1A, 50V - 1000V Fast Recovery Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- General purpose

MECHANICAL DATA

- Case: SOD-123FL
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 0.016g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	1	A
V_{RRM}	50 - 1000	V
I_{FSM}	30	A
$T_{J\ MAX}$	150	°C
Package	SOD-123FL	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123FL

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	RS1AFL	RS1BFL	RS1DFL	RS1GFL	RS1JFL	RS1KFL	RS1MFL	UNIT
Marking code on the device		RAF	RBF	RDF	RGF	RJF	RKF	RMF	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Forward current	I_F	1							A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	30							A
Junction temperature	T_J	- 55 to +150							°C
Storage temperature	T_{STG}	- 55 to +150							°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	17	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	84	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	19	°C/W

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	RS1AFL RS1BFL RS1DFL RS1FFL	I_F = 0.5A, T_J = 25°C	V_F	0.84	-	V
		I_F = 1.0A, T_J = 25°C		0.91	1.05	V
		I_F = 0.5A, T_J = 125°C		0.70	-	V
		I_F = 1.0A, T_J = 125°C		0.78	0.90	V
	RS1JFL RS1KFL RS1MFL	I_F = 0.5A, T_J = 25°C	V_F	0.97	-	V
		I_F = 1.0A, T_J = 25°C		1.04	1.30	V
		I_F = 0.5A, T_J = 125°C		0.80	-	V
		I_F = 1.0A, T_J = 125°C		0.89	1.12	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	150	μA
Reverse recovery time	RS1AFL RS1BFL RS1DFL RS1FFL RS1GFL	I_F = 0.5A , I_R = 1.0A I_{rr} = 0.25A	t_{rr}	-	150	ns
	RS1JFL RS1KFL RS1MFL			-	250	ns
Junction capacitance	RS1AFL RS1BFL RS1DFL RS1FFL RS1GFL	1MHz, V_R = 4.0V	C_J	15	-	pF
	RS1JFL RS1KFL RS1MFL			11	-	pF

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
RS1xFL	SOD-123FL	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 50V(RS1AFL) to 1000V(RS1MFL)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

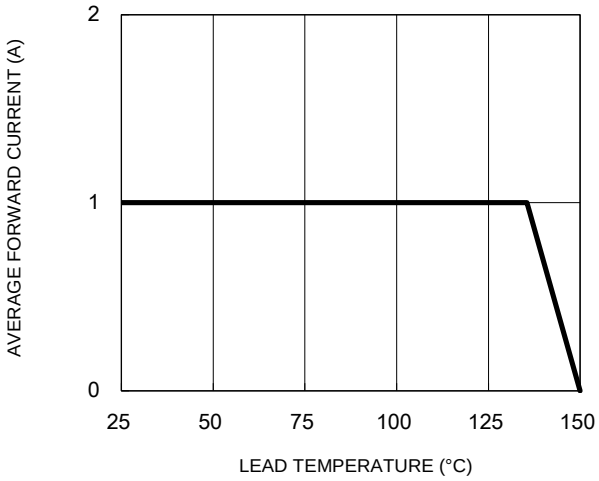


Fig.2 Typical Junction Capacitance

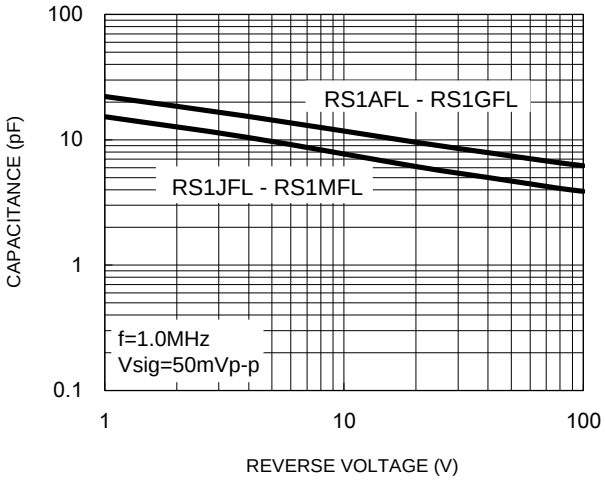


Fig.3 Typical Reverse Characteristics

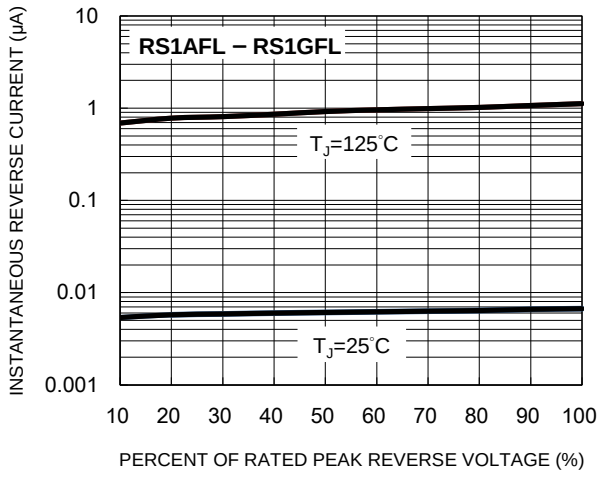


Fig.4 Typical Forward Characteristics

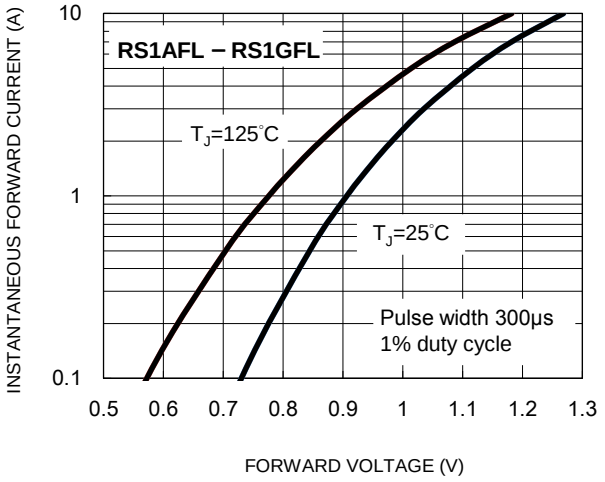


Fig.5 Typical Reverse Characteristics

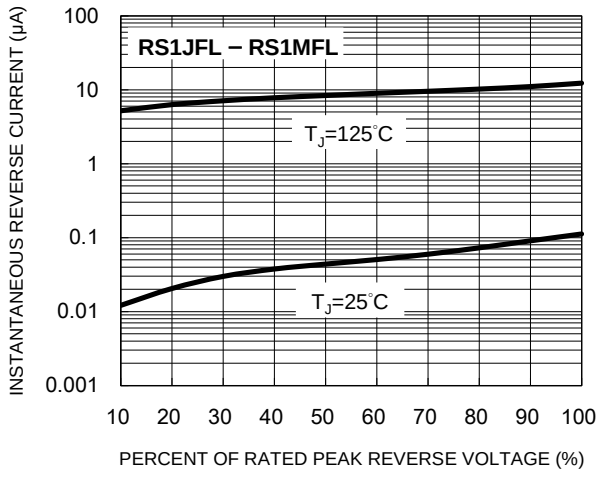
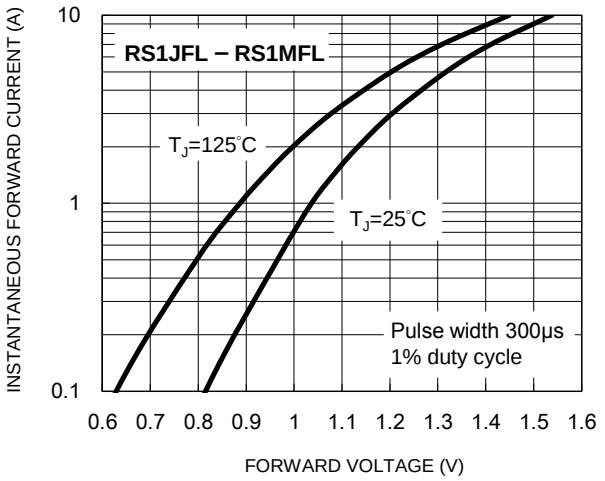
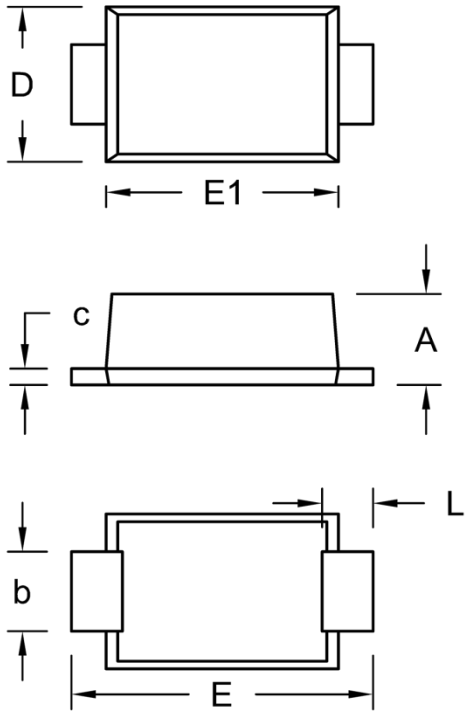


Fig.6 Typical Forward Characteristics



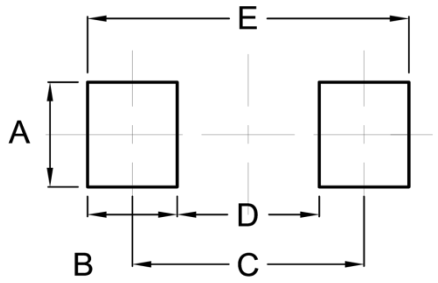
PACKAGE OUTLINE DIMENSIONS

SOD-123FL



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.88	1.35	0.035	0.053
b	0.80	1.15	0.031	0.045
c	0.10	0.30	0.004	0.012
D	1.70	2.10	0.067	0.083
E	3.45	3.95	0.136	0.156
E1	2.60	3.10	0.102	0.122
L	0.30	0.90	0.012	0.035

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.40	0.055
B	1.20	0.047
C	3.10	0.122
D	1.90	0.075
E	4.30	0.169

MARKING DIAGRAM

P/N = Marking Code
YW = Date Code
F = Factory Code

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