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

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

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	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123FL

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer and telecommunication.

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: As marked
- Weight: 0.016 g (approximately)

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

PARAMETER	SYMBOL	RS1A FL	RS1B FL	RS1D FL	RS1G FL	RS1J FL	RS1K FL	RS1M FL	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, 8.3 ms single half sine-wave superimposed on rated load per diode	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 per diode	$R_{\Theta JL}$	17	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	84	°C/W
Junction-to-case thermal resistance per diode	$R_{\Theta JC}$	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 per diode (1)	RS1AFL RS1BFL RS1DFL RS1GFL	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
Forward voltage per diode (1)	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 per diode (2)		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	150	μA
Junction capacitance	RS1AFL RS1BFL RS1DFL RS1GFL	1 MHz, V_R=4.0V	C_J	15	-	pF
	RS1JFL RS1KFL RS1MFL			11	-	pF
Reverse recovery time	RS1AFL RS1BFL RS1DFL RS1GFL	I_F=0.5A ,I_R=1.0A I_{RR}=0.25A	t_{rr}	-	150	ns
	RS1JFL RS1KFL RS1MFL		t_{rr}	-	250	ns

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
RS1AFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1BFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1DFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1GFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1JFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1KFL RVG	SOD-123FL	3,000 / 7" Plastic reel
RS1MFL RVG	SOD-123FL	3,000 / 7" Plastic reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

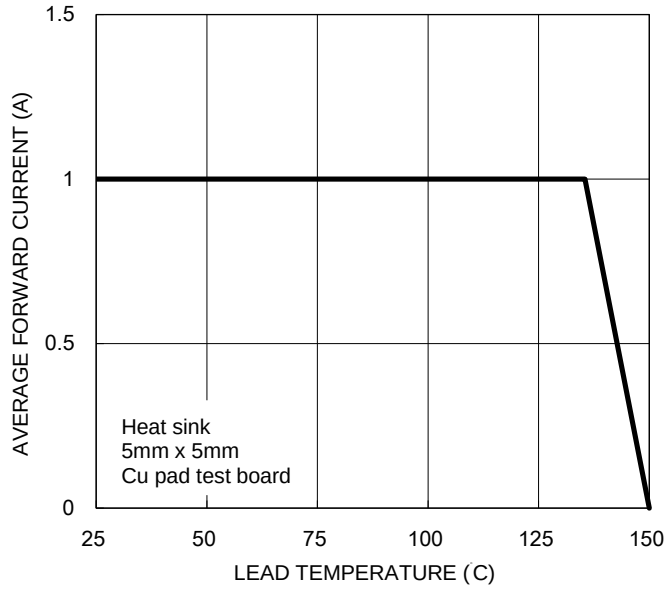


Fig.2 Typical Junction Capacitance

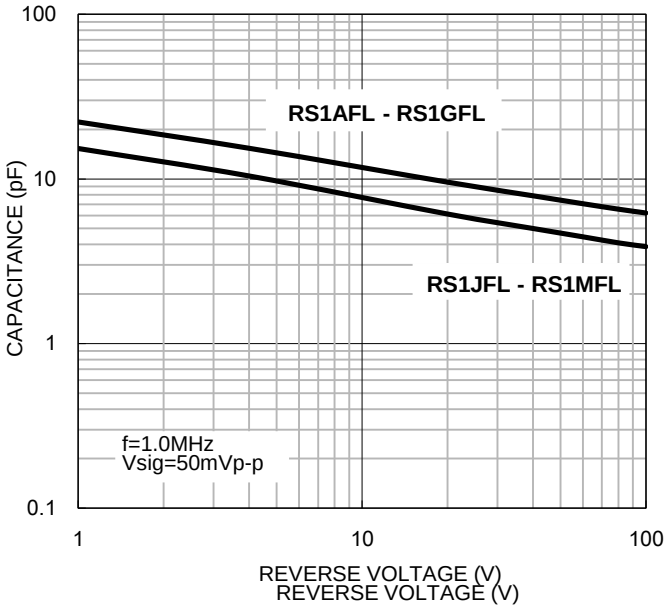


Fig.3 Typical Reverse Characteristics

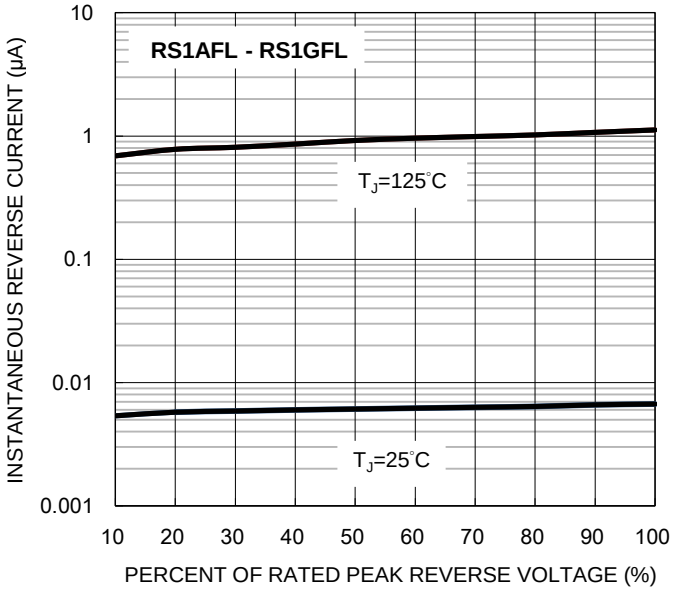
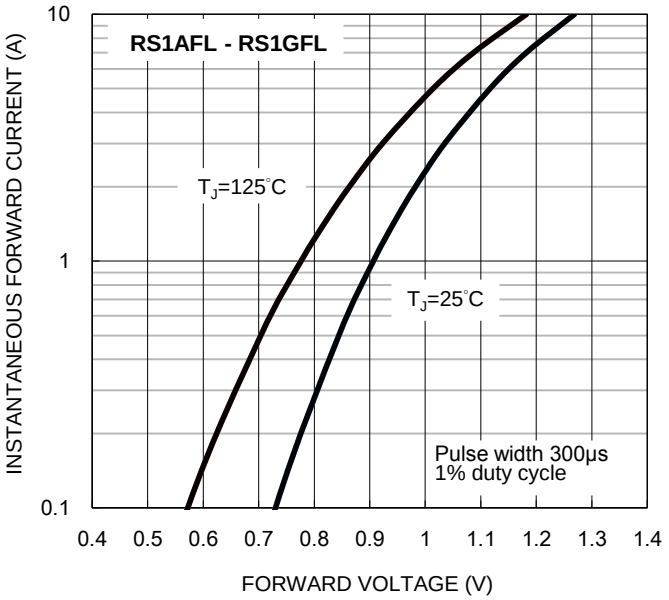


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Reverse Characteristics

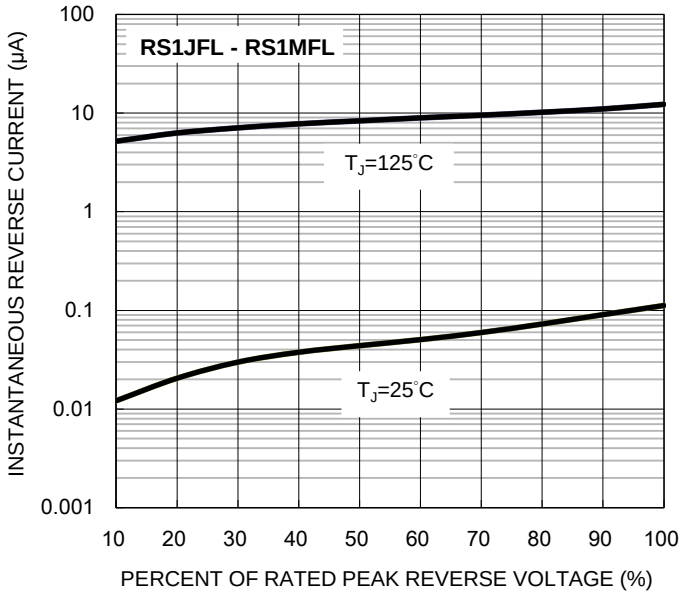
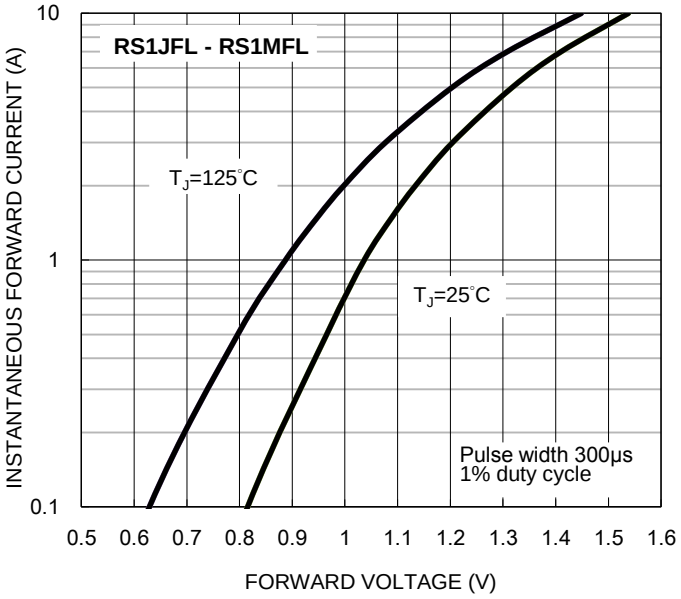
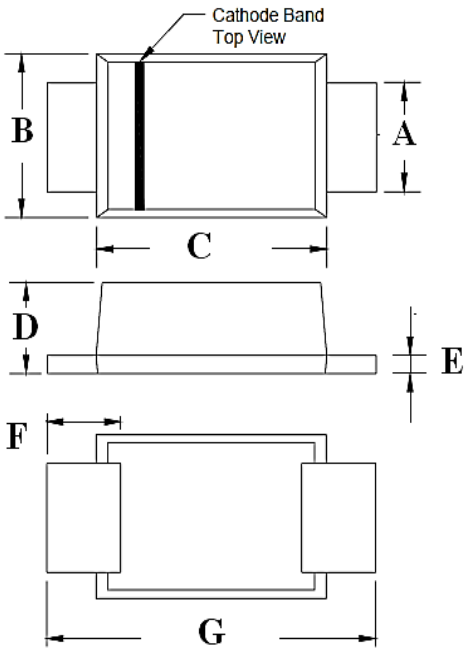


Fig.6 Typical Forward Characteristics



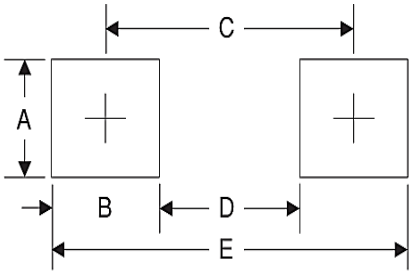
PACKAGE OUTLINE DIMENSIONS

SOD-123FL



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

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.4	0.055
B	1.2	0.047
C	3.1	0.122
D	1.9	0.075
E	4.3	0.169

MARKING DIAGRAM

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

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