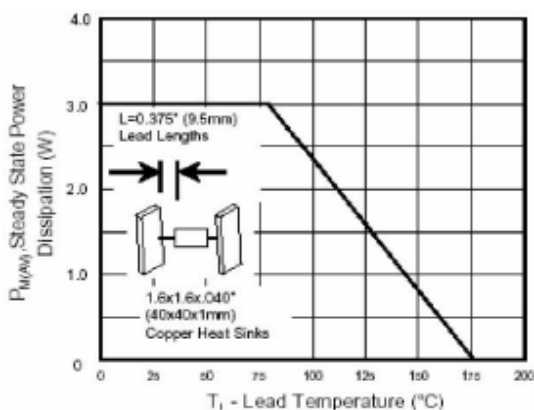


Fig.5 Steady State Power Derating Curve

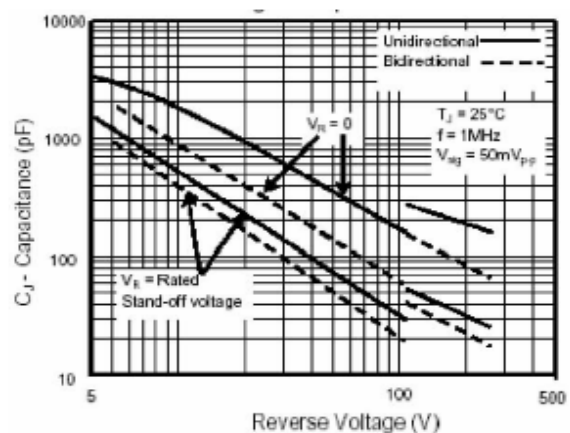
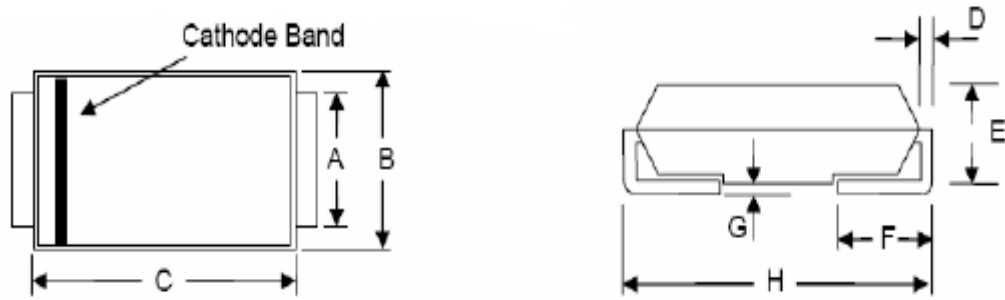


Fig.6 Capacitance

## Package Dimension

### SMA




Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.250	1.650	0.049	0.065
B	2.540	2.790	0.100	0.110
C	3.990	4.500	0.157	0.177
D	0.152	0.305	0.006	0.012
E	1.980	2.290	0.078	0.090
F	0.760	1.520	0.030	0.060
G	-	0.203	-	0.008
H	4.930	5.280	0.194	0.208




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## CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

Shenzhen Branch(China)	
	1113 B Building, Happiness Washington, Baoan Nan Road, Luohu District, Shenzhen City, China
	0755-22208941
	sales_cn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587