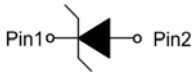
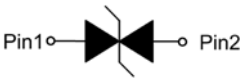
1-Line , Transient Voltage Suppressor For ESD Protection

Uni-directional



Bi-directional



SOD-123FL

Features

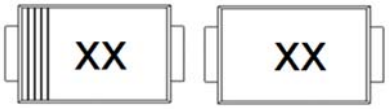
- Ultra small package
  - Stand-off voltage: 5V ~36V
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 80A (5/50ns)
  IEC61000-4-5(surge) :
  8/20μs waveform: I_{PPM} see Table 4
- Low clamping voltage
- RoHS Compliant

Applications

- Power supply protection
- Power management
- Battery Contacts

Mechanical Characteristics

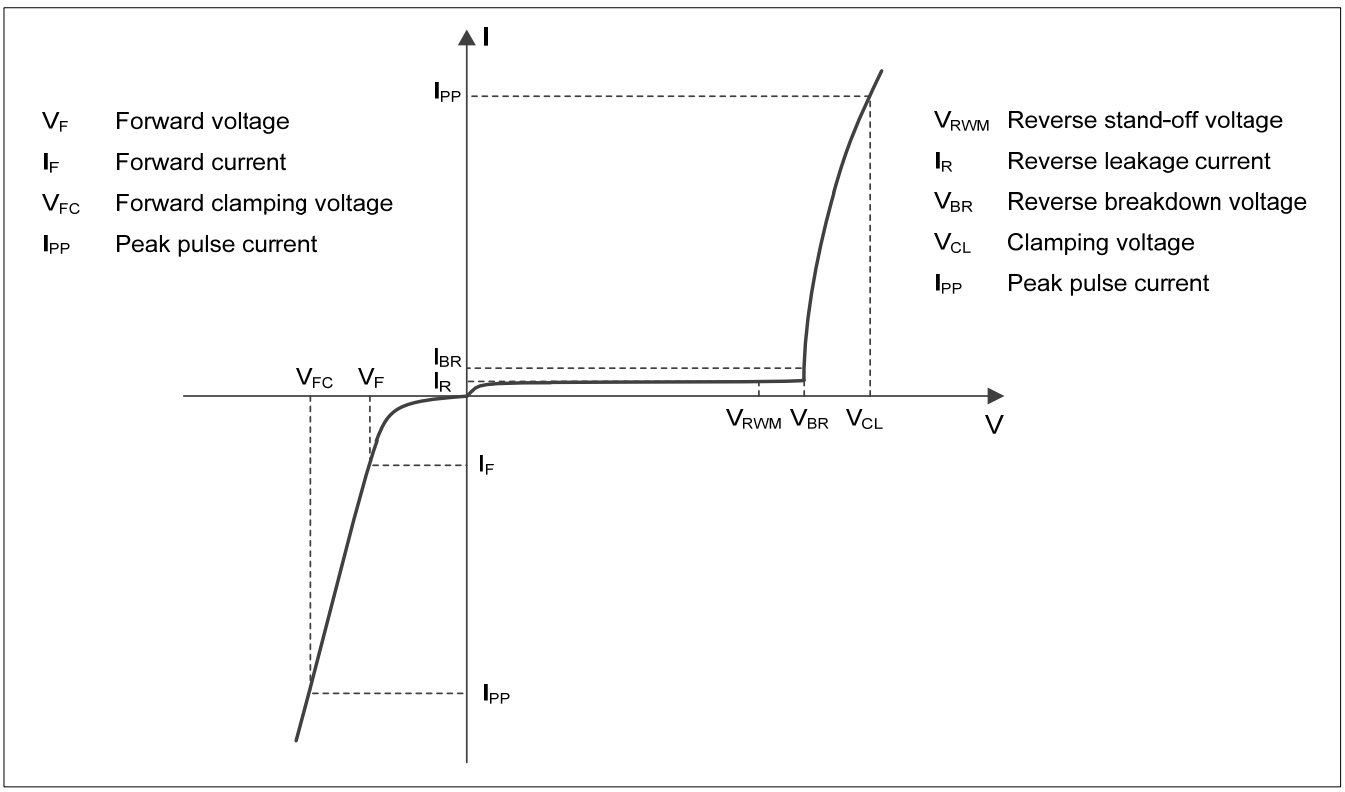
- Package: SDO-123FL
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



XX：Marking Cdoe

For uni-directional types the band denotes cathode end, no marking on bi-directional types

■Definitions of electrical characteristics



■Absolute Maximum Ratings (Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	1300	W
ESD IEC61000-4-2(ESD)Air	V_{ESD}	±30	KV
ESD IEC61000-4-2(ESD)Contact		±30	KV
Operating Temperature Range	T_J	-55~150	℃
Storage Temperature Range	T_{STG}	-55~150	℃

■Electrical Characteristics（Ta=25℃ Unless otherwise specified）

Uni-directional

Part Number	Marking Code	Reverse Working Voltage V_{RWM}(V)	Breakdown Voltage V_{BR}(V)@I_T=1mA		Reverse Leakage Current I_R(μA)@V_{RWM}	Forward Voltage V_F(V)@I_F=1mA		Junction Capacitance Cj(pF)@ VR=0V,f=1MHz	
		Max	Min	Max	Max	Min	Max	Typ	Max
ESD5V0F1	05	5	6.4	7.1	1	0.45	1.5	1600	2000
ESD7V0F1	07	7	7.7	8.7	1	0.45	1.5	900	1200
ESD12VF1	12	12	13.2	15	1	0.45	1.5	600	900
ESD15VF1	15	15	16.5	19	1	0.45	1.5	450	700
ESD18VF1	18	18	20.0	23	1	0.45	1.5	400	600
ESD24VF1	24	24	26.7	30	1	0.45	1.5	270	400
ESD36VF1	36	36	40	45	1	0.45	1.5	200	300

Bi-directional

Part Number	Marking Code	Reverse Working Voltage V_{RWM}(V)	Breakdown Voltage V_{BR}(V)@I_T=1mA		Reverse Leakage Current I_R(μA)@V_{RWM}	Junction Capacitance Cj(pF)@ VR=0V,f=1MHz	
		Max	Min	Max	Max	Typ	Max
ESD5V0F1B	5B	5	6.4	7.1	1	850	1200
ESD7V0F1B	7B	7	7.7	8.7	1	700	900
ESD12VF1B	12B	12	13.2	15	1	400	600
ESD15VF1B	15B	15	16.5	19	1	250	400
ESD18VF1B	18B	18	20.0	23	1	170	250
ESD24VF1B	24B	24	26.7	30	1	160	240
ESD36VF1B	36B	36	40	45	1	100	160

Part Number		Rated peak pulse current IPP （A） 1)	Clamping voltage VCL(V) @ IPP（A） 1)	
Uni	Bi	Max	Typ	Max
ESD5V0F1	ESD5V0F1B	105	-	12
ESD7V0F1	ESD7V0F1B	85	-	16
ESD12VF1	ESD12VF1B	50	-	26
ESD15VF1	ESD15VF1B	40	-	32
ESD18VF1	ESD18VF1B	35	-	38
ESD24VF1	ESD24VF1B	25	-	51
ESD36VF1	ESD36VF1B	17	-	75

Notes:

(1). Non-repetitive current pulse, according to IEC61000-4-5. (8/20μs current waveform).

■Typical Performance Characteristics (T_a=25℃ unless otherwise Specified)

Fig.1 8/20μs waveform per IEC61000-4-5

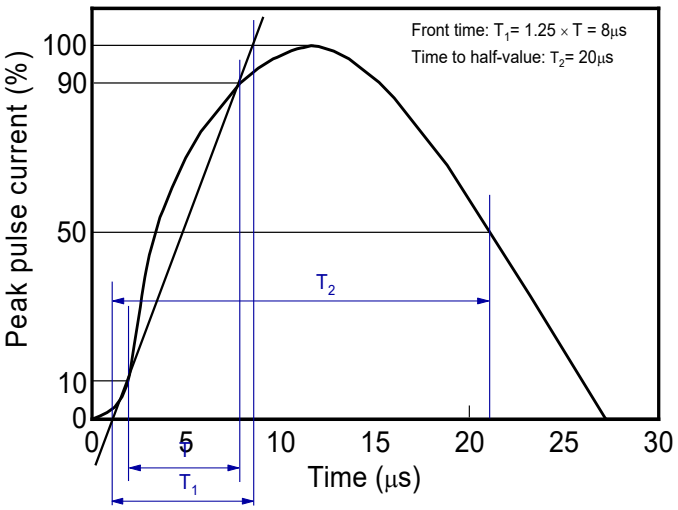


Fig.2 Contact discharge current waveform per IEC61000-4-2

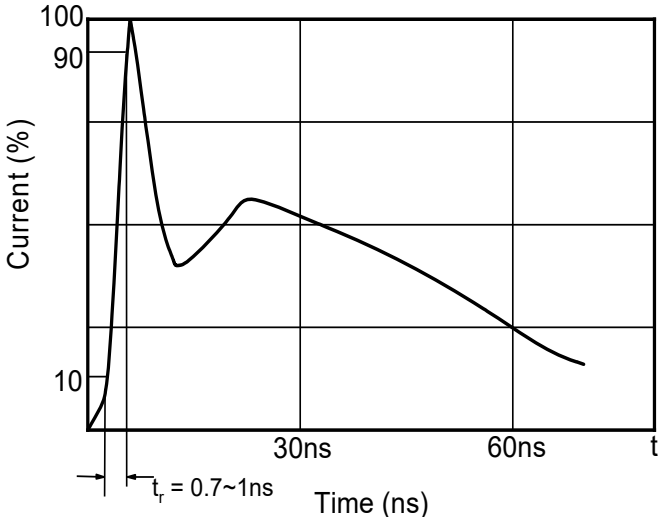


Fig.3 Non-repetitive peak pulse power vs. Pulse time

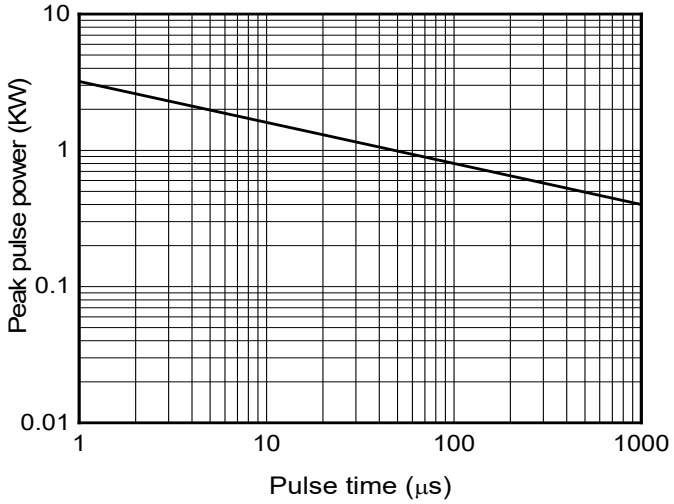
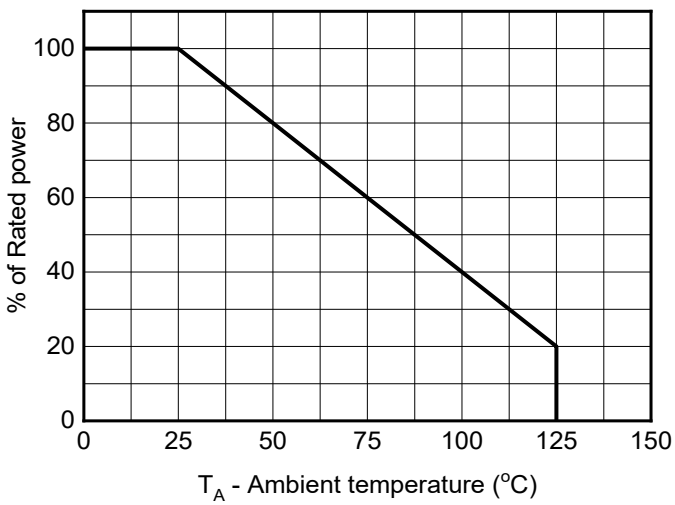
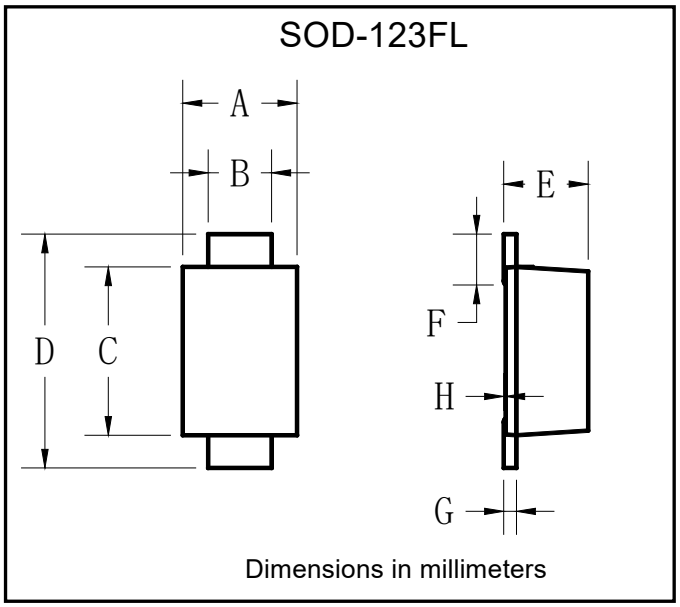


Fig.4 Power derating vs. Ambient temperature

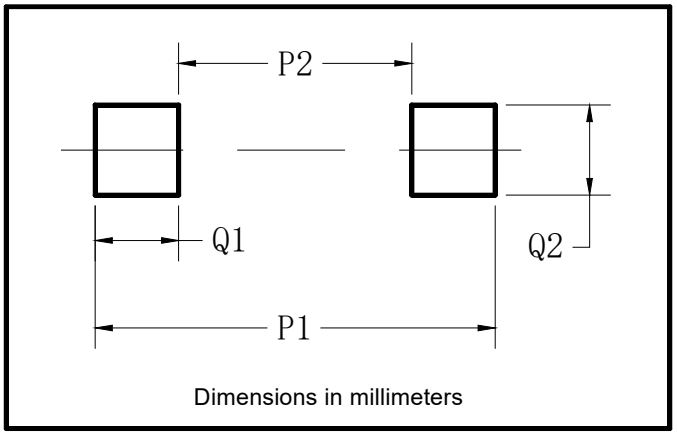


■Outline Dimensions



SOD-123FL		
Dim	Min	Max
A	1.60	1.90
B	0.90	1.10
C	2.55	2.85
D	3.60	3.90
E	1.00	1.20
F	0.40	0.90
G	0.10	0.25
H	0.02	0.05

■Recommend land pattern (Unit:mm)



SOD-123FL	
Dim	Millimeters
P1	3.90
P2	1.90
Q1	1.00
Q2	1.50

Notes:
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

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