

## 2A, 200V-1000V High Efficient Surface Mount Rectifier

### FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low reverse leakage
- 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

### APPLICATIONS

- Switch Mode Power Supply
- Inverters and Converters
- Free Wheeling diodes

### 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: 0.016 g (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	



SOD-123FL



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	HS2D FL	HS2G FL	HS2J FL	HS2K FL	HS2M FL	UNIT	
Marking code on the device		H2DF	H2GF	H2JF	H2KF	H2MF		
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	
DC blocking voltage	$V_{DC}$	200	400	600	800	1000	V	
Forward current	$I_F$	2						A
Surge peak forward current single half sine-wave superimposed on rated load	8.3 ms at $T_A = 25^\circ\text{C}$	$I_{FSM}$					40	A
	1.0 ms at $T_A = 25^\circ\text{C}$						100	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	$R_{\theta JL}$	81	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	116	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	69	$^{\circ}C/W$

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

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ 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>	HS2DFL	$I_F = 1A, T_J = 25^{\circ}C$	$V_F$	0.84	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		0.93	1.0	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.73	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		0.83	0.95	V
	HS2GFL	$I_F = 1A, T_J = 25^{\circ}C$		0.94	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		1.06	1.3	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.80	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		0.93	1.09	V
	HS2JFL to HS2MFL	$I_F = 1A, T_J = 25^{\circ}C$		1.24	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		1.42	1.7	V
		$I_F = 1A, T_J = 125^{\circ}C$		1.04	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		1.24	1.50	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^{\circ}C$	$I_R$	-	5	$\mu A$	
	$T_J = 125^{\circ}C$		-	125	$\mu A$	
Reverse recovery time	HS2DFL to HS2GFL	$I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$	$t_{rr}$	-	50	ns
	HS2JFL to HS2MFL			-	75	ns
Junction capacitance	HS2DFL	1 MHz, $V_R=4.0V$	$C_J$	21	-	pF
	HS2GFL			16	-	pF
	HS2JFL to HS2MFL			10	-	pF

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b>	<b>PACKAGE</b>	<b>PACKING</b>
HS2XFL RVG <sup>(1)</sup>	SOD-123FL	3,000 / 7" Plastic reel
HS2XFL RQG <sup>(1)</sup>	SOD-123FL	10,000 / 13" Paper reel

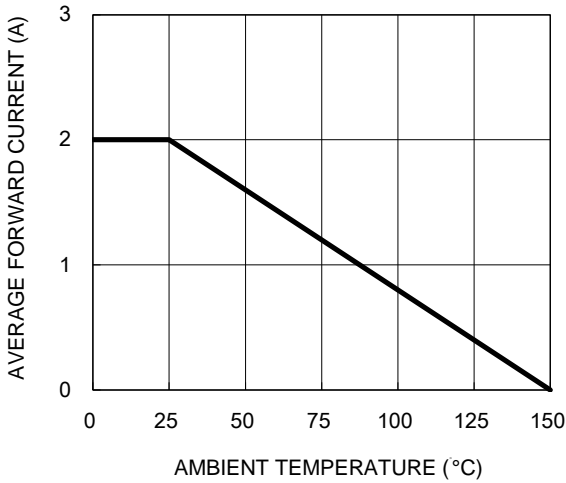
**Notes:**

- (1) "X" defines voltage from 200V(HS2DFL) to 1000V(HS2MFL)

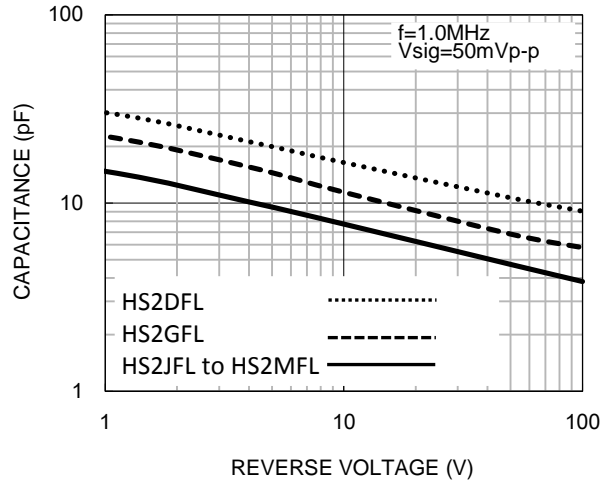
**CHARACTERISTICS CURVES**

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

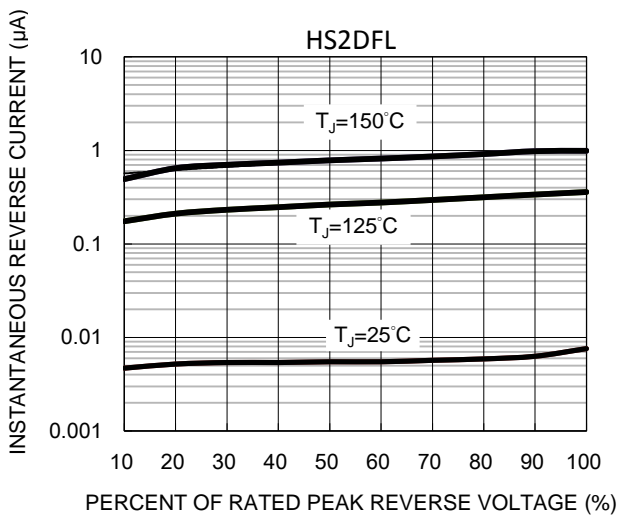
**Fig.1 Forward Current Derating Curve**



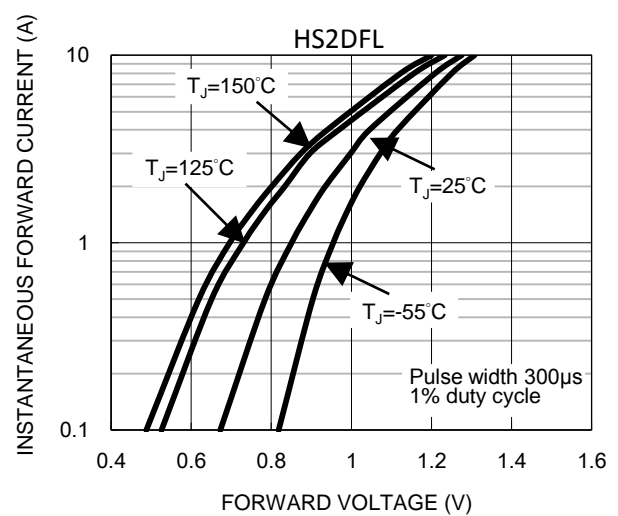
**Fig.2 Typical Junction Capacitance**



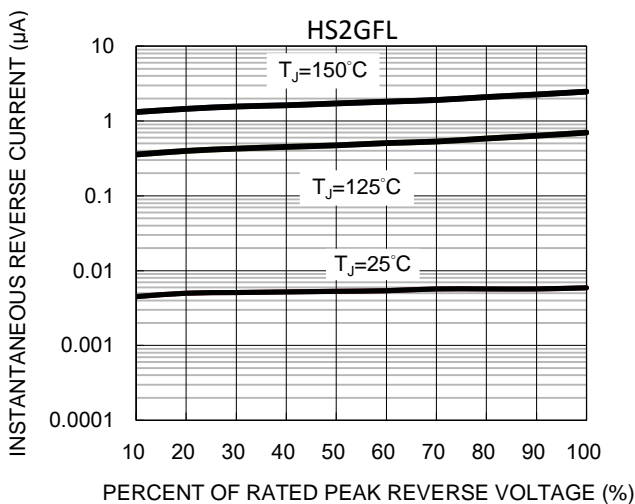
**Fig.3 Typical Reverse Characteristics**



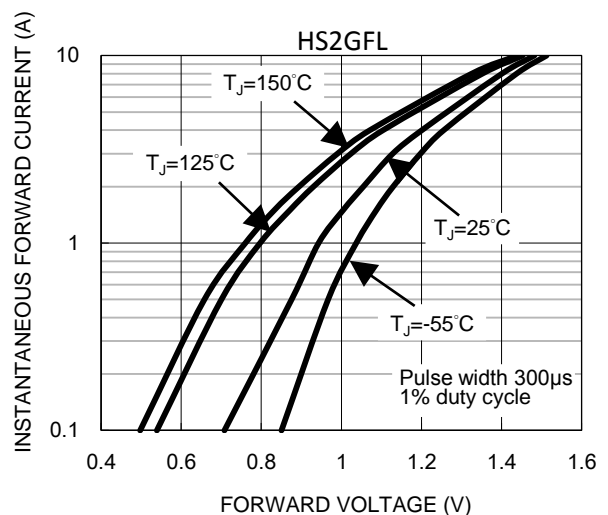
**Fig.4 Typical Forward Characteristics**



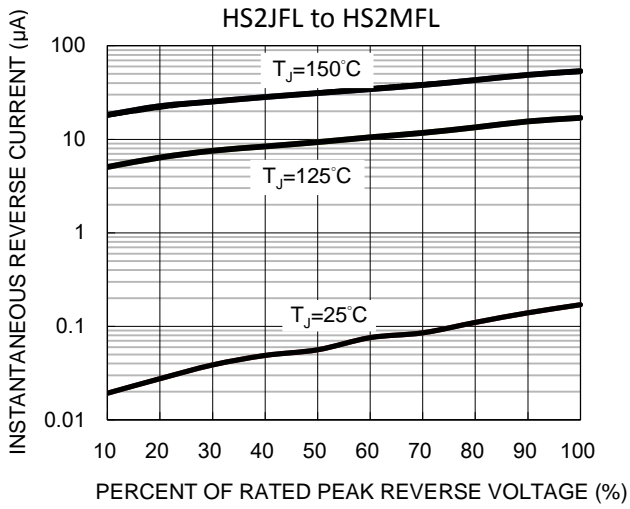
**Fig.5 Typical Reverse Characteristics**



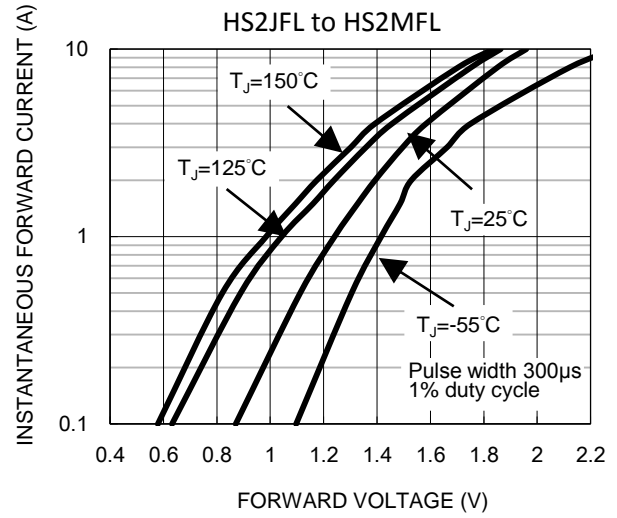
**Fig.6 Typical Forward Characteristics**



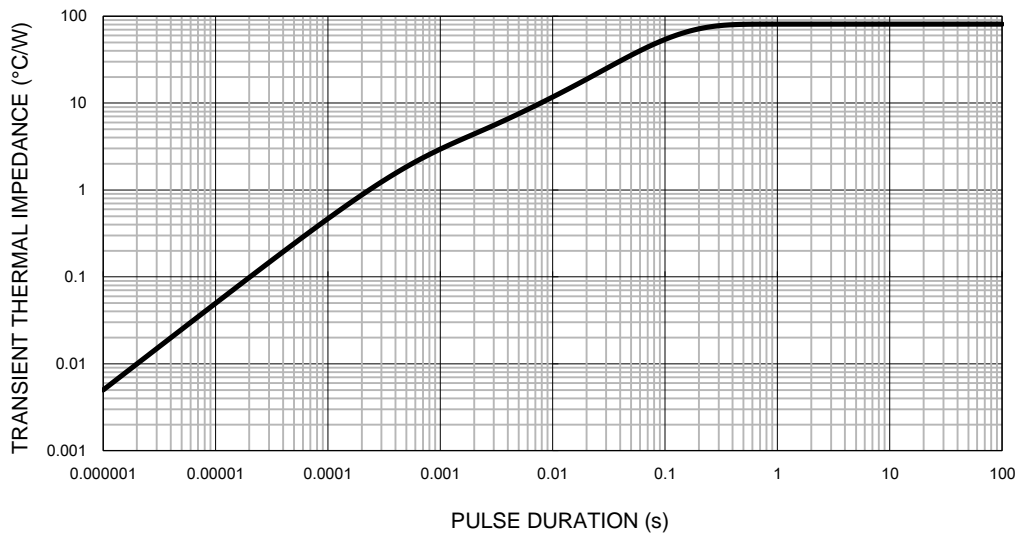
**Fig.7 Typical Reverse Characteristics**



**Fig.8 Typical Forward Characteristics**

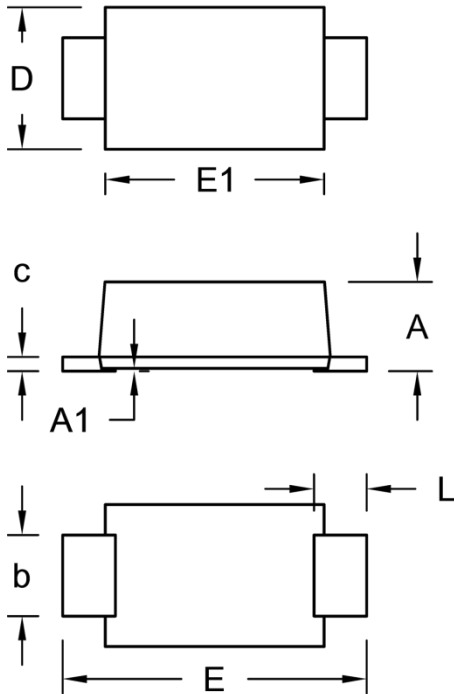


**Fig.9 Typical Transient Thermal Impedance**



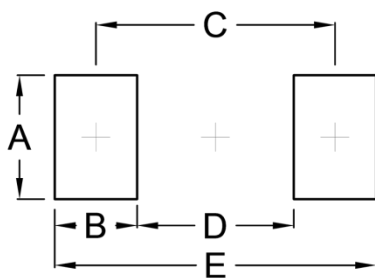
**PACKAGE OUTLINE DIMENSIONS** (Unit: Millimeters)

**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	1.50	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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