GSESMF Series

Transient Voltage Suppressors

Product Description

Peak Pulse Power Dissipation : 200W
Voltage Range : 5V to 190V

Features

- Glass passivated chip
- 200W peak pulse power capability with a 10/1000μs 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

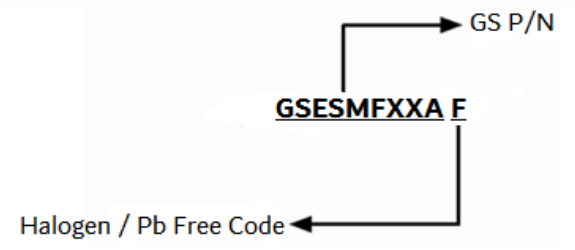
- Case : Molded plastic
- Epoxy : UL 94V-0 rate flame retardant
- Lead : Solderable per MIL-STD-750,Method 2026
- Polarity : Color band denotes cathode end except Bipolar
- Mounting position : Any

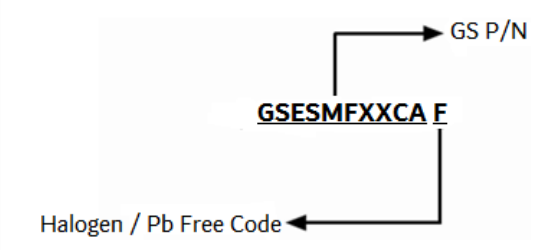
Packages

SOD-123

Ordering Information

Part Number	Package	Quantity Reel
GSESMFXXA/CAF	SOD-123	3000 PCS





Absolute Maximum Ratings

Ratings at 25℃ ambient temperature unless otherwise specified.

Symbol	Characteristics	Values	Unit
P_{PP}	Peak power dissipation with a 10/1000μs waveform (Note 1)	200	W
P_{PP}	Peak power dissipation with a 8/20μs waveform (Note 1)	1000	W
I_{PP}	Peak pulse current with a 10/1000μs waveform (Note 1)	See Next Table	A
I_{FSM}	Peak Forward Surge Current 8.3ms single half sine-wave super (Note 2)	20	A
V_F	Maximum instantaneous forward voltage at 25 A for unidirectional only	3.5	V
P_D	Power dissipation on infinite heatsink at TL = 75 °C	0.4	W
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 T_A= 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.

Electrical Characteristics

Rating at 25℃ 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)	$I_{PP\,max}$ (A)	$I_R@V_{RWM}$ (μA)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMF5.0AF	GSESMF5.0CAF	SMF 5.0A	SMF 5.0CA	6.40	7.00	10	5.0	9.2	21.74	400
GSESMF6.0AF	GSESMF6.0CAF	SMF 6.0A	SMF 6.0CA	6.67	7.37	10	6.0	10.3	19.42	400
GSESMF6.5AF	GSESMF6.5CAF	SMF 6.5A	SMF 6.5CA	7.22	7.98	10	6.5	11.2	17.86	250
GSESMF7.0AF	GSESMF7.0CAF	SMF 7.0A	SMF 7.0CA	7.78	8.60	10	7.0	12.0	16.67	100
GSESMF7.5AF	GSESMF7.5CAF	SMF 7.5A	SMF 7.5CA	8.33	9.21	1.0	7.5	12.9	15.50	50
GSESMF8.0AF	GSESMF8.0CAF	SMF 8.0A	SMF 8.0CA	8.89	9.83	1.0	8.0	13.6	14.71	25
GSESMF8.5AF	GSESMF8.5CAF	SMF 8.5A	SMF 8.5CA	9.44	10.4	1.0	8.5	14.4	13.89	10
GSESMF9.0AF	GSESMF9.0CAF	SMF 9.0A	SMF 9.0CA	10.0	11.1	1.0	9.0	15.4	12.99	5.0
GSESMF10AF	GSESMF10CAF	SMF 10A	SMF 10CA	11.1	12.3	1.0	10	17.0	11.76	2.5
GSESMF11AF	GSESMF11CAF	SMF 11A	SMF 11CA	12.2	13.5	1.0	11	18.2	10.99	2.5
GSESMF12AF	GSESMF12CAF	SMF 12A	SMF 12CA	13.3	14.7	1.0	12	19.9	10.05	2.5
GSESMF13AF	GSESMF13CAF	SMF 13A	SMF 13CA	14.4	15.9	1.0	13	21.5	9.30	1.0
GSESMF14AF	GSESMF14CAF	SMF 14A	SMF 14CA	15.6	17.2	1.0	14	23.3	8.62	1.0
GSESMF15AF	GSESMF15CAF	SMF 15A	SMF 15CA	16.7	18.5	1.0	15	24.4	8.20	1.0

Electrical Characteristics

Rating at 25℃ 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)	$I_{PP\,max}$ (A)	$I_R@V_{RWM}$ (μA)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMF16AF	GSESMF16CAF	SMF 16A	SMF 16CA	17.8	19.7	1.0	16	26.0	7.69	1.0
GSESMF17AF	GSESMF17CAF	SMF 17A	SMF 17CA	18.9	20.9	1.0	17	27.6	7.25	1.0
GSESMF18AF	GSESMF18CAF	SMF 18A	SMF 18CA	20.0	22.1	1.0	18	29.2	6.85	1.0
GSESMF19AF	GSESMF19CAF	SMF 19A	SMF 19CA	21.1	23.3	1.0	19	30.6	6.54	1.0
GSESMF20AF	GSESMF20CAF	SMF 20A	SMF 20CA	22.2	24.5	1.0	20	32.4	6.17	1.0
GSESMF22AF	GSESMF22CAF	SMF 22A	SMF 22CA	24.4	26.9	1.0	22	35.5	5.63	1.0
GSESMF24AF	GSESMF24CAF	SMF 24A	SMF 24CA	26.7	29.5	1.0	24	38.9	5.14	1.0
GSESMF26AF	GSESMF26CAF	SMF 26A	SMF 26CA	28.9	31.9	1.0	26	42.1	4.75	1.0
GSESMF28AF	GSESMF28CAF	SMF 28A	SMF 28CA	31.1	34.4	1.0	28	45.4	4.41	1.0
GSESMF30AF	GSESMF30CAF	SMF 30A	SMF 30CA	33.3	36.8	1.0	30	48.4	4.13	1.0
GSESMF33AF	GSESMF33CAF	SMF 33A	SMF 33CA	36.7	40.6	1.0	33	53.3	3.75	1.0
GSESMF36AF	GSESMF36CAF	SMF 36A	SMF 36CA	40.0	44.2	1.0	36	58.1	3.44	1.0
GSESMF40AF	GSESMF40CAF	SMF 40A	SMF 40CA	44.4	49.1	1.0	40	64.5	3.10	1.0
GSESMF43AF	GSESMF43CAF	SMF 43A	SMF 43CA	47.8	52.8	1.0	43	69.4	2.88	1.0
GSESMF45AF	GSESMF45CAF	SMF 45A	SMF 45CA	50.0	55.3	1.0	45	72.7	2.75	1.0
GSESMF48AF	GSESMF48CAF	SMF 48A	SMF 48CA	53.3	58.9	1.0	48	77.4	2.58	1.0
GSESMF51AF	GSESMF51CAF	SMF 51A	SMF 51CA	56.7	62.7	1.0	51	82.4	2.43	1.0
GSESMF54AF	GSESMF54CAF	SMF 54A	SMF 54CA	60.0	66.3	1.0	54	87.1	2.30	1.0
GSESMF58AF	GSESMF58CAF	SMF 58A	SMF 58CA	64.4	71.2	1.0	58	93.6	2.14	1.0
GSESMF60AF	GSESMF60CAF	SMF 60A	SMF 60CA	66.7	73.7	1.0	60	96.8	2.07	1.0
GSESMF64AF	GSESMF64CAF	SMF 64A	SMF 64CA	71.1	78.6	1.0	64	103	1.94	1.0
GSESMF70AF	GSESMF70CAF	SMF 70A	SMF 70CA	77.8	86.0	1.0	70	113	1.77	1.0
GSESMF75AF	GSESMF75CAF	SMF 75A	SMF 75CA	83.3	92.1	1.0	75	121	1.65	1.0
GSESMF78AF	GSESMF78CAF	SMF 78A	SMF 78CA	86.7	95.8	1.0	78	126	1.59	1.0
GSESMF80AF	GSESMF80CAF	SMF 80A	SMF 80CA	88.8	97.6	1.0	80	129	1.55	1.0

Electrical Characteristics

Rating at 25℃ 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)	$I_{PP\,max}$ (A)	$I_R@V_{RWM}$ (μA)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMF85AF	GSESMF85CAF	SMF 85A	SMF 85CA	94.4	104	1.0	85	137	1.46	2.5
GSESMF90AF	GSESMF90CAF	SMF 90A	SMF 90CA	100	111	1.0	90	146	1.37	2.5
GSESMF100AF	GSESMF100CAF	SMF 100A	SMF 100CA	111	123	1.0	100	162	1.23	2.5
GSESMF110AF	GSESMF110CAF	SMF 110A	SMF 110CA	122	135	1.0	110	177	1.13	2.5
GSESMF120AF	GSESMF120CAF	SMF 120A	SMF 120CA	133	147	1.0	120	193	1.04	2.5
GSESMF130AF	GSESMF130CAF	SMF 130A	SMF 130CA	144	159	1.0	130	209	0.96	2.5
GSESMF140AF	GSESMF140CAF	SMF 140A	SMF 140CA	155	171	1.0	140	224	0.89	2.5
GSESMF150AF	GSESMF150CAF	SMF 150A	SMF 150CA	167	185	1.0	150	243	0.82	2.5
GSESMF160AF	GSESMF160CAF	SMF 160A	SMF 160CA	178	197	1.0	160	259	0.77	2.5
GSESMF170AF	GSESMF170CAF	SMF 170A	SMF 170CA	189	209	1.0	170	275	0.73	2.5
GSESMF180AF	GSESMF180CAF	SMF 180A	SMF 180CA	200	220	1.0	180	292	0.69	2.5
GSESMF190AF	GSESMF190CAF	SMF 190A	SMF 190CA	211	232	1.0	190	308	0.69	2.5

Note:

1. Add suffix 'C 'or ' CA ' after part number to specify Bi-directional devices.
2. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

Typical Characteristics

RATINGS AND CHARACTERISTIC CURVES

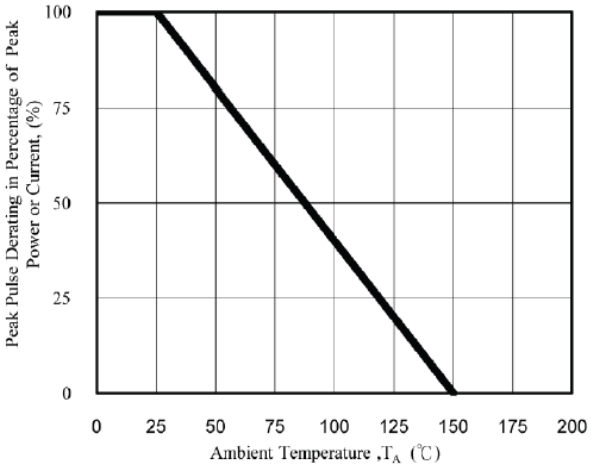


Fig. 1 - Pulse Derating Curve

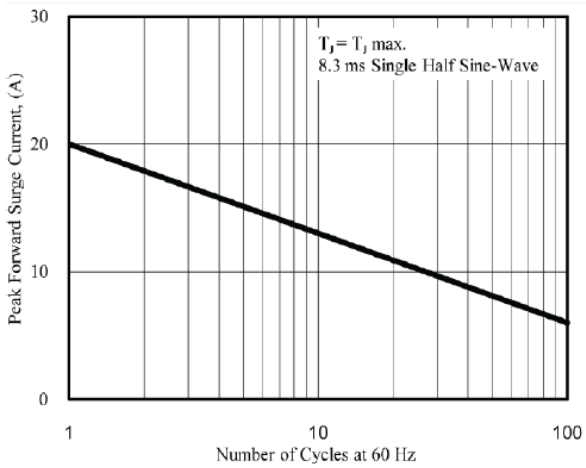


Fig. 2 - Maximum Non-Repetitive Surge Current

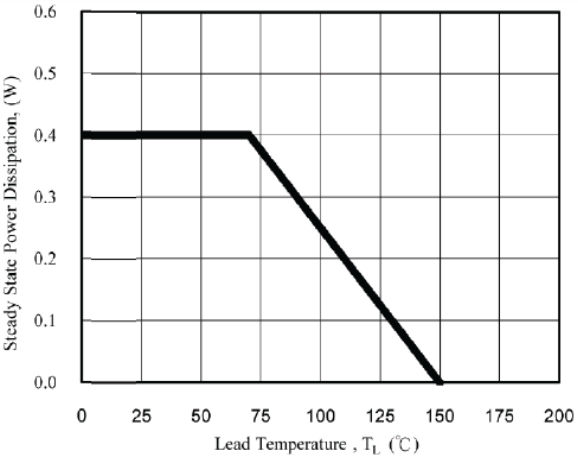


Fig. 3 - Steady State Power Derating Curve

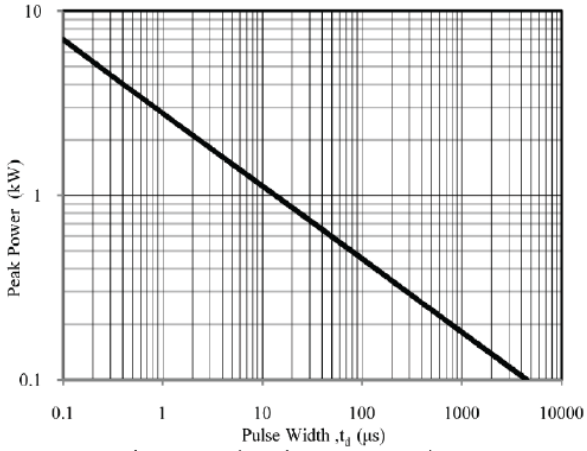


Fig. 4 - Peak Pulse Power Rating Curve

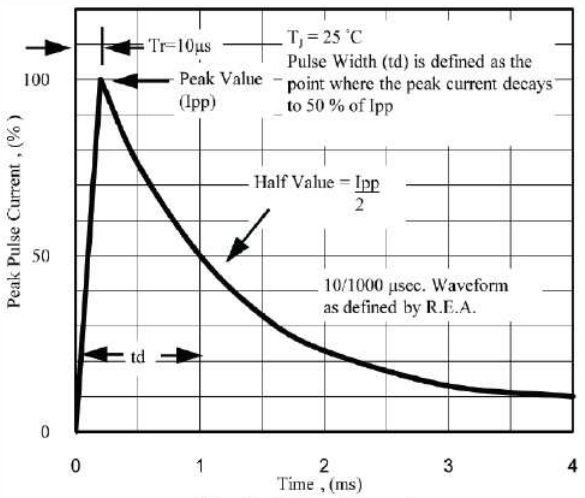


Fig. 5 - Pulse Waveform

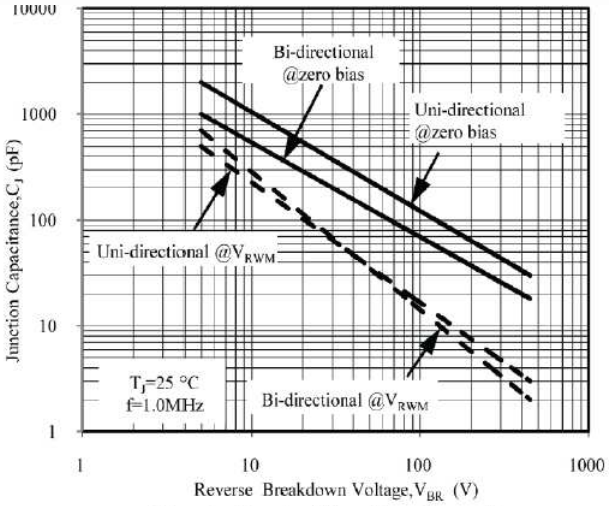
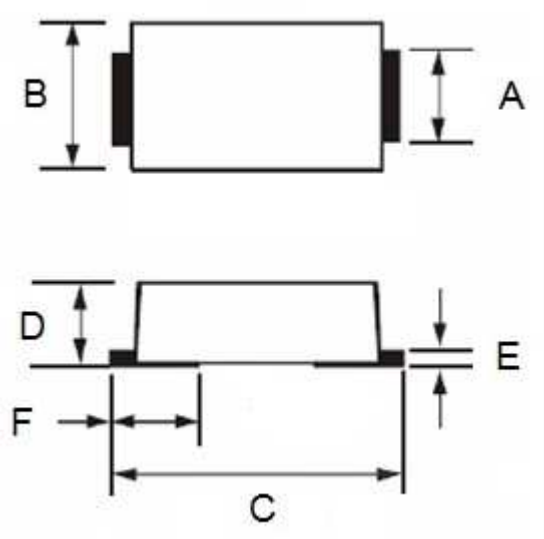


Fig. 6 - Typical Junction Capacitance

Package Dimension

SOD-123



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.60	1.20	0.024	0.047
B	1.50	2.00	0.059	0.079
C	3.50	3.90	0.138	0.154
D	0.80	1.40	0.031	0.055
E	0.05	0.25	0.002	0.010
F	0.35	1.10	0.014	0.043

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