

## Features

- Glass passivated chip
- 600W peak pulse power capability with a 10/1000us waveform, repetitive rate (duty cycle): 0.01%
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard



SMAF

## Mechanical Data

- Case: SMAF molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except bipolar
- Mounting position: Any



Uni-directional



Bi-directional

Schematic Diagram

## Maximum Ratings and Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbols	Value	Unit
Peak Power Dissipation with a 10/1000 us Waveform <sup>1</sup>	P <sub>PP</sub>	600	W
Power Dissipation on Infinite Heatsink at T <sub>L</sub> =75°C	P <sub>D</sub>	5.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Unidirectional only <sup>2</sup>	I <sub>FSM</sub>	60	A
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only <sup>3</sup>	V <sub>F</sub>	3.5/6.5	V
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Notes:

1. Non-repetitive current pulse per Fig.5 and derated above T<sub>A</sub>=25°C per Fig.1.
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
3. V<sub>F</sub> < 3.5V for devices of V<sub>BR</sub> < 200V and V<sub>F</sub> < 6.5V for devices of V<sub>BR</sub> > 201V.

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current	Max. Clamping Voltage @ I <sub>PP</sub>	Max. Peak Pulse Current	Max. Reverse Leakage @ V <sub>RWM</sub>
Uni-Polar	Bi-Polar	Uni	Bi	V <sub>RWM</sub> (V)	Min. (V)	Max. (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> (uA)
GSP6SMAFJ5.0A	GSP6SMAFJ5.0CA	KE	AE	5.0	6.40	7.00	10	9.2	65.3	800
GSP6SMAFJ6.0A	GSP6SMAFJ6.0CA	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800
GSP6SMAFJ6.5A	GSP6SMAFJ6.5CA	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500
GSP6SMAFJ7.0A	GSP6SMAFJ7.0CA	KM	AM	7.0	7.78	8.60	10	12.0	50.0	200
GSP6SMAFJ7.5A	GSP6SMAFJ7.5CA	KP	AP	7.5	8.33	9.21	1	12.9	46.6	100
GSP6SMAFJ8.0A	GSP6SMAFJ8.0CA	KR	AR	8.0	8.89	9.83	1	13.6	44.2	50
GSP6SMAFJ8.5A	GSP6SMAFJ8.5CA	KT	AT	8.5	9.44	10.40	1	14.4	41.7	20
GSP6SMAFJ9.0A	GSP6SMAFJ9.0CA	KV	AV	9.0	10.00	11.10	1	15.4	39.0	10
GSP6SMAFJ10A	GSP6SMAFJ10CA	KX	AX	10.0	11.10	12.30	1	17.0	35.3	5
GSP6SMAFJ11A	GSP6SMAFJ11CA	KZ	AZ	11.0	12.20	13.50	1	18.2	33.0	1
GSP6SMAFJ12A	GSP6SMAFJ12CA	LE	BE	12.0	13.30	14.70	1	19.9	30.2	1
GSP6SMAFJ13A	GSP6SMAFJ13CA	LG	BG	13.0	14.40	15.90	1	21.5	28.0	1
GSP6SMAFJ14A	GSP6SMAFJ14CA	LK	BK	14.0	15.60	17.20	1	23.2	25.9	1
GSP6SMAFJ15A	GSP6SMAFJ15CA	LM	BM	15.0	16.70	18.50	1	24.4	24.6	1
GSP6SMAFJ16A	GSP6SMAFJ16CA	LP	BP	16.0	17.80	19.70	1	26.0	23.1	1
GSP6SMAFJ17A	GSP6SMAFJ17CA	LR	BR	17.0	18.90	20.90	1	27.6	21.8	1
GSP6SMAFJ18A	GSP6SMAFJ18CA	LT	BT	18.0	20.00	22.10	1	29.2	20.6	1
GSP6SMAFJ20A	GSP6SMAFJ20CA	LV	BV	20.0	22.20	24.50	1	32.4	18.6	1
GSP6SMAFJ22A	GSP6SMAFJ22CA	LX	BX	22.0	24.40	26.90	1	35.5	16.9	1
GSP6SMAFJ24A	GSP6SMAFJ24CA	LZ	BZ	24.0	26.70	29.50	1	38.9	15.5	1
GSP6SMAFJ26A	GSP6SMAFJ26CA	ME	CE	26.0	28.90	31.90	1	42.1	14.3	1
GSP6SMAFJ28A	GSP6SMAFJ28CA	MG	CG	28.0	31.10	34.40	1	45.4	13.3	1
GSP6SMAFJ30A	GSP6SMAFJ30CA	MK	CK	30.0	33.50	36.80	1	48.4	12.4	1
GSP6SMAFJ33A	GSP6SMAFJ33CA	MM	CM	33.0	36.70	40.60	1	53.3	11.3	1
GSP6SMAFJ36A	GSP6SMAFJ36CA	MP	CP	36.0	40.00	44.20	1	58.1	10.4	1
GSP6SMAFJ40A	GSP6SMAFJ40CA	MR	CR	40.0	44.40	49.10	1	64.5	9.3	1
GSP6SMAFJ43A	GSP6SMAFJ43CA	MT	CT	43.0	47.80	52.80	1	69.4	8.7	1
GSP6SMAFJ45A	GSP6SMAFJ45CA	MV	CV	45.0	50.00	55.30	1	72.7	8.3	1
GSP6SMAFJ48A	GSP6SMAFJ48CA	MX	CX	48.0	53.30	58.90	1	77.4	7.8	1
GSP6SMAFJ51A	GSP6SMAFJ51CA	MZ	CZ	51.0	56.70	62.70	1	82.4	7.3	1
GSP6SMAFJ54A	GSP6SMAFJ54CA	NE	DE	54.0	60.00	66.30	1	87.1	6.9	1
GSP6SMAFJ58A	GSP6SMAFJ58CA	NG	DG	58.0	64.40	71.20	1	93.6	6.5	1
GSP6SMAFJ60A	GSP6SMAFJ60CA	NK	DK	60.0	66.70	73.70	1	96.8	6.2	1
GSP6SMAFJ64A	GSP6SMAFJ64CA	NM	DM	64.0	71.10	78.60	1	103.0	5.9	1
GSP6SMAFJ70A	GSP6SMAFJ70CA	NP	DP	70.0	77.80	86.00	1	113.0	5.3	1
GSP6SMAFJ75A	GSP6SMAFJ75CA	NR	DR	75.0	83.30	92.10	1	121.0	5.0	1
GSP6SMAFJ78A	GSP6SMAFJ78CA	NT	DT	78.0	86.70	95.80	1	126.0	4.8	1
GSP6SMAFJ85A	GSP6SMAFJ85CA	NV	DV	85.0	94.4	104.0	1	137.0	4.4	1
GSP6SMAFJ90A	GSP6SMAFJ90CA	NX	DX	90.0	100.0	111.0	1	146.0	4.1	1
GSP6SMAFJ100A	GSP6SMAFJ100CA	NZ	DZ	100.0	111.0	123.0	1	162.0	3.7	1
GSP6SMAFJ110A	GSP6SMAFJ110CA	PE	EE	110.0	122.0	135.0	1	177.0	3.4	1
GSP6SMAFJ120A	GSP6SMAFJ120CA	PG	EG	120.0	133.0	147.0	1	193.0	3.1	1
GSP6SMAFJ130A	GSP6SMAFJ130CA	PK	EK	130.0	144.0	159.0	1	209.0	2.9	1
GSP6SMAFJ150A	GSP6SMAFJ150CA	PM	EM	150.0	167.0	185.0	1	243.0	2.5	1
GSP6SMAFJ160A	GSP6SMAFJ160CA	PP	EP	160.0	178.0	197.0	1	259.0	2.3	1
GSP6SMAFJ170A	GSP6SMAFJ170CA	PR	ER	170.0	189.0	209.0	1	275.0	2.2	1
GSP6SMAFJ180A	GSP6SMAFJ180CA	PT	ET	180.0	201.0	222.0	1	292.0	2.1	1
GSP6SMAFJ190A	GSP6SMAFJ190CA	PA	EC	190.0	209.0	243.0	1	308.0	2.0	1
GSP6SMAFJ200A	GSP6SMAFJ200CA	PV	EV	200.0	224.0	247.0	1	324.0	1.9	1

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>		Test Current	Max. Clamping Voltage @ I <sub>PP</sub>	Max. Peak Pulse Current	Max. Reverse Leakage @ V <sub>RWM</sub>
		Uni	Bi		V <sub>RWM</sub> (V)	Min. (V)				
Uni-Polar	Bi-Polar									
GSP6SMAFJ210A		PB		210.0	231.0	268.0	1	340.0	1.8	1
GSP6SMAFJ220A		PX		220.0	246.0	272.0	1	356.0	1.7	1
GSP6SMAFJ250A		PZ		250.0	279.0	309.0	1	405.0	1.5	1
GSP6SMAFJ300A		QE		300.0	335.0	371.0	1	486.0	1.3	1
GSP6SMAFJ350A		QG		350.0	391.0	432.0	1	567.0	1.1	1

## Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

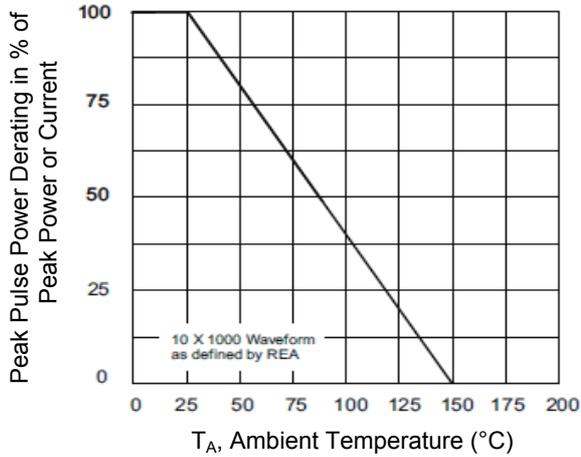


Figure 1. Pulse Derating Curve

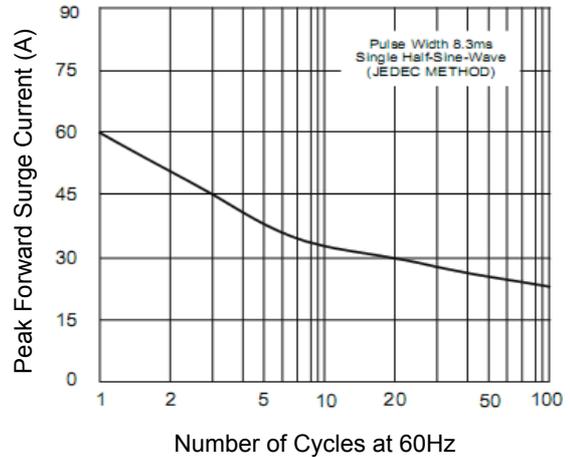


Figure 2. Maximum Non-Repetitive Surge Current

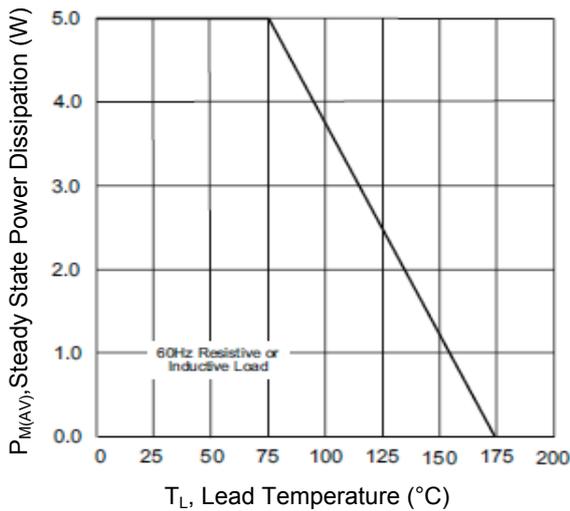


Figure 3. Steady State Power Derating Curve

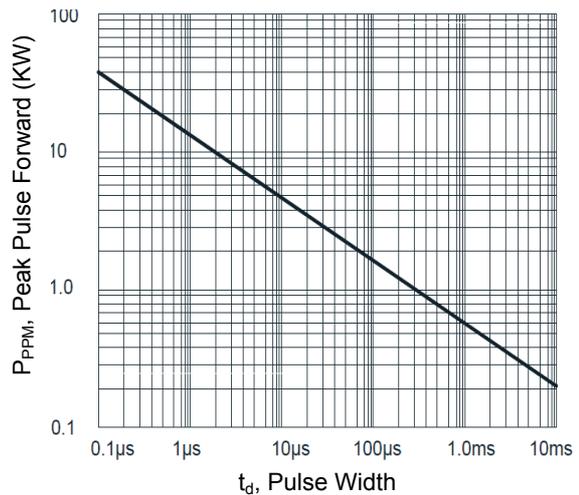


Figure 4. Peak Pulse Power Rating Curve

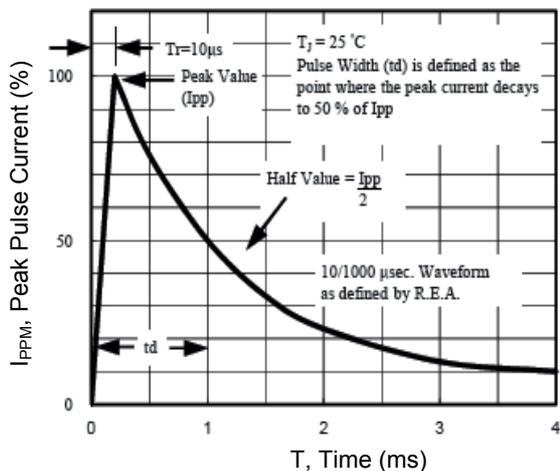


Figure 5. Pulse Waveform

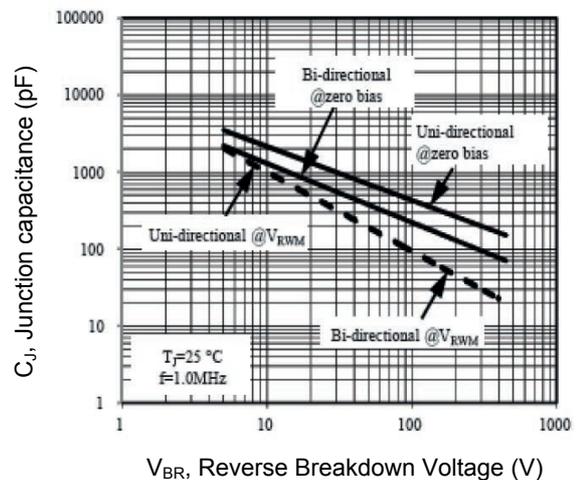
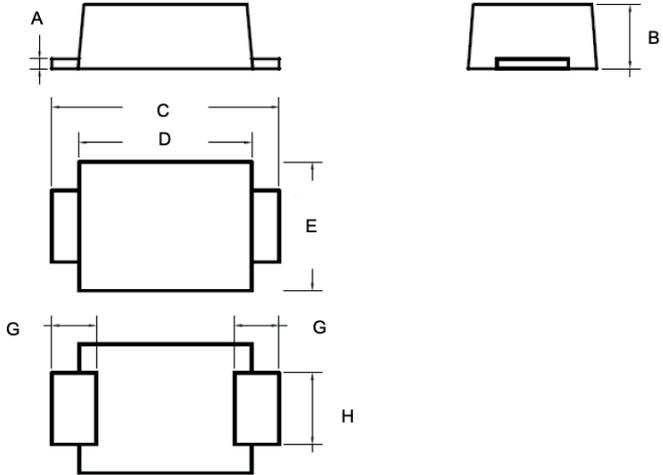


Figure 6. Typical Junction Capacitance

## Package Outline Dimensions (SMAF)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.10	0.30	0.004	0.012
B	1.00	1.40	0.039	0.055
C	4.35	4.85	0.171	0.191
D	3.30	3.70	0.130	0.146
E	2.40	2.80	0.094	0.110
G	0.60	1.20	0.024	0.047
H	1.30	1.60	0.051	0.063

## Order Information

MPN	Package	Marking	Quantity	HSF Status
GSP6SMAFJxx	SMAF	See the table above	3,000pcs / Reel	RoHS Compliant