

2A, 200V - 1000V Fast Recovery Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low reverse leakage
- 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 1 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.016g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	2	A
V_{RRM}	200 - 1000	V
I_{FSM}	40	A
T_{JMAX}	150	°C
Package	SOD-123FL	
Configuration	Single die	



SOD-123FL



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	RS2DFL	RS2GFL	RS2JFL	RS2KFL	RS2MFL	UNIT	
Marking code on the device		R2DF	R2GF	R2JF	R2KF	R2MF		
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V	
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	V	
Forward current	I_F	2					A	
Surge peak forward current, single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	I_{FSM}					40	A
	$t = 1.0\text{ms}$						100	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	$R_{\theta JL}$	81	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	116	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	69	°C/W

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	RS2DFL RS2GFL	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	0.86	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		0.94	1.30	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.75	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		0.84	0.99	V
	RS2JFL RS2KFL RS2MFL	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	0.98	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		1.09	1.30	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.89	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		1.02	1.20	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	150	μA
Reverse recovery time	RS2DFL RS2GFL	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	t_{rr}	-	150	ns
	RS2JFL RS2KFL RS2MFL			-	250	ns
Junction capacitance	RS2DFL RS2GFL	1MHz, $V_R = 4.0\text{V}$	C_J	16	-	pF
	RS2JFL RS2KFL RS2MFL			9	-	pF

Notes:

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

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
RS2xFL	SOD-123FL	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(RS2DFL) to 1000V(RS2MFL)

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

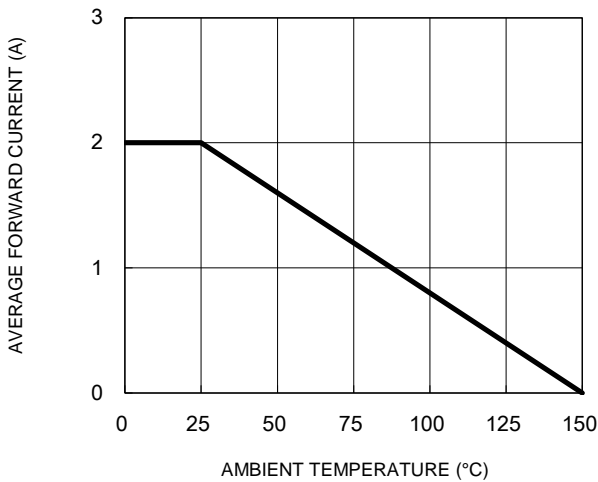


Fig.2 Typical Junction Capacitance

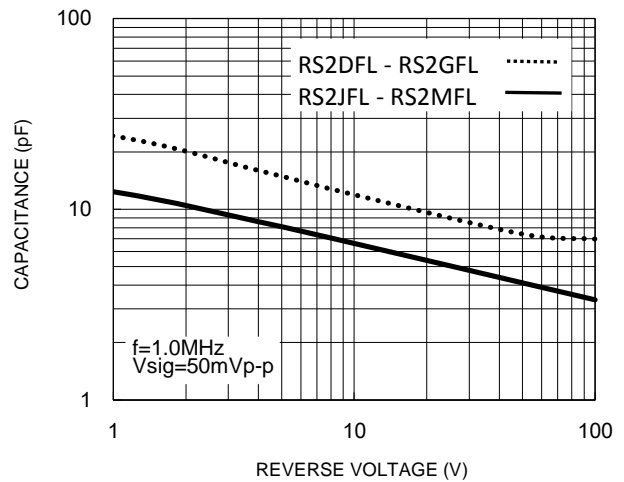


Fig.3 Typical Reverse Characteristics

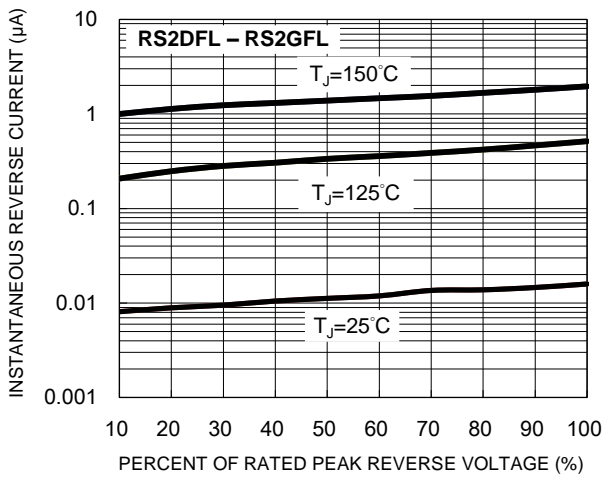


Fig.4 Typical Forward Characteristics

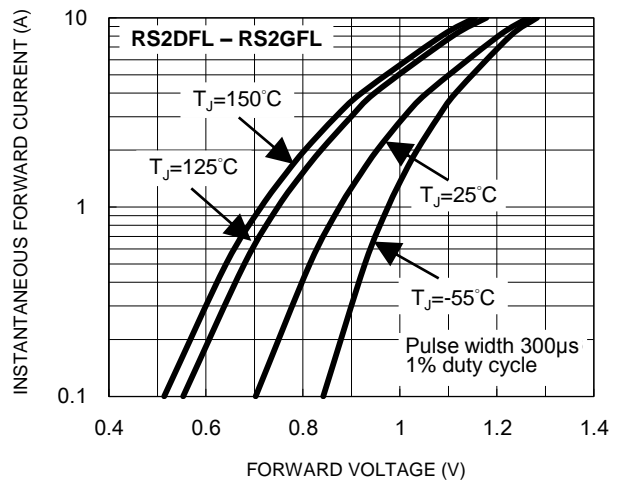


Fig.5 Typical Reverse Characteristics

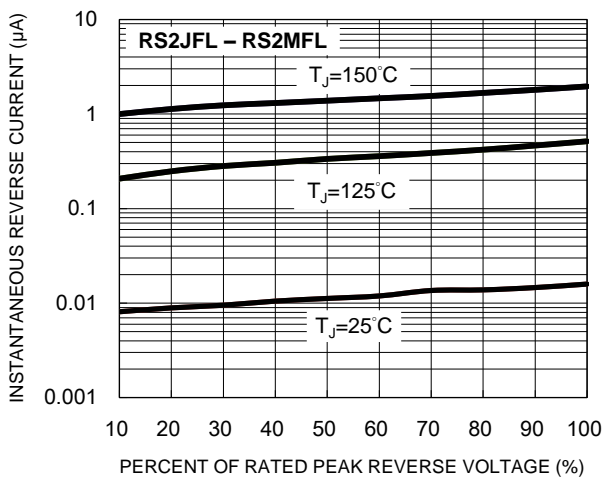
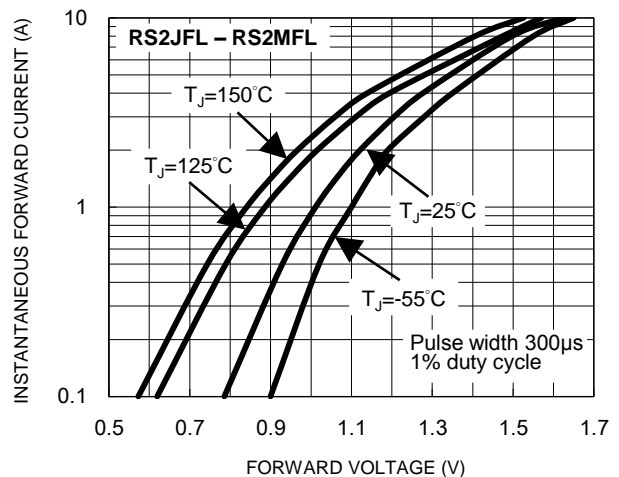


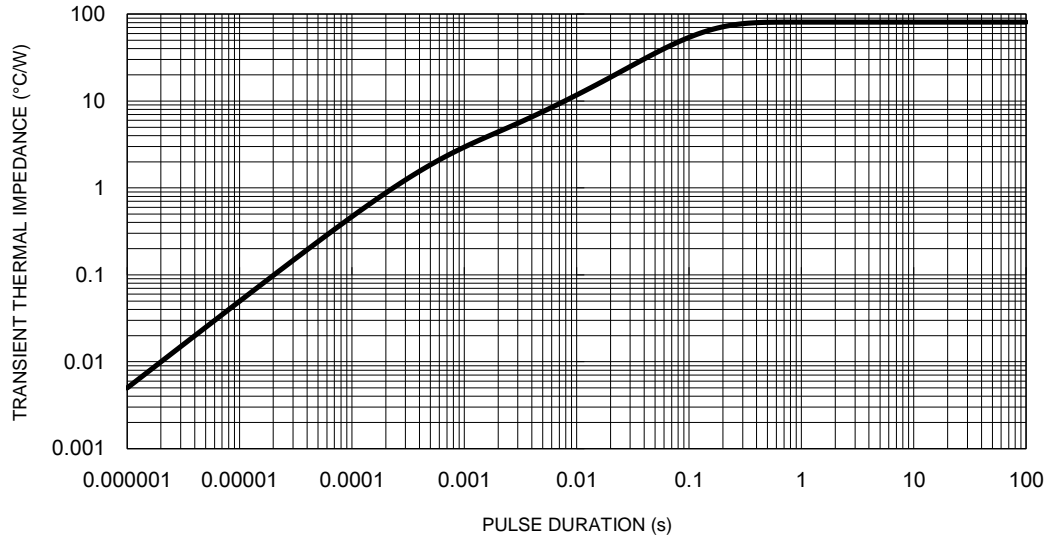
Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

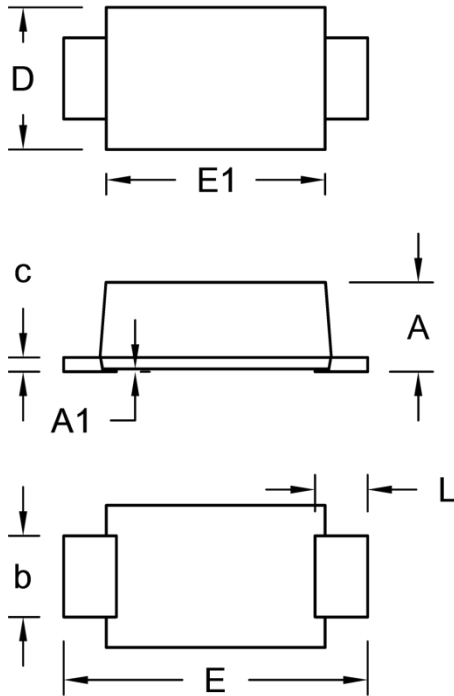
(T_A = 25°C unless otherwise noted)

Fig.7 Typical Transient Thermal Impedance



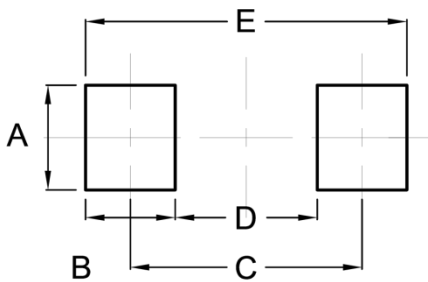
PACKAGE OUTLINE DIMENSIONS

SOD-123FL



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.00	1.20	0.039	0.047
A1	0.02	0.05	0.001	0.002
b	0.90	1.10	0.035	0.043
c	0.10	0.25	0.004	0.010
D	1.60	1.90	0.063	0.075
E	3.60	3.90	0.142	0.154
E1	2.55	2.85	0.100	0.112
L	0.40	0.90	0.016	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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