FEATURES

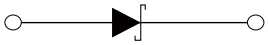
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- High forward surge capability
- Meet AEC-Q101 Requirements



SOD-123FL



Marking



Schematic Symbol

APPLICATIONS

- For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbol	Value	Unit
Reverse voltage T_j =25°C	V_R	60	V
Average Forward Current δ = 0.5; f = 20 kHz; square wave; Tamb ⩽ 75 °C[1]	$I_{F(AV)}$	2	A
Average Forward Current δ = 0.5; f = 20 kHz; square wave; Tsp ⩽ 135 °C		2	A
Non-repetitive Peak Forward Current tp = 8.3ms; Half Sine Wave; Tj(Init) = 25 °C	I_{FSM}	50	A
Total Power Dissipation Tamb ⩽ 25 °C	P_{tot}	0.57[2]	W
		0.95[3]	W
		1.8[1]	W
Junction Temperature	T_J	-55 ~ +150	°C
Ambient Temperature	T_{amb}	-55 ~ +150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

[1] Device mounted on a ceramic PCB, Al_2O_3, standard footprint.
[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm^2

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Thermal Resistance From Junction To Ambient In Free Air	$R_{th(j-a)}$	220[1,2]	K/W
		130[1,3]	
		70[1,4]	
Thermal Resistance From Junction To Solder Point	$R_{th(j-sp)}$	18[5]	K/W

[1] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses PR are a significant part of the total power losses.
[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm^2
[4] Device mounted on a ceramic PCB, Al_2O_3, standard footprint.
[5] Soldering point of cathode tab.

ELECTRICAL CHARACTERISTICS(T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F=0.1A,T_J=25°C		300	340	mV
		I_F=0.5A,T_J=25°C		360	420	
		I_F=1A,T_J=25°C		400	460	
		I_F=1.5A,T_J=25°C		430	500	
		I_F=2A,T_J=25°C		460	530	
Reverse curent	I_R	V_R=5V,T_J=25°C		2.5		μA
		V_R=10V,T_J=25°C		3.5		
		V_R=60V,T_J=25°C		60	150	
Diode Capacitance	C_d	V_R=1V, f =1MHz,T_J=25°C		240		pF
		V_R=10V, f =1MHz,T_J=25°C		80		

CHARACTERISTIC CURVES

Fig. 1- Forward current as a function of forward voltage; typical values

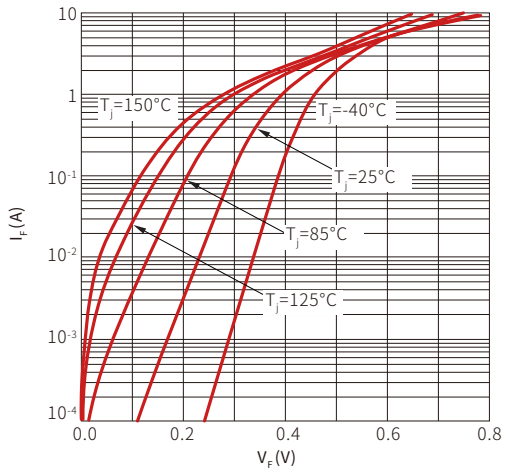


Fig. 2-Reverse current as a function of reverse voltage; typical values

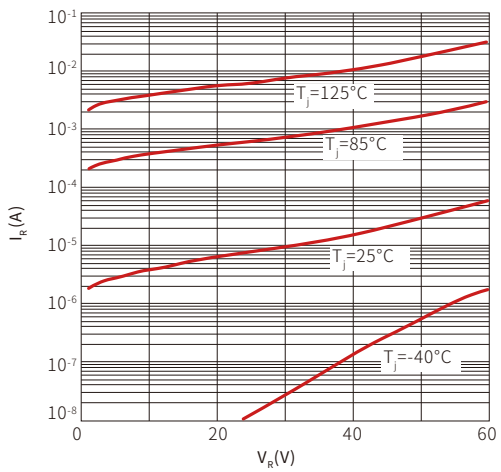


Fig. 3- Diode capacitance as a function of reverse voltage; typical values

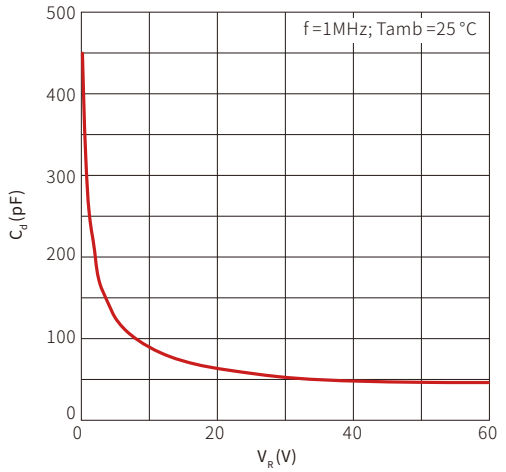


Fig. 4-Average forward power dissipation as a function of average forward current; typical values

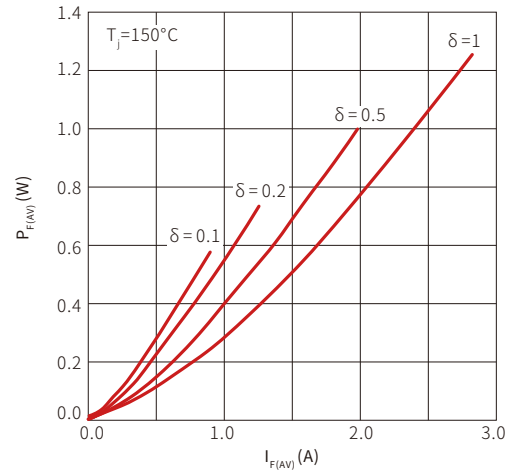


Fig. 5- Average reverse power dissipation as a function of reverse voltage; typical values

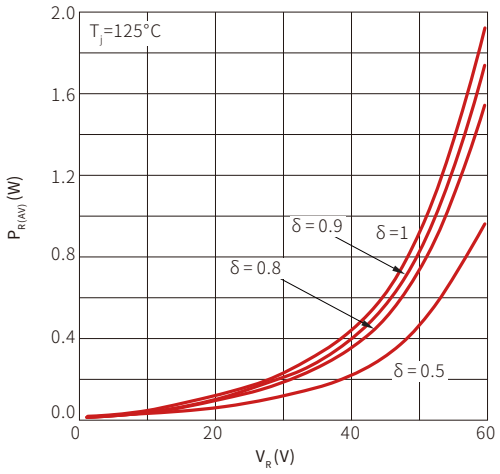


Fig. 6-Average forward current as a function of ambient temperature; typical values

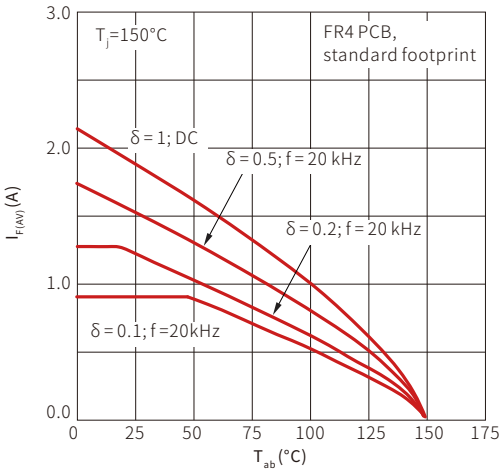


Fig. 7- Average forward current as a function of ambient temperature; typical values

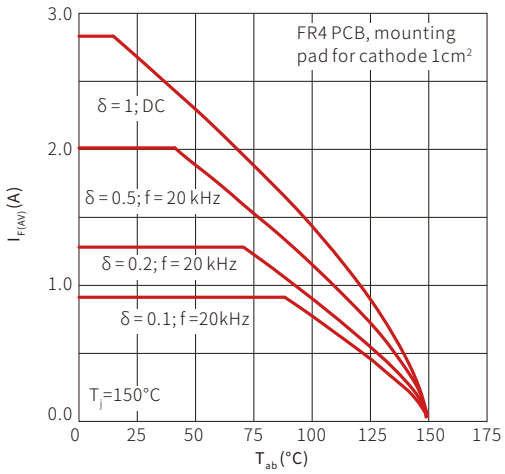


Fig. 8-Average forward current as a function of ambient temperature; typical values

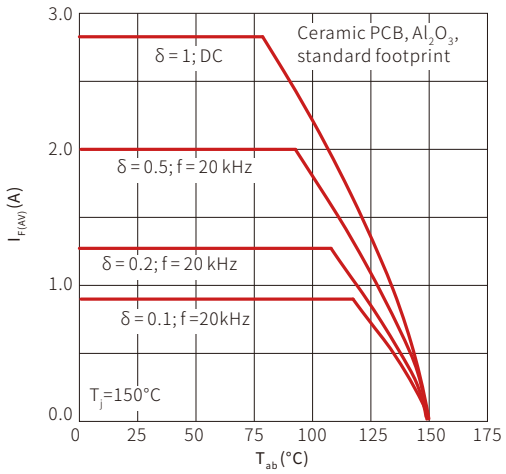
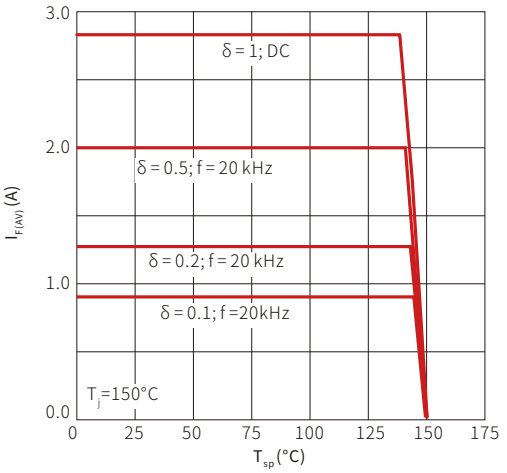
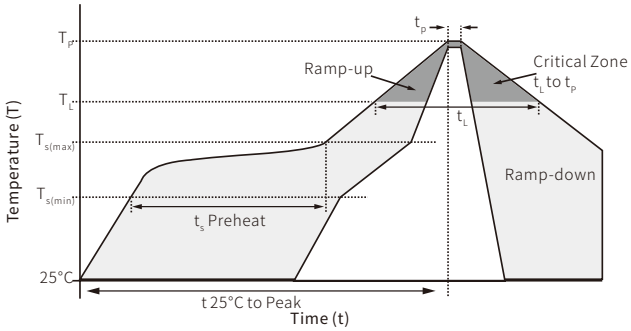


Fig. 9- Average forward current as a function of solder point temperature; typical values

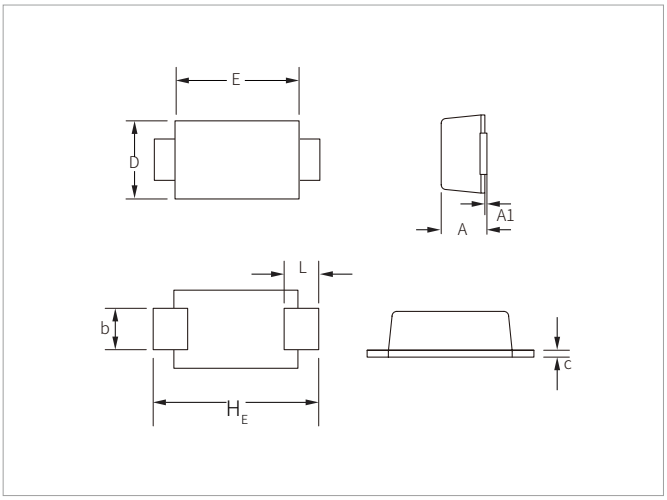


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	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_L) to peak		3°C/second max
	$T_{S(max)}$ to T_L - Ramp-up Rate	3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°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

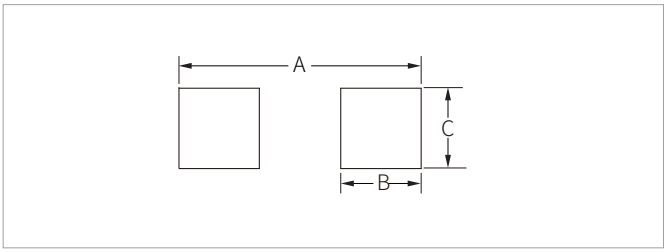


SOD-123FL PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.45	0.037	0.057
A1	0.00	0.10	0.000	0.004
b	0.70	1.20	0.028	0.047
c	0.05	0.30	0.002	0.012
D	1.50	2.00	0.059	0.079
E	2.50	3.10	0.098	0.122
L	0.35	0.90	0.014	0.035
H_E	3.40	3.90	0.134	0.154

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	4.20	0.165
B	1.50	0.059
C	1.20	0.047

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SS26LDQ	SOD-123FL	3000PCS	7”

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