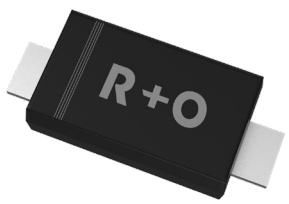
Thyristor Surge Suppressors (TSS) Data Sheet

Description

TSS-SMF（SOD-123FL） Series are low capacitance devices designed to protect broadband equipment such as VOIP, DSL modems and DSLAMs from damaging overvoltage transients.

SOD-123FL

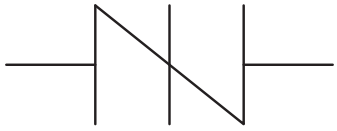


Features

- For surface mounted applications in order to optimize board space
- Low Capacitance
- Excellent capability of absorbing transient surge
- Quick response to surge voltage
- Eliminates overvoltage caused by fast rising transients
- Non degenerative
- Moisture sensitivity level: Level 1

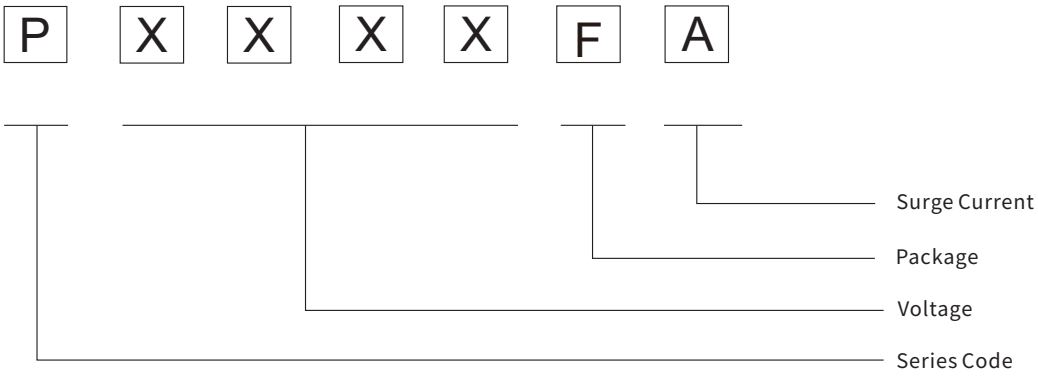
Applications

- T1/E1 Trunk & Line Card
- RS-485/RS-232/RS-422
- Audio/Video line,Network and telecom
- Data lines and security systems



TSS

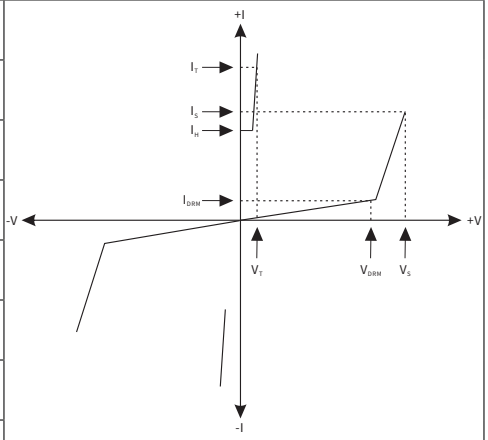
Part Numbering



Thermal Considerations

Symbol	Parameter	Value	Unit
V_{PP}	Peak Pulse Voltage(@10/700μs)	2000	V
T_J	Operating Junction Temperature	-40 to +150	°C
T_S	Storage Temperature Range	-40 to +150	°C
$R_{\theta JA}$	Junction to Ambient on printed circuit	90	°C /W

Electrical Parameters

Symbol	Parameter	Unit
V_{DRM} (Off-state Voltage)	Maximum voltage that can be applied while maintaining off state	
V_S (Switching Voltage)	Maximum voltage prior to switching to on state	
V_T (On-state Voltage)	Maximum voltage measured at rated on-state current	
I_{DRM} (Leakage Current)	Maximum peak off-state current measured at VDRM	
I_S (Switching Current)	Maximum current required to switch to on state	
I_T (On-state Current)	Maximum rated continuous on-state current	
I_H (Holding Current)	Typical current required to maintain on state	
C_O (Off-state Capacitance)	Typical capacitance measured in off state	

Electrical Characteristics (Ta=25°C Unless otherwise specified)

Part Number	Marking	V_{DRM}	V_S	V_T	I_{DRM}	I_S	I_T	I_H	C_O
		(V)	(V)	(V)	(μA)	(mA)	(A)	(mA)	(pF)
P0300FA	P03A	25	40	4	5	800	2.2	20	60

Notes :
(1)Vs is measured at 100KV/S ;
(2)Off-state capacitance(CO) is measured at 1 MHz with a 2V bias and is typical value

Surge Ratings

Part Number	I_{PP} 8×20μs (A)	I_{PP} 10×1000μs (A)	V_{PP} 10×700μs (V)
P0300FA	150	40	2000

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

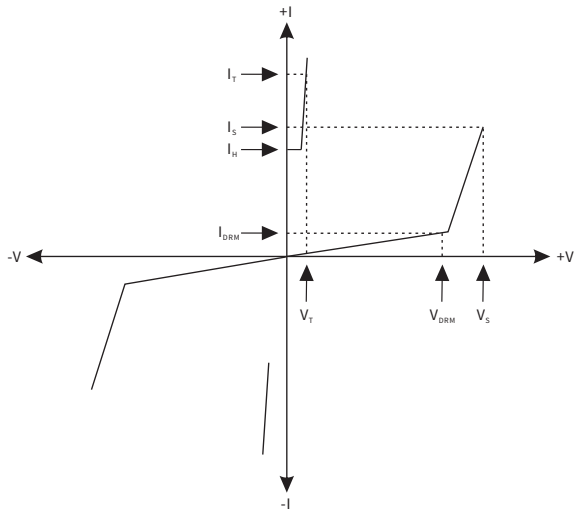


Fig. 1 I-V Characteristics

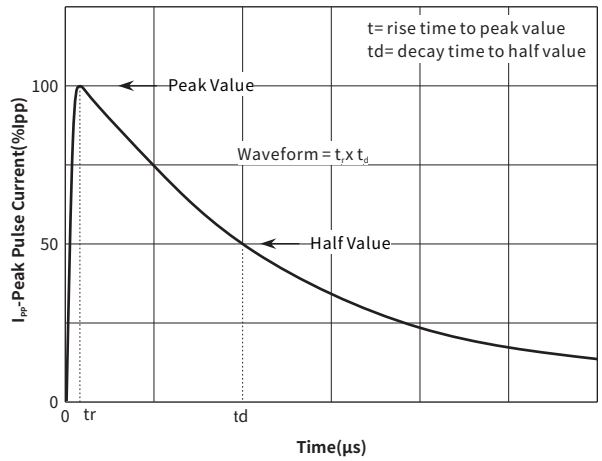


Fig.2 tr×td Pulse Waveform

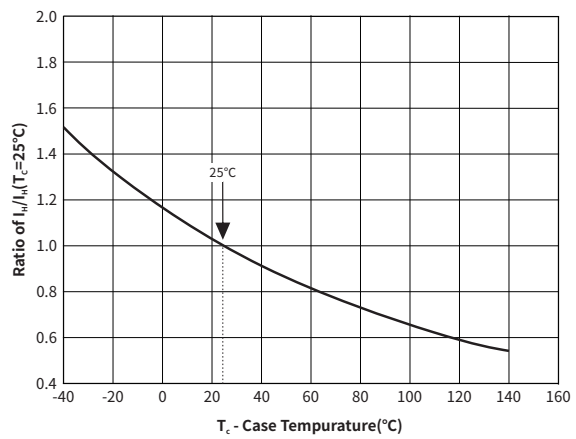


Fig.3 Tj-Junction Temperature(°C)

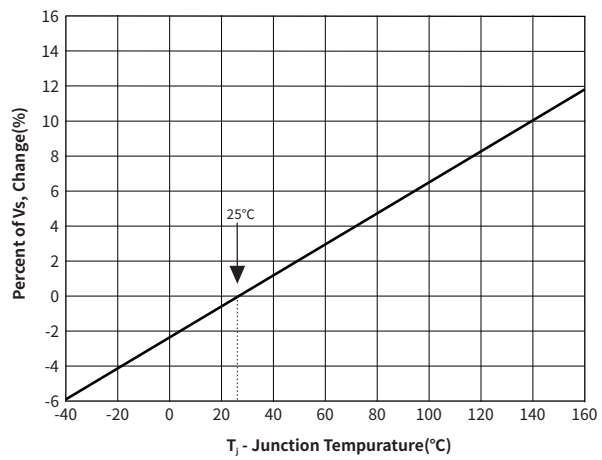
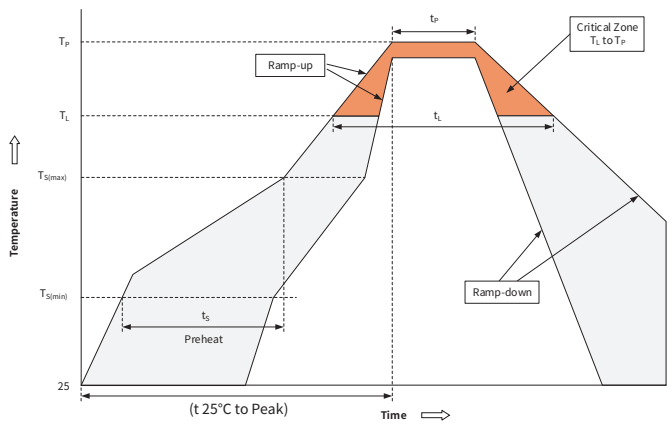


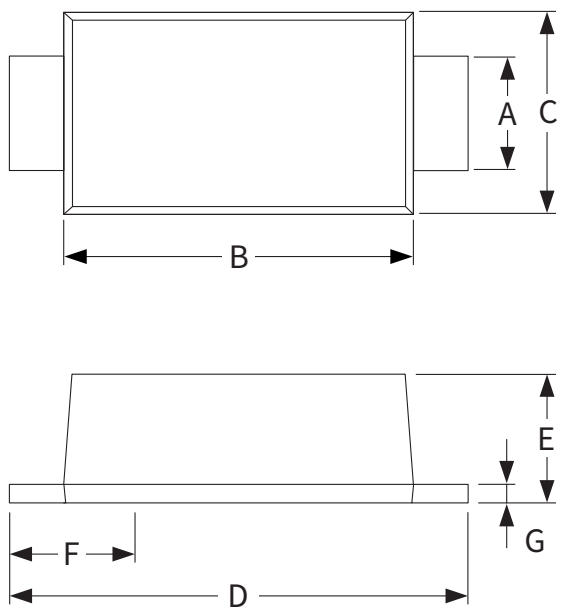
Fig.4 Normalized DC Holding Current vs. Case Temperature

Soldering Parameters



Profile Feature		Pb-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 (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (SMF/SOD-123FL)

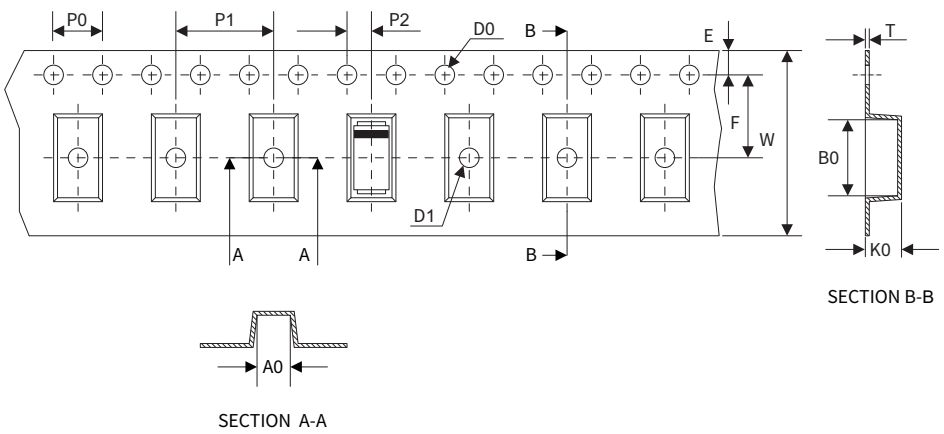


Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.430
B	2.55	2.85	0.100	0.111
C	1.60	1.90	0.063	0.074
D	3.60	3.90	0.031	0.043
E	1.00	1.20	0.031	0.035
F	0.40	0.90	0.047	0.055
G	0.10	0.25	0.003	0.007

Ordering Information

PACKAGE	DELIVERY MODE	REEL(pcs)
SOD-123FL	7''	3000

Packaging (SMF/SOD-123FL)



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	Φ1.5±0.10
D1	Φ1.0±0.05
E	1.75±0.10
F	3.50±0.05
A0	2.00±0.10
B0	3.95±0.10
K0	1.4±0.12
T	0.23±0.10