

GSESMF4L Series

Transient Voltage Suppressor

Product Description

The SMF4L Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

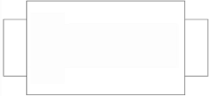
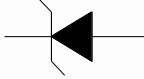
Features

- 400W Peak Pulse Power Capability at 10/1000 μ s Waveform, Repetition Rate (Duty Cycle): 0.01%
- Uni- and Bi-Directional Type Selectable
- Glass Passivated Chip

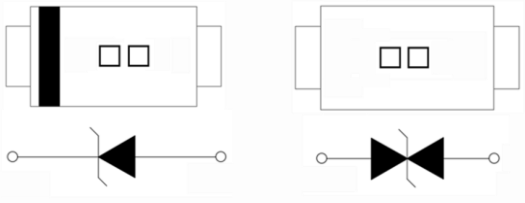
Mechanical Data

- SOD-123FL Package
- Polarity : Color Band denotes Cathode End for Uni-directional Type only
- RoHS Compliant and Halogen Free

Package and Pin Assignment

SOD-123FL	
	 Bi-Directional
 * Color Band denotes Cathode End	 Uni-Directional

Ordering and Marking Information

Part Number	Package	Marking	Quantity/Reel
See Table	SOD-123FL	□ □	3000 PCS/Reel
Ordering Information			
GSESMF4L 1 1 1 2 A F			
- Product Code: GSESMF4L	- Voltage Code: 1 1 1 is V_{RWM} Voltage For examples 7.0 is 7V and 70 is 70V etc.	- Type Code: 2 for type of direction. Blank: Uni-direction C: Bi-direction	
- Tolerance Code: A for 5% V_{BR} Voltage Tolerance	- Green Level: F for RoHS Compliant and Halogen Free		
Marking Information			
			
* Marking Code (PN Code) can be checked from the section of Electrical Characteristics for selected part number.			

Absolute Maximum Ratings

(T_A=25°C Unless Otherwise Specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Symbol	Parameter	Rating	Unit
P_{PP}	Peak power dissipation with a 8/20μs waveform ^{(1), (2)}	2000	W
	Peak power dissipation with a 10/1000μs waveform ^{(1), (3)}	400	W
I_{PP}	Peak pulse current with a 10/1000μs waveform ⁽¹⁾	See Next Table	A
P_D	Steady state power dissipation at T _A =50°C (Fig.5)	1.0	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.3 and derated above T_A=25°C per Fig.2.
2. SMF4L5.0A~SMF4L8.5A Peak Pulse Power Dissipation is 1850W min, 2000W typical @8/20us
3. SMF4L5.0A~SMF4L8.5A Peak Pulse Power Dissipation is 370W min, 400W typical @ 10/1000μs, SMF4L90A~SMF4L250A Peak Pulse Power Dissipation is 200W typical @ 10/1000μs

Electrical Characteristics (T_A=25°C Unless Otherwise Specified)

Part Number (Uni-Directional)	Part Number (Bi-Directional)	MARKING CODE		Breakdown Voltage V _{BR} @I _T			V _{RWM} (V)	I _R @V _{RWM} (μA)	V _C @ I _{PP} (V)	I _{PP max} (A)
		Uni	Bi	Min (V)	Max (V)	I _T (mA)				
GSESMF4L5.0AF	-	KE	-	6.40	7.00	10	5.0	800	9.2	40.1
GSESMF4L6.0AF	-	KG	-	6.67	7.37	10	6.0	800	10.3	35.9
GSESMF4L6.5AF	-	KK	-	7.22	7.98	10	6.5	500	11.2	33.1
GSESMF4L7.0AF	-	KM	-	7.78	8.60	10	7.0	200	12.0	30.9
GSESMF4L7.5AF	-	KP	-	8.33	9.21	1.0	7.5	100	12.9	28.7
GSESMF4L8.0AF	-	KR	-	8.89	9.83	1.0	8.0	50	13.6	27.2
GSESMF4L8.5AF	-	KT	-	9.44	10.40	1.0	8.5	20	14.4	25.7
GSESMF4L9.0AF	GSESMF4L9.0CAF	KV	AV	10.0	11.10	1.0	9.0	5	15.4	26.4
GSESMF4L10AF	GSESMF4L10CAF	KX	AX	11.1	12.3	1.0	10	5	17.0	23.5
GSESMF4L11AF	GSESMF4L11CAF	KZ	AZ	12.2	13.5	1.0	11	1	18.2	22.0
GSESMF4L12AF	GSESMF4L12CAF	LE	BE	13.3	14.7	1.0	12	1	19.9	20.1
GSESMF4L13AF	GSESMF4L13CAF	LG	BG	14.4	15.9	1.0	13	1	21.5	18.6
GSESMF4L14AF	GSESMF4L14CAF	LK	BK	15.6	17.2	1.0	14	1	23.3	17.2
GSESMF4L15AF	GSESMF4L15CAF	LM	BM	16.7	18.5	1.0	15	1	24.4	16.4
GSESMF4L16AF	GSESMF4L16CAF	LP	BP	17.8	19.7	1.0	16	1	26.0	15.4
GSESMF4L17AF	GSESMF4L17CAF	LR	BR	18.9	20.9	1.0	17	1	27.6	14.5
GSESMF4L18AF	GSESMF4L18CAF	LT	BT	20.0	22.1	1.0	18	1	29.2	13.7
GSESMF4L20AF	GSESMF4L20CAF	LV	BV	22.2	24.5	1.0	20	1	32.4	12.3
GSESMF4L22AF	GSESMF4L22CAF	LX	BX	24.4	26.9	1.0	22	1	35.5	11.3
GSESMF4L24AF	GSESMF4L24CAF	LZ	BZ	26.7	29.5	1.0	24	1	38.9	10.3

Part Number (Uni-Directional)	Part Number (Bi-Directional)	MARKING CODE		Breakdown Voltage $V_{BR}@I_T$			V_{RWM} (V)	$I_R@V_{RWM}$ (μA)	$V_C@I_{PP}$ (V)	$I_{PP\ max}$ (A)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
GSESMF4L26AF	GSESMF4L26CAF	ME	CE	28.9	31.9	1.0	26	1	42.1	9.5
GSESMF4L28AF	GSESMF4L28CAF	MG	CG	31.1	34.4	1.0	28	1	45.4	8.8
GSESMF4L30AF	GSESMF4L30CAF	MK	CK	33.3	36.8	1.0	30	1	48.4	8.3
GSESMF4L33AF	GSESMF4L33CAF	MM	CM	36.7	40.6	1.0	33	1	53.3	7.5
GSESMF4L36AF	GSESMF4L36CAF	MP	CP	40.0	44.2	1.0	36	1	58.1	6.9
GSESMF4L40AF	GSESMF4L40CAF	MR	CR	44.4	49.1	1.0	40	1	64.5	6.2
GSESMF4L43AF	GSESMF4L43CAF	MT	CT	47.8	52.8	1.0	43	1	69.4	5.8
GSESMF4L45AF	GSESMF4L45CAF	MV	CV	50.0	55.3	1.0	45	1	72.7	5.5
GSESMF4L48AF	GSESMF4L48CAF	MX	CX	53.3	58.9	1.0	48	1	77.4	5.2
GSESMF4L51AF	GSESMF4L51CAF	MZ	CZ	56.7	62.7	1.0	51	1	82.4	4.9
GSESMF4L54AF	-	NE	-	60.0	66.3	1.0	54	1	87.1	4.6
GSESMF4L58AF	-	NG	-	64.4	71.2	1.0	58	1	93.6	4.3
GSESMF4L60AF	-	NK	-	66.7	73.7	1.0	60	1	96.8	4.1
GSESMF4L64AF	-	NM	-	71.1	78.6	1.0	64	1	103	3.9
GSESMF4L70AF	-	NP	-	77.8	86.0	1.0	70	1	113	3.5
GSESMF4L75AF	-	NR	-	83.3	92.1	1.0	75	1	121	3.3
GSESMF4L78AF	-	NT	-	86.7	95.8	1.0	78	1	126	3.2
GSESMF4L85AF	-	NV	-	94.4	104	1.0	85	1	137	2.9
GSESMF4L90AF	-	NX	-	100	111	1.0	90	1	146	1.4
GSESMF4L100AF	-	NZ	-	111	123	1.0	100	1	162	1.2
GSESMF4L110AF	-	OE	-	122	135	1.0	110	1	177	1.1
GSESMF4L120AF	-	OG	-	133	147	1.0	120	1	193	1.0
GSESMF4L130AF	-	OK	-	144	159	1.0	130	1	209	1.0
GSESMF4L150AF	-	OM	-	167	185	1.0	150	1	243	0.8
GSESMF4L160AF	-	OP	-	178	197	1.0	160	1	259	0.8
GSESMF4L170AF	-	OR	-	189	209	1.0	170	1	275	0.7
GSESMF4L180AF	-	OT	-	200	220	1.0	180	1	292	0.7
GSESMF4L188AF	-	OV	-	211	232	1.0	190	1	308	0.7
GSESMF4L200AF	-	OX	-	224	247	1.0	200	1	324	0.6
GSESMF4L220AF	-	OZ	-	246	272	1.0	220	1	356	0.6
GSESMF4L250AF	-	PE	-	279	309	1.0	250	1	405	0.5

Note :

4. Suffix 'A' denotes V_{BR} 5% tolerance device.

Typical Characteristics (T_A=25°C Unless Otherwise Specified)

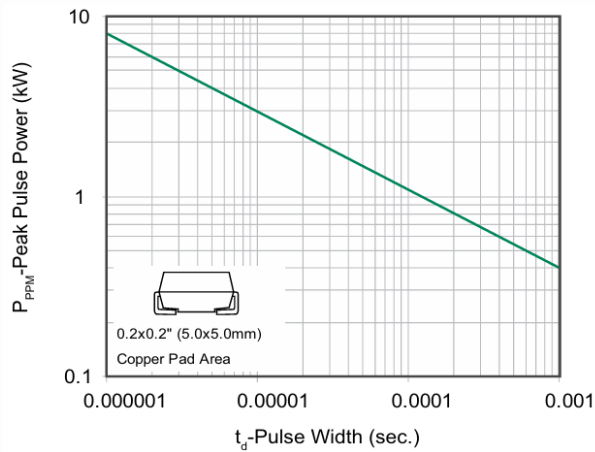


Figure 1. Peak Pulse Power Rating Curve

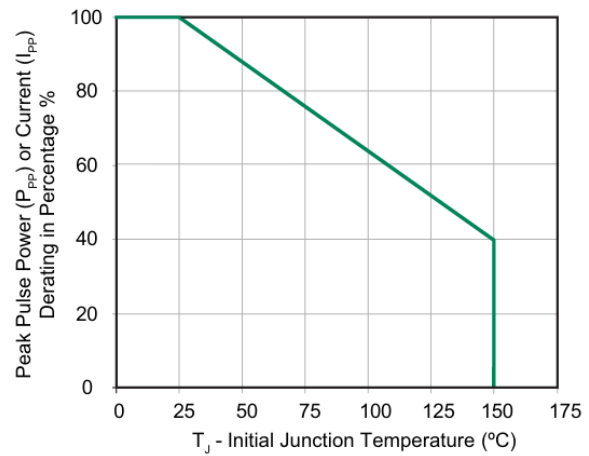


Figure 2. Pulse Derating Curve

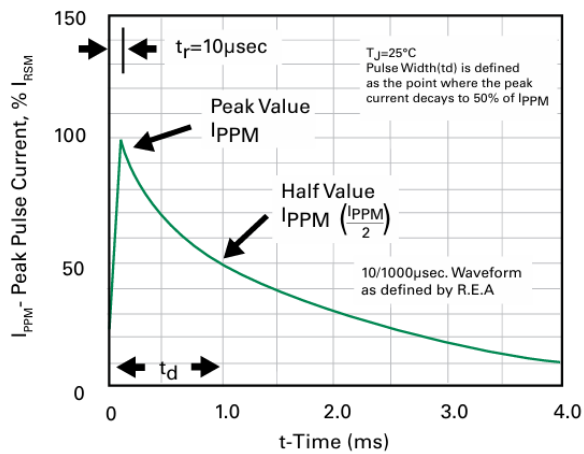


Figure 3. Pulse Waveform

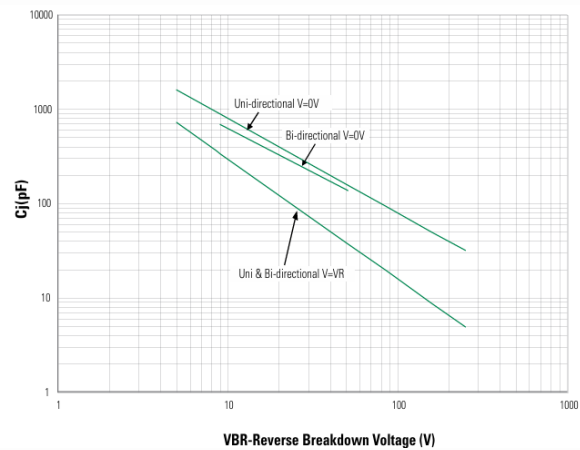


Figure 4. Typical Junction Capacitance

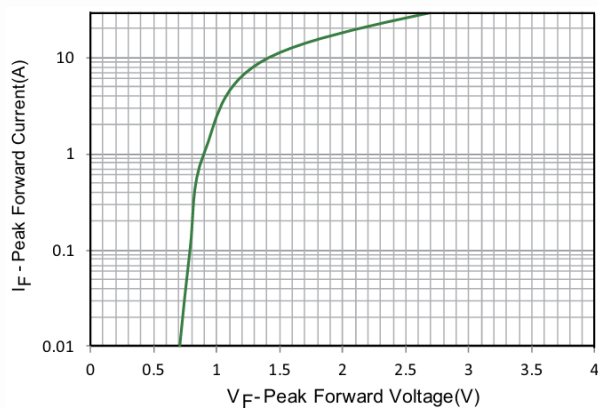


Figure 5. Peak Forward Voltage Drop vs. Peak Forward Current

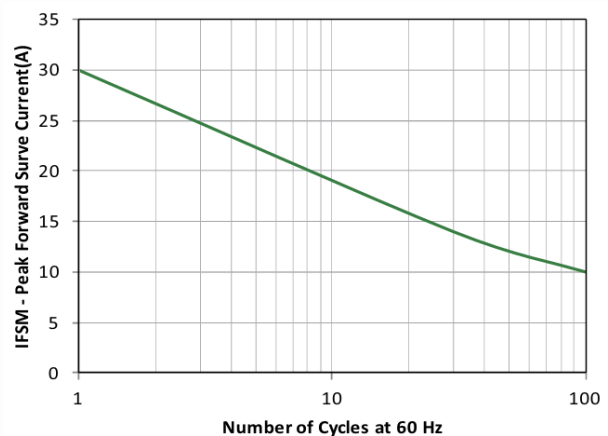
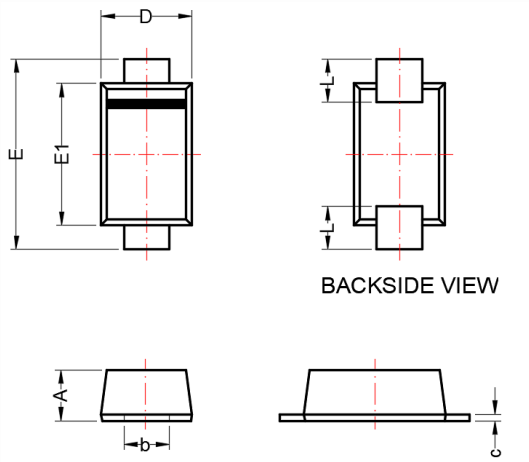


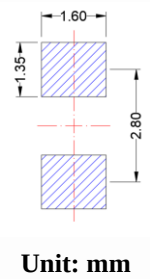
Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

SOD-123FL

Package Dimension



Recommended Land Pattern



Dimensions				
SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.80	1.10	0.031	0.043
b	0.50	1.20	0.020	0.047
D	1.50	1.90	0.059	0.075
E	3.30	3.80	0.130	0.150
E1	2.45	2.75	0.096	0.108
c	0.05	0.20		0.008
L	0.70	0.90	0.028	0.035

NOTE:
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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