

Features

- 400W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C

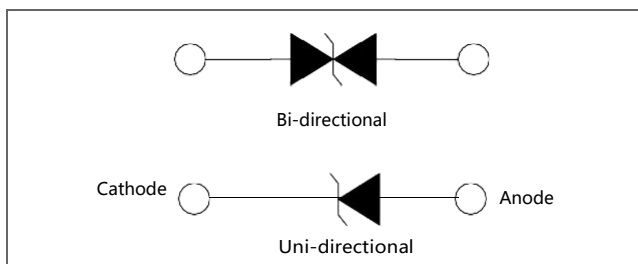
RoHS



Applications


TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Function Diagram



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


Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at $T_A=25^{\circ}\text{C}$ by 10/1000 μ s Waveform (Fig.3)	P_{PPM}	400	W
Power Dissipation on Infinite Heat Sink at $T_L=50^{\circ}\text{C}$	P_D	1	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I_{FSM}	30	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V_F	3.5	V
Operating Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}\text{C}$

AGENCY	AGENCY FILE NUMBER
	Pending

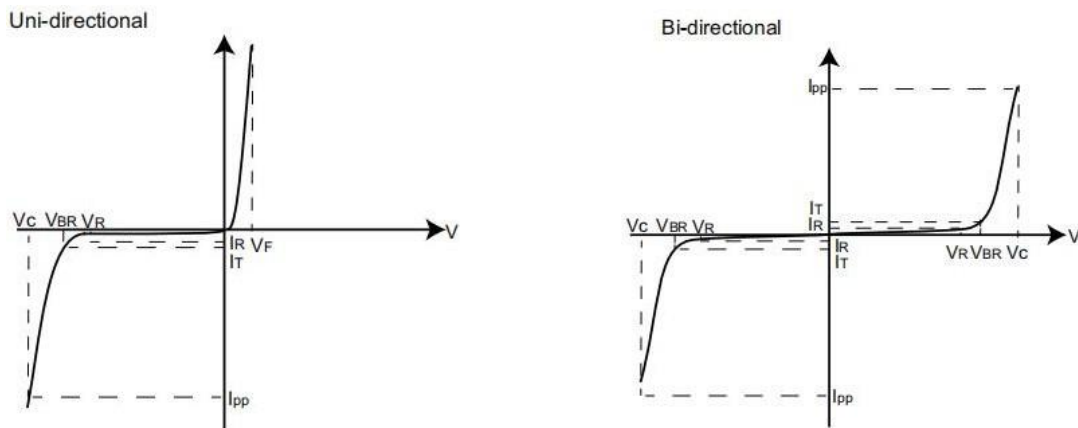
Notes:

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

Characteristics (T = 25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Key Marking		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{pp} (V)	Maximum Peak Pulse Current I_p (A)	Maximum Reverse Leakage I_R @ V_R (μ A)	Agency Approval 
		UNI	BI		MIN	MAX					
HSMF4L5.5A	HSMF4L5.5CA	5F	5F	5.5	6.67	7.37	10	10.3	35.9	400	

I-V Curve Characteristics



- P_{PPM} Peak Pulse Power Dissipation -- Max power dissipation
- V_R Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation
- V_{BR} Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I_T)
- V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{ppM} (peak impulse current)
- I_R Reverse Leakage Current -- Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional



Ratings and Characteristic Curves (T = 25°C unless otherwise noted)

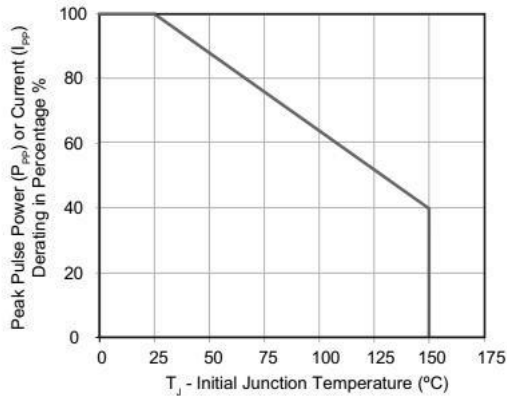


Figure 1. Peak pulse power derating curve

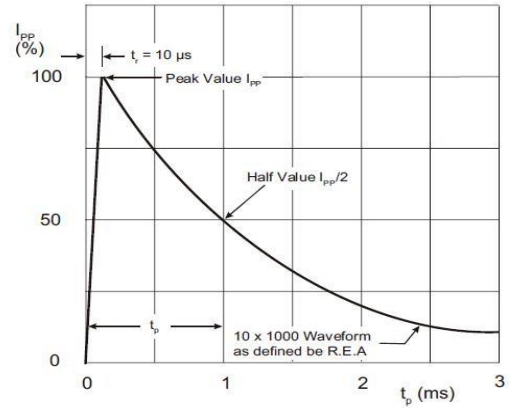


Figure2. Pulse waveform

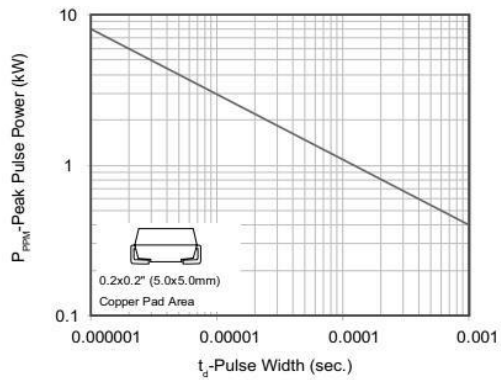


Figure3. Peak pulse power rating curve

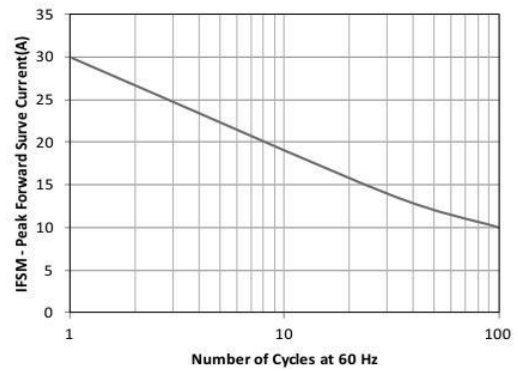
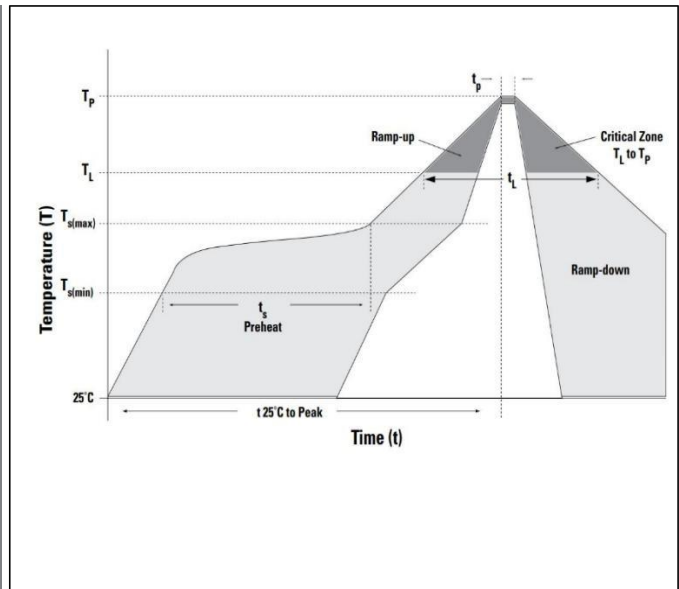


Figure4. Maximum non-repetitive surge current

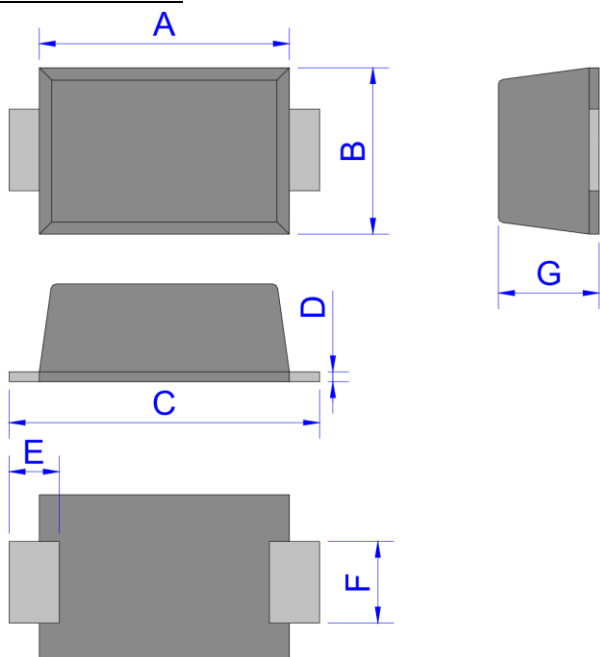
Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_A) to peak)		3°C/second max
$T_{s(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_A) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C

Soldering profile

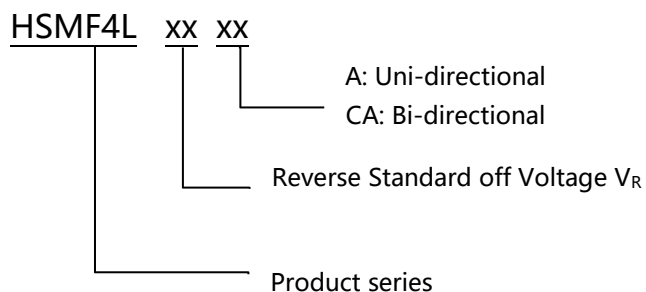


Dimensions

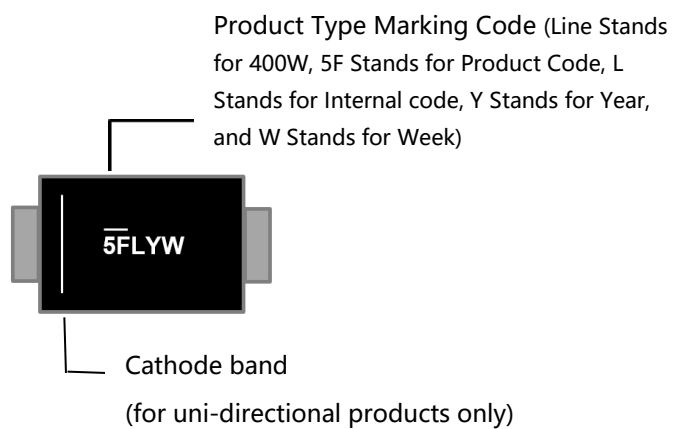


Ref	Millimeters	
	Min.	Max.
A	2.55	3.05
B	1.60	2.00
C	3.35	4.05
D	0.10	0.25
E	0.25	1.00
F	0.70	1.10
G	0.90	1.35

Part Numbering



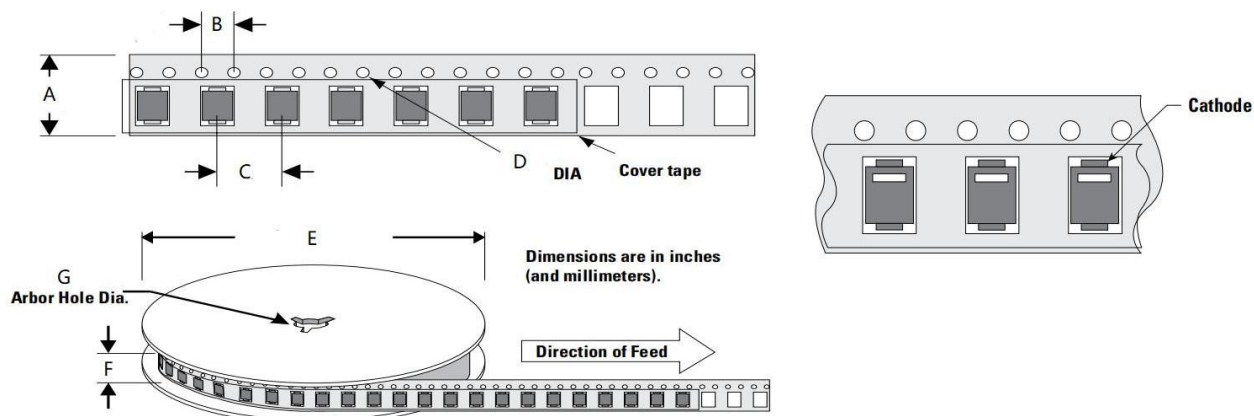
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
HSMF4LXXXX	SOD123FL	3000	Tape & Reel

Tape and Reel Specification



Symbol	Millimeter
A	8.00±0.10
B	4.00±0.10
C	4.00±0.10
D	1.55±0.05
E	177.80±2.00
F	11.50±1.00
G	13.30±0.30

Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	6-Mar-2025