

1A, 40V - 200V Schottky Barrier Surface Mount Rectifier

FEATURES

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

APPLICATIONS

- Switch Mode Power Supply
- Adapters
- On board DC/DC converter

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: 0.019g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	1	A
V_{RRM}	40-200	V
I_{FSM}	30	A
$T_{J\ MAX}$	125,150	°C
Package	SOD-123FL	



SOD-123FL



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)								
PARAMETER		SYMBOL	SS14 FL	SS16 FL	SS110 FL	SS115 FL	SS120 FL	UNIT
Marking code on the device			14FL	16FL	110FL	115FL	120FL	
Repetitive peak reverse voltage		V _{RRM}	40	60	100	150	200	V
Reverse voltage, total rms value		V _{R(RMS)}	28	42	70	105	140	V
DC blocking voltage		V _{DC}	40	60	100	150	200	V
Forward current		I _F	1					A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	I _{FSM}	30					A
	t = 1.0ms		60					A
Junction temperature		T _J	-55 to +125	-55 to +150				°C
Storage temperature		T _{STG}	-55 to +150					°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	56	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	135	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	83	°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⁾	SS14FL	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.46	-	V
		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		0.52	0.55	V
		$I_F = 0.5\text{A}, T_J = 100^\circ\text{C}$		0.37	-	V
		$I_F = 1.0\text{A}, T_J = 100^\circ\text{C}$		0.46	0.52	V
	SS16FL	$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.51	-	V
		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.63	0.70	V
		$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.46	-	V
		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.56	0.62	V
	SS110FL	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$		0.68	-	V
		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		0.77	0.85	V
		$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.56	-	V
		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.63	0.70	V
	SS115FL	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$		0.74	-	V
		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		0.79	0.85	V
		$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.60	-	V
		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.65	0.74	V
	SS120FL	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$		0.79	-	V
		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		0.85	0.95	V
		$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.64	-	V
		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.71	0.80	V
Reverse current @ rated V_R ⁽²⁾	SS14FL	$T_J = 25^\circ\text{C}$	I_R	-	0.5	mA
		$T_J = 100^\circ\text{C}$		-	5	mA
	SS16FL	$T_J = 25^\circ\text{C}$		-	0.5	mA
		$T_J = 125^\circ\text{C}$		-	7	mA
	SS110FL	$T_J = 25^\circ\text{C}$		-	0.1	mA
	SS115FL SS120FL	$T_J = 125^\circ\text{C}$		-	1	mA
Junction capacitance	SS14FL	1MHz, $V_R = 4.0\text{V}$	C_J	67	-	pF
	SS16FL			44	-	pF
	SS110FL			28	-	pF
	SS115FL			22	-	pF
	SS120FL			18	-	pF

Notes:

- (1) Pulse test with PW = 0.3ms
- (2) Pulse test with PW = 30ms

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
SS1xFL M3G	SOD-123FL	3,000 / 7" reel
SS1xFL M2G	SOD-123FL	10,000 / 13" reel

Notes:

- (1) "x" defines voltage from 40V(SS14FL) to 200V(SS120FL)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

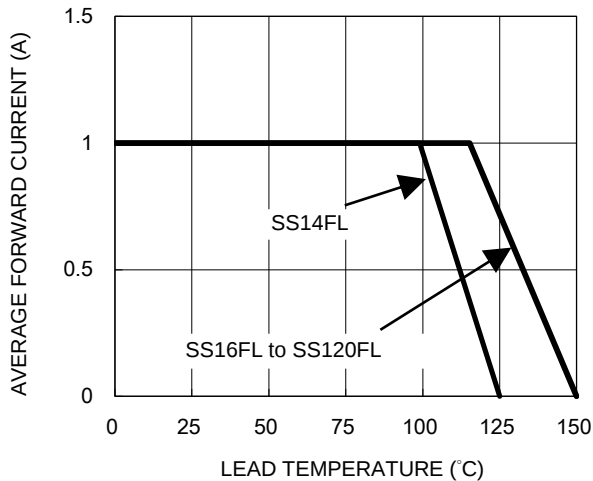


Fig.2 Typical Junction Capacitance

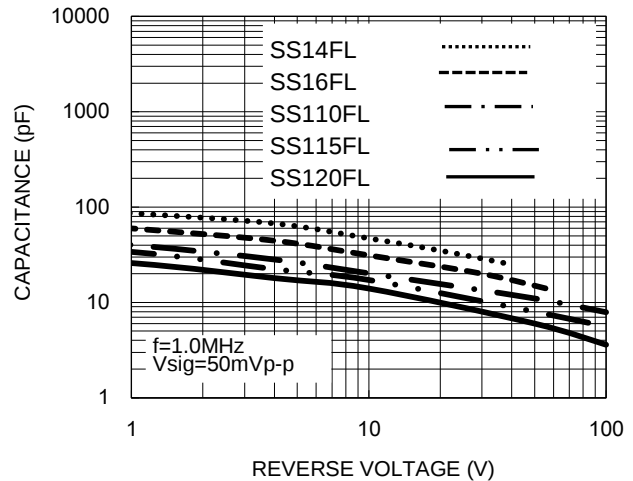


Fig.3 Typical Reverse Characteristics

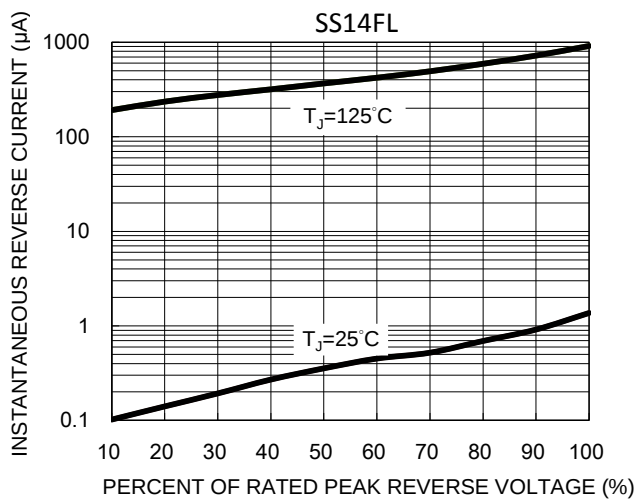


Fig.4 Typical Forward Characteristics

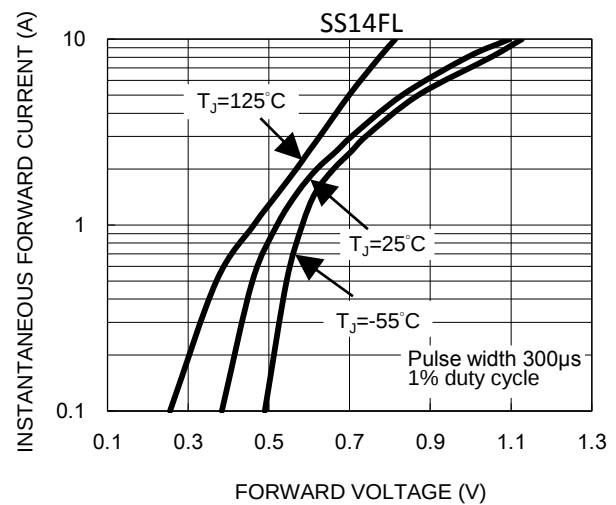


Fig.5 Typical Reverse Characteristics

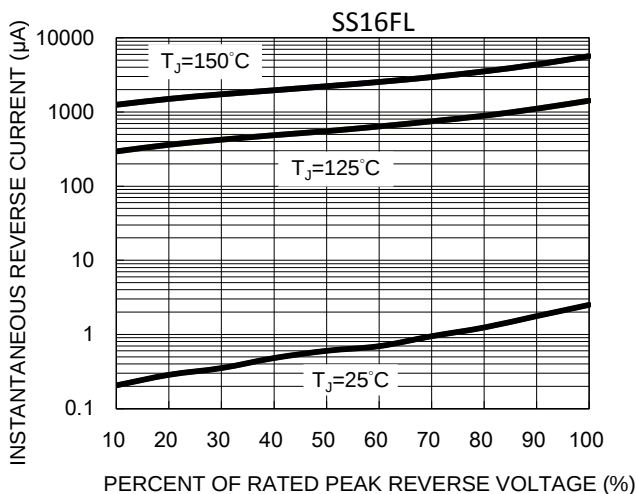
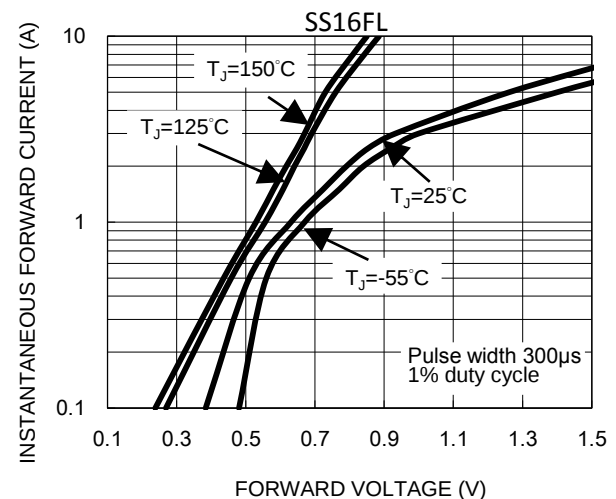


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

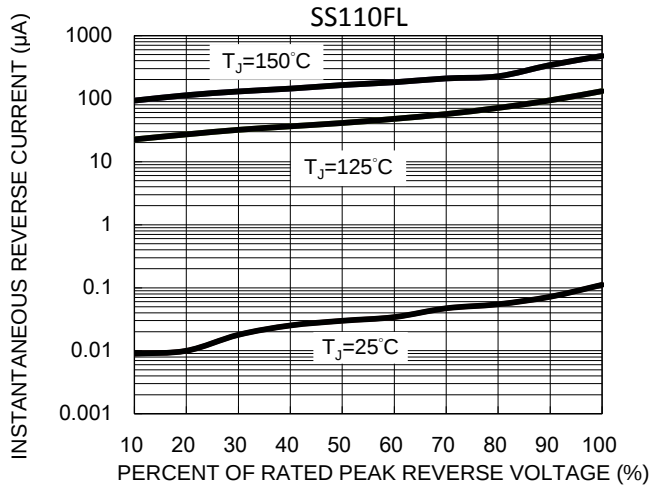


Fig.8 Typical Forward Characteristics

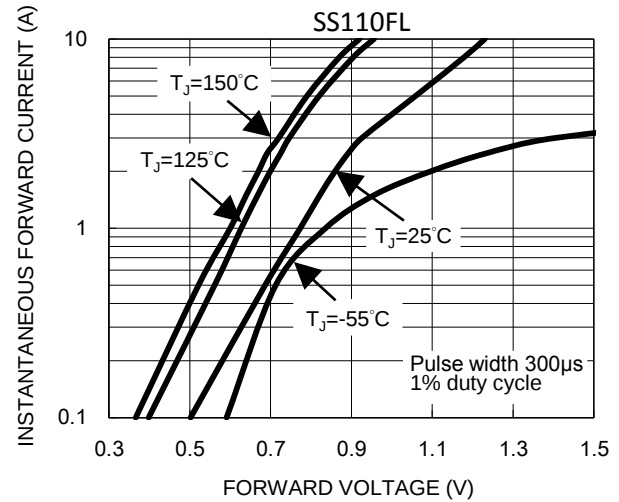


Fig.9 Typical Reverse Characteristics

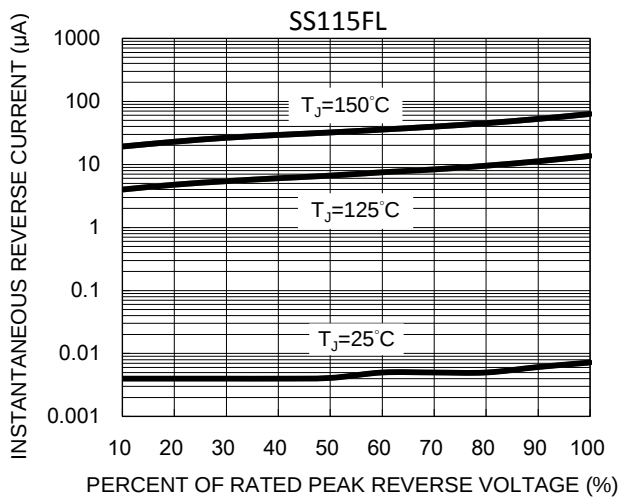


Fig.10 Typical Forward Characteristics

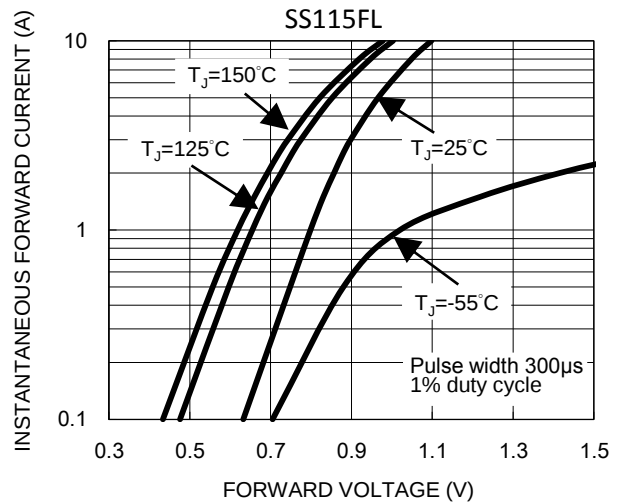


Fig.11 Typical Reverse Characteristics

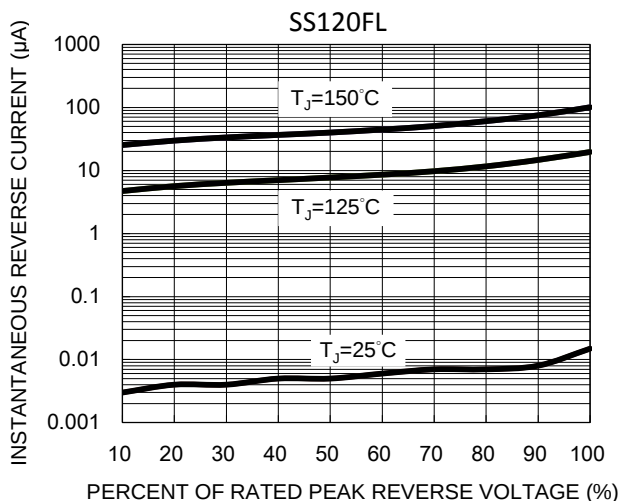
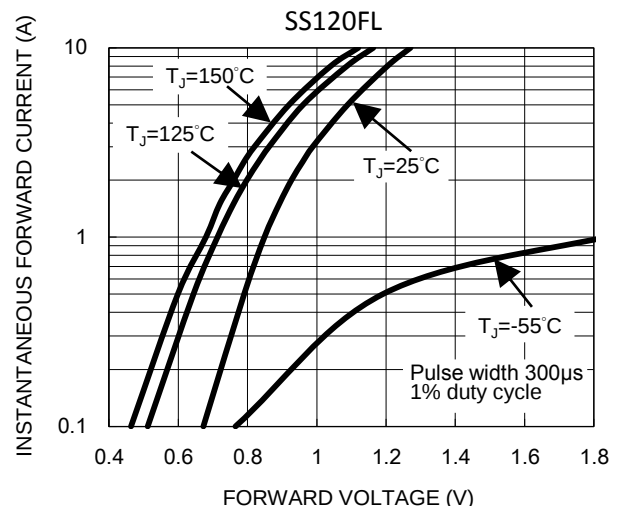


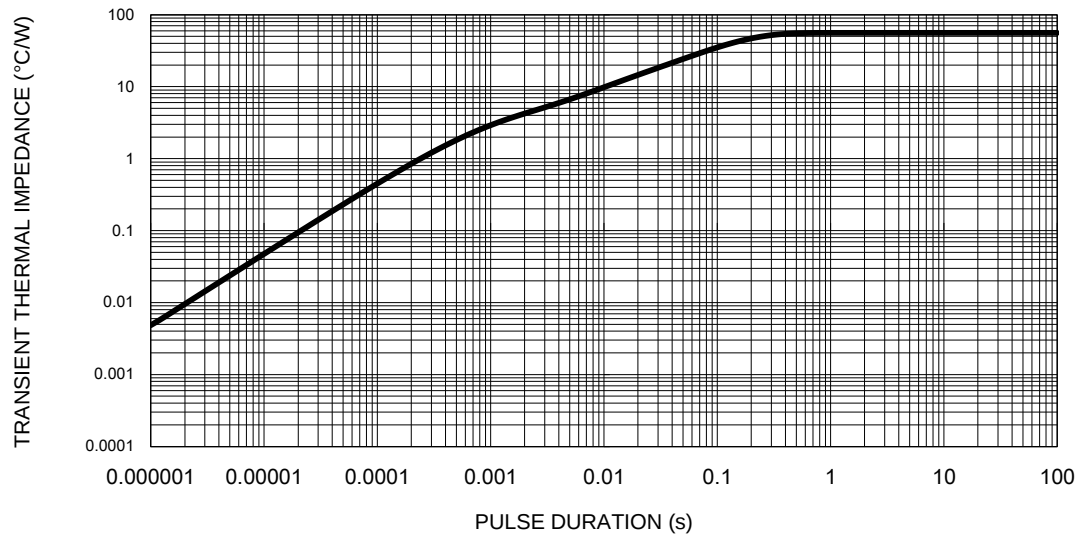
Fig.12 Typical Forward Characteristics



CHARACTERISTICS CURVES

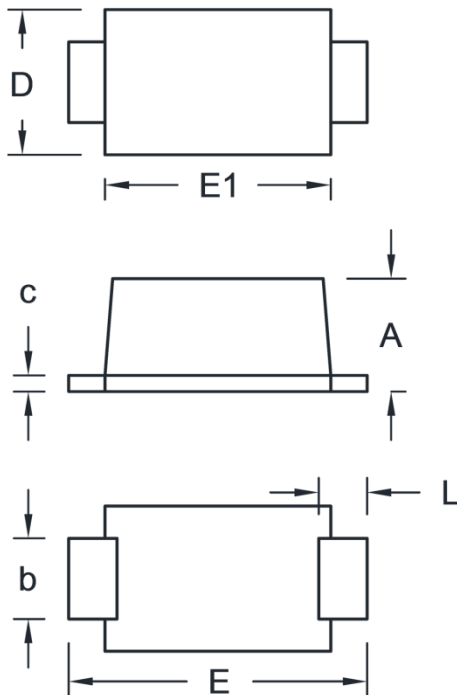
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.13 Typical Transient Thermal Impedance



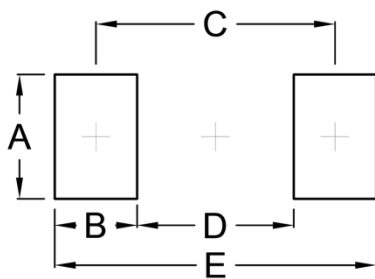
PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

SOD-123FL



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.15	1.45	0.045	0.057
b	0.80	1.20	0.031	0.047
c	0.10	0.30	0.004	0.012
D	1.60	2.00	0.063	0.079
E	3.50	3.90	0.138	0.154
E1	2.60	3.00	0.102	0.118
L	0.35	0.85	0.014	0.033

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.50	0.059
B	1.00	0.039
C	2.90	0.114
D	1.90	0.075
E	3.90	0.154

MARKING DIAGRAM



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

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