

## Features

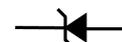
- Glass passivated junction
- Excellent clamping capability and fast response time
- 400W peak pulse power capability with a 10/1000us waveform
- Moisture sensitivity: level 1, per J-STD-020
- Solder dip 260°C, 10s
- Low profile, typical thickness 1.0mm
- Molding compound meets UL 94 V-0 flammability rating
- Terminals: Tin plated leads, solderable per STD-002 and JESD22-B102
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types



SOD-123FL



RoHS  
COMPLIANT



Uni-directional



Bi-directional

## Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

## Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Power Dissipation with a 10/1000us Waveform <sup>1,2</sup>	P <sub>PPM</sub>	400	W
Peak Pulse Current with a 10/1000us Waveform <sup>1</sup>	I <sub>PPM</sub>	See Next Table	A
Power Dissipation on Infinite Heatsink, T <sub>L</sub> =75°C	P <sub>D</sub>	0.8	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave, Unidirectional Only <sup>3</sup>	I <sub>FSM</sub>	30	A
Operating Junction Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C
Thermal Resistance, Between Junction and Lead	R <sub>θJL</sub>	26	°C/W
Thermal Resistance, Between Junction and Ambient	R <sub>θJA</sub>	300	
Thermal Resistance, Between Junction and Curve	R <sub>θJC</sub>	40	

Note:

1. Non-repetitive current pulse at T<sub>A</sub>=25°C, per waveform of Figure 2.
2. T<sub>L</sub>=30°C unless otherwise noted, V<sub>F</sub> ≤ 1.25V @ 200mA.
3. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

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

Part Number		Marking		Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub>			Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>2</sup> (A)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub> (V)
Uni	Bi	Uni	Bi	Min (V)	Max (V)	I <sub>T</sub> <sup>1</sup> (mA)				
GSM4F5.0A	GSM4F5.0CA	F5.0A	F5.0CA	6.40	7.07	10	800	5.0	43.38	9.20
GSM4F6.0A	GSM4F6.0CA	F6.0A	F6.0CA	6.67	7.37	10	800	6.0	38.83	10.30
GSM4F6.5A	GSM4F6.5CA	F6.5A	F6.5CA	7.22	7.98	10	500	6.5	35.71	11.20
GSM4F7.0A	GSM4F7.0CA	F7.0A	F7.0CA	7.78	8.60	10	200	7.0	33.33	12.00
GSM4F7.5A	GSM4F7.5CA	F7.5A	F7.5CA	8.33	9.21	1	100	7.5	31.01	12.90
GSM4F8.0A	GSM4F8.0CA	F8.0A	F8.0CA	8.89	9.83	1	50	8.0	29.41	13.60
GSM4F8.5A	GSM4F8.5CA	F8.5A	F8.5CA	9.44	10.40	1	10	8.5	27.78	14.40
GSM4F9.0A	GSM4F9.0CA	F9.0A	F9.0CA	10.00	11.10	1	5.0	9.0	25.97	15.40
GSM4F10A	GSM4F10CA	F10A	F10CA	11.10	12.30	1	2.5	10.0	23.52	17.00
GSM4F11A	GSM4F11CA	F11A	F11CA	12.20	13.50	1	2.5	11.0	21.98	18.20
GSM4F12A	GSM4F12CA	F12A	F12CA	13.30	14.70	1	2.5	12.0	20.10	19.90
GSM4F13A	GSM4F13CA	F13A	F13CA	14.40	15.90	1	1.0	13.0	18.60	20.00
GSM4F14A	GSM4F14CA	F14A	F14CA	15.60	17.20	1	1.0	14.0	17.24	23.20
GSM4F15A	GSM4F15CA	F15A	F15CA	16.70	18.50	1	1.0	15.0	16.40	24.40
GSM4F16A	GSM4F16CA	F16A	F16CA	17.80	19.70	1	1.0	16.0	15.38	26.00
GSM4F17A	GSM4F17CA	F17A	F17CA	18.90	20.90	1	1.0	17.0	14.50	27.60
GSM4F18A	GSM4F18CA	F18A	F18CA	20.00	22.10	1	1.0	18.0	13.70	29.20
GSM4F19A	GSM4F19CA	F19A	F19CA	21.10	23.30	1	1.0	19.0	13.08	30.60
GSM4F20A	GSM4F20CA	F20A	F20CA	22.20	24.50	1	1.0	20.0	12.34	32.40
GSM4F22A	GSM4F22CA	F22A	F22CA	24.40	26.90	1	1.0	22.0	11.26	35.50
GSM4F24A	GSM4F24CA	F24A	F24CA	26.70	29.50	1	1.0	24.0	10.28	38.90
GSM4F26A	GSM4F26CA	F26A	F26CA	28.90	31.90	1	1.0	26.0	9.50	42.10
GSM4F28A	GSM4F28CA	F28A	F28CA	31.10	34.40	1	1.0	28.0	8.82	45.40
GSM4F30A	GSM4F30CA	F30A	F30CA	33.30	36.80	1	1.0	30.0	8.26	48.40
GSM4F33A	GSM4F33CA	F33A	F33CA	36.70	40.60	1	1.0	33.0	7.50	53.30
GSM4F36A	GSM4F36CA	F36A	F36CA	40.00	44.20	1	1.0	36.0	6.88	58.10
GSM4F40A	GSM4F40CA	F40A	F40CA	44.40	49.10	1	1.0	40.0	6.20	64.50
GSM4F43A	GSM4F43CA	F43A	F43CA	47.80	52.80	1	1.0	43.0	5.76	69.40
GSM4F45A	GSM4F45CA	F45A	F45CA	50.00	55.30	1	1.0	45.0	5.50	72.70
GSM4F48A	-	F48A	-	53.30	58.90	1	1.0	48.0	5.16	77.40
GSM4F51A	-	F51A	-	56.70	62.70	1	1.0	51.0	4.86	82.40
GSM4F54A	-	F54A	-	60.00	66.30	1	1.0	54.0	4.60	87.10
GSM4F58A	-	F58A	-	64.40	71.20	1	1.0	58.0	4.28	93.60
GSM4F60A	-	F60A	-	66.70	73.70	1	1.0	60.0	4.14	96.80
GSM4F64A	-	F64A	-	71.10	78.60	1	1.0	64.0	3.88	103.00

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

Part Number		Marking		Breakdown Voltage V <sub>BR@I<sub>T</sub></sub>			Maximum Reverse Leakage I <sub>R</sub> @ V <sub>RWM</sub> (μA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> <sup>2</sup> (A)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub> (V)
Uni	Bi	Uni	Bi	Min (V)	Max (V)	I <sub>T</sub> <sup>1</sup> (mA)				
GSM4F70A	-	F70A	-	77.80	86.00	1	1.0	70.0	3.54	113.00
GSM4F75A	-	F75A	-	83.30	92.10	1	1.0	75.0	3.30	121.00
GSM4F78A	-	F78A	-	86.70	95.80	1	1.0	78.0	3.18	126.00
GSM4F80A	-	F80A	-	88.80	97.60	1	1.0	80.0	3.10	129.00
GSM4F85A	-	F85A	-	94.40	104.00	1	1.0	85.0	2.92	137.00
GSM4F90A	-	F90A	-	100.00	111.00	1	1.0	90.0	2.74	146.00
GSM4F100A	-	F100A	-	111.00	123.00	1	1.0	100.0	2.46	162.00

Note:

1. t<sub>p</sub> ≤ 50ms, pulse test: t<sub>p</sub> ≤ 50ms.
2. Surge current waveform per Fig. 2 and derated per Fig.3.

## Ratings and Characteristics Curves

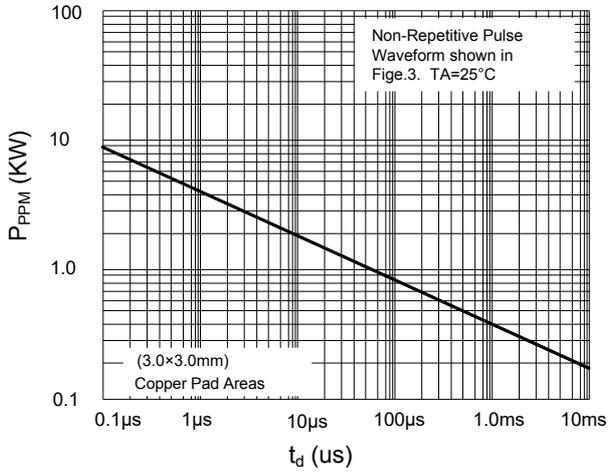


Figure 1. Peak Pulse Power Rating Curve

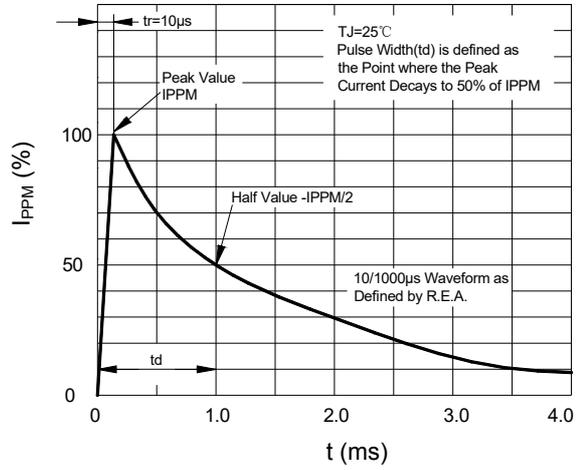


Figure 2. Pulse Waveform

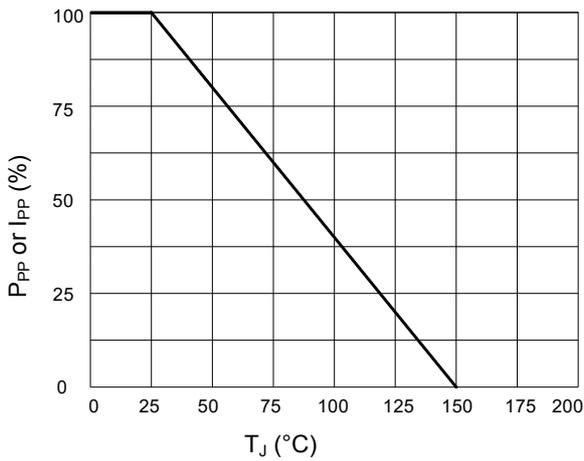


Figure 3. Peak Pulse or Current vs. Initial Junction Temperature

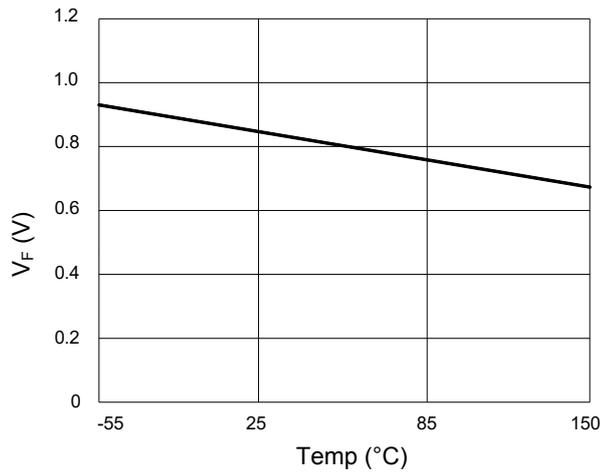


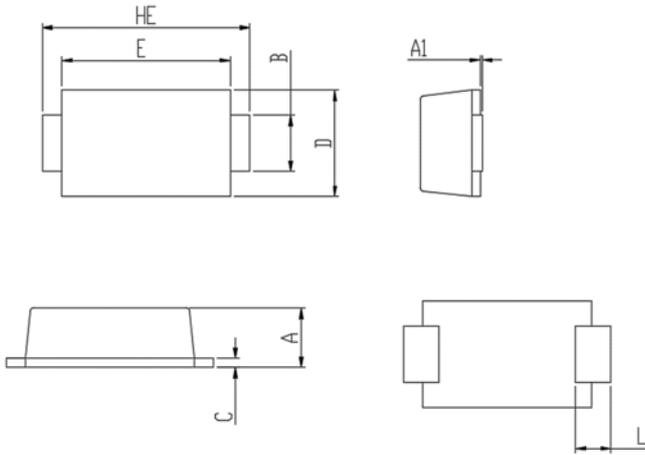
Figure 4. Forward Voltage Curve

# GSM4FxA Series

Surface Mount Transient Voltage Suppressors

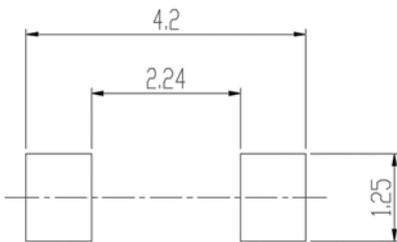
Peak Pulse Power 400W Peak Reverse Voltage 5.0V to 100V

## Package Outline Dimensions (SOD-123FL)



SOD-123FL				
DIM	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.10	1.25	0.043	0.049
A1	0.00	0.10	0.000	0.004
B	0.85	1.05	0.033	0.041
C	0.10	0.25	0.004	0.010
D	1.70	2.00	0.067	0.079
E	2.90	3.10	0.114	0.122
L	0.43	0.83	0.017	0.033
HE	3.50	3.90	0.138	0.154

## Recommended Pad Layout



Unit: mm