

## 1A, 200V - 600V Super Fast 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
- Freewheeling application

### 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
$V_{RRM}$	200 - 600	V
$I_{FSM}$	30	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	ES1DFL	ES1GFL	ES1JFL	UNIT
Marking code on the device		EDF	EGF	EJF	
Repetitive peak reverse voltage	$V_{RRM}$	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Forward current	$I_F$	1			A
Peak forward surge 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

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	35	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	85	°C/W

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	ES1DFL	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.0	V
	ES1GFL			-	1.3	V
	ES1JFL			-	1.7	V
Reverse current @ rated $V_R$ <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	100	$\mu\text{A}$
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	$t_{rr}$	-	35	ns
Junction capacitance		1MHz, $V_R = 4.0\text{V}$	$C_J$	8	-	pF

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
ES1xFL	SOD-123FL	10,000 / Tape & Reel

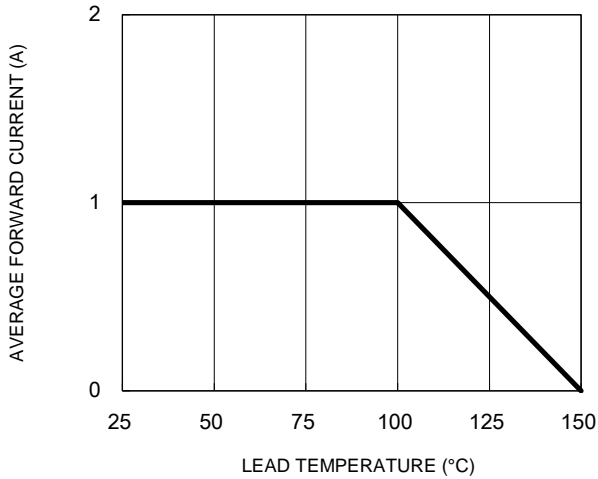
**Notes:**

1. "x" defines voltage from 200V(ES1DFL) to 600V(ES1JFL)

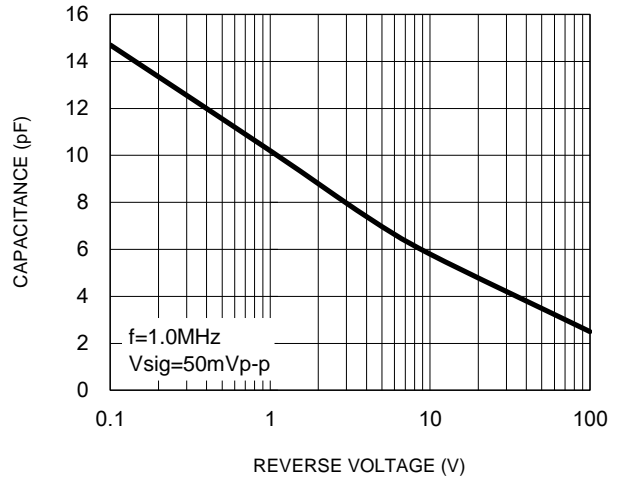
**CHARACTERISTICS CURVES**

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

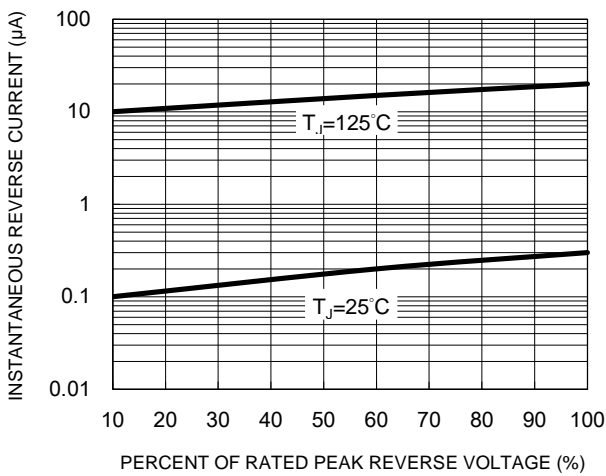
**Fig.1 Forward Current Derating Curve**



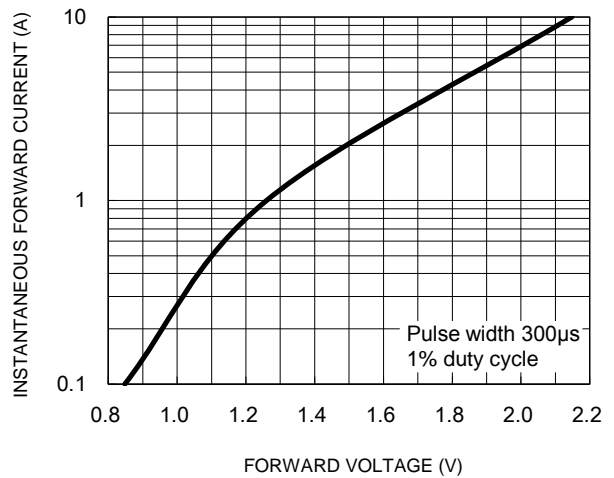
**Fig.2 Typical Junction Capacitance**



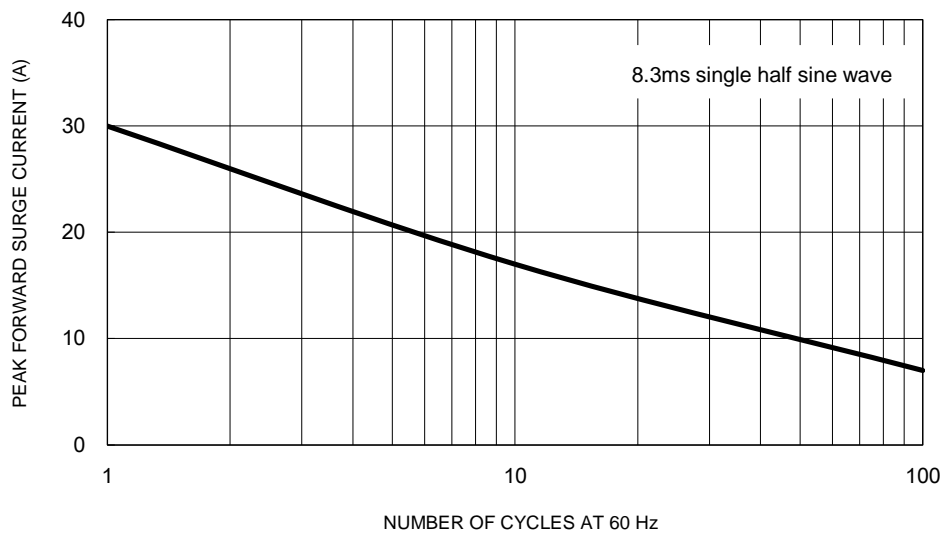
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**Fig.5 Maximum Non-Repetitive Forward Surge Current**



**CHARACTERISTICS CURVES**

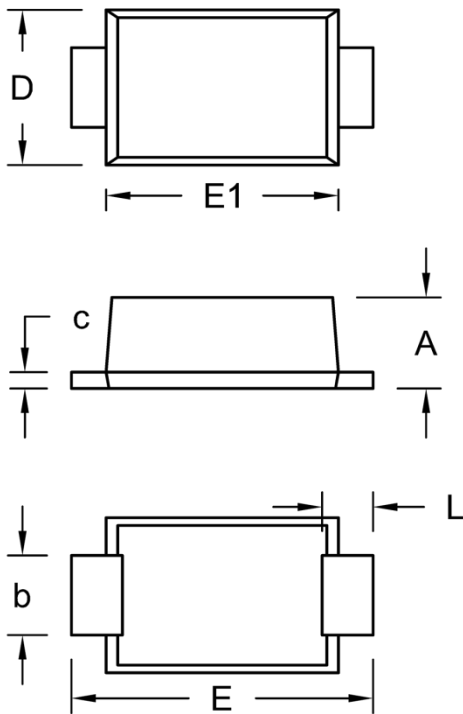
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



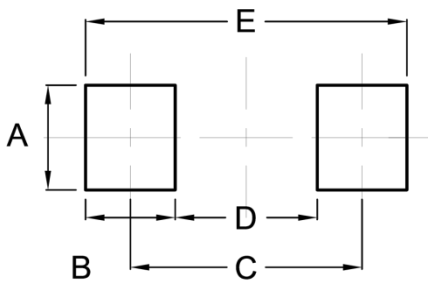
**PACKAGE OUTLINE DIMENSIONS**

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

## **Notice**

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Rectifiers](#) category:*

*Click to view products by [Taiwan Semiconductor](#) manufacturer:*

Other Similar products are found below :

[70HFR40](#) [RL252-TP](#) [150KR30A](#) [1N5397](#) [NTE5841](#) [NTE6038](#) [SCF5000](#) [1N4002G](#) [1N4005-TR](#) [JANS1N6640US](#) [481235F](#)  
[RRE02VS6SGTR](#) [067907F](#) [MS306](#) [70HF40](#) [T85HFL60S02](#) [US2JFL-TP](#) [A1N5404G-G](#) [CRS04\(T5L,TEMQ\)](#) [ACGRA4007-HF](#)  
[ACGRB207-HF](#) [CLH03\(TE16L,Q\)](#) [ACGRC307-HF](#) [ACEFC304-HF](#) [NTE6356](#) [NTE6359](#) [NTE6002](#) [NTE6023](#) [NTE6039](#) [NTE6077](#)  
[85HFR60](#) [40HFR60](#) [1N1186RA](#) [70HF120](#) [85HFR80](#) [D126A45C](#) [SCF7500](#) [D251N08B](#) [SCHJ22.5K](#) [SM100](#) [SCPA2](#) [SCH10000](#) [SDHD5K](#)  
[VS-12FL100S10](#) [ACGRA4001-HF](#) [D1821SH45T PR](#) [D1251S45T](#) [NTE5990](#) [NTE6358](#) [NTE6162](#)