2A, 200V - 1000V High Efficient 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
- 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 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
$T_{J\ MAX}$	150	°C
Package	SOD-123FL	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOD-123FL

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)								
PARAMETER		**SYMBOL**	**HS2DFL**	**HS2GFL**	**HS2JFL**	**HS2KFL**	**HS2MFL**	**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
Forward current		I_F	2					A
Surge peak forward current, single half sine -wave superimposed on rated load	t = 8.3ms	I_{FSM}	40					A
	t = 1.0ms		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°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	HS2DFL	I_F = 1A, T_J = 25°C	V_F	0.84	-	V
		I_F = 2A, T_J = 25°C		0.93	1.00	V
		I_F = 1A, T_J = 125°C		0.73	-	V
		I_F = 2A, T_J = 125°C		0.83	0.95	V
	HS2GFL	I_F = 1A, T_J = 25°C		0.94	-	V
		I_F = 2A, T_J = 25°C		1.06	1.30	V
		I_F = 1A, T_J = 125°C		0.80	-	V
		I_F = 2A, T_J = 125°C		0.93	1.09	V
	HS2JFL HS2KFL HS2MFL	I_F = 1A, T_J = 25°C		1.24	-	V
		I_F = 2A, T_J = 25°C		1.42	1.70	V
		I_F = 1A, T_J = 125°C		1.04	-	V
		I_F = 2A, T_J = 125°C		1.24	1.50	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	125	μA
Reverse recovery time	HS2DFL HS2GFL	I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	-	50	ns
	HS2JFL HS2KFL HS2MFL			-	75	ns
Junction capacitance	HS2DFL	1MHz, V_R = 4.0V	C_J	21	-	pF
	HS2GFL			16	-	pF
	HS2JFL HS2KFL HS2MFL			10	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
HS2xFL	SOD-123FL	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(HS2DFL) to 1000V(HS2MFL)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

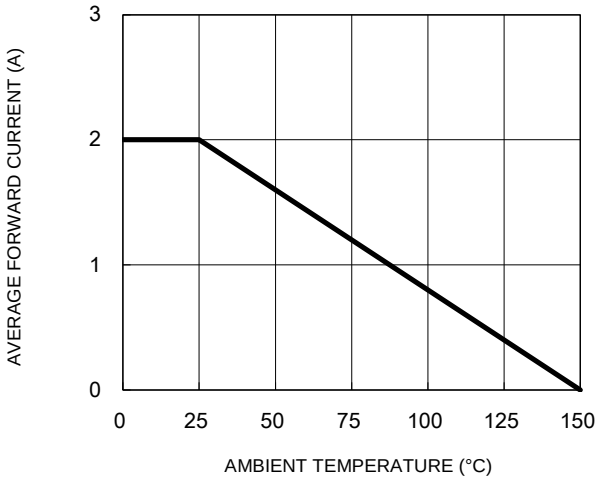


Fig.2 Typical Junction Capacitance

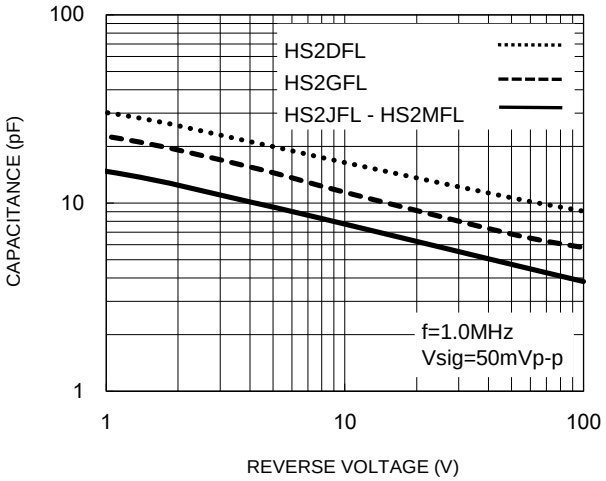


Fig.3 Typical Reverse Characteristics

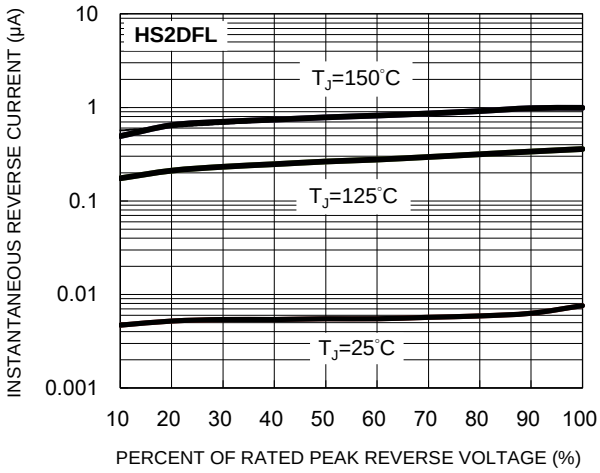


Fig.4 Typical Forward Characteristics

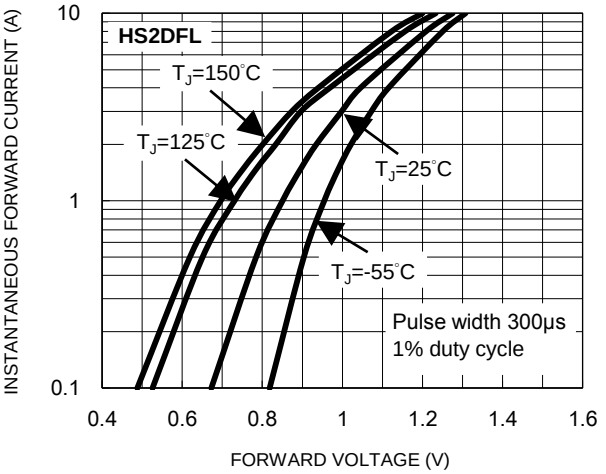


Fig.5 Typical Reverse Characteristics

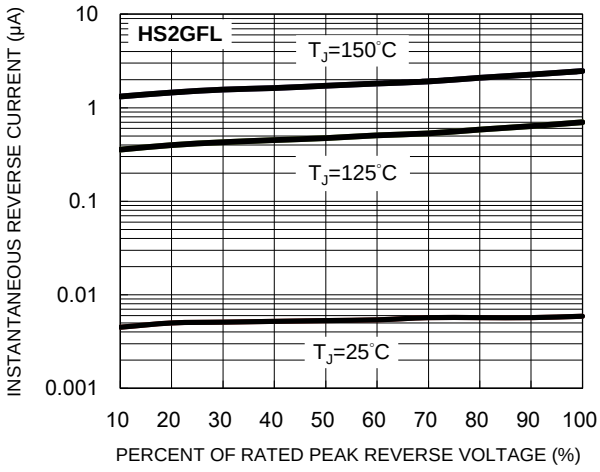
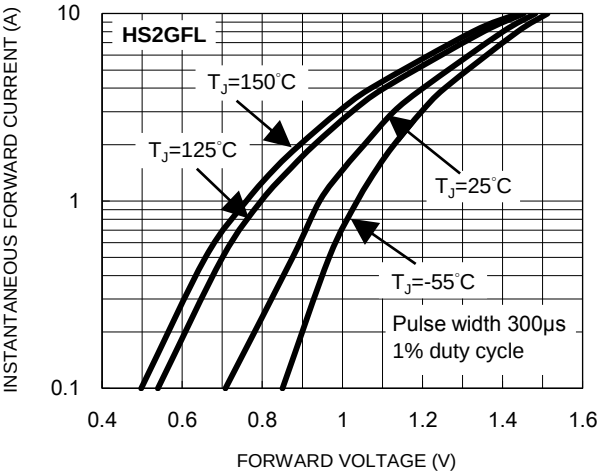


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.7 Typical Reverse Characteristics

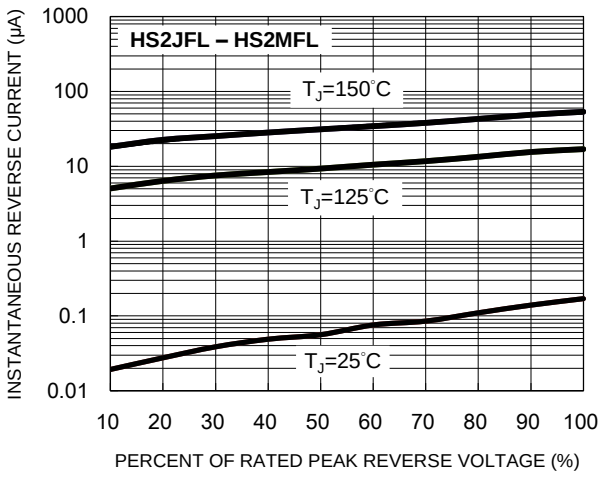


Fig.8 Typical Forward Characteristics

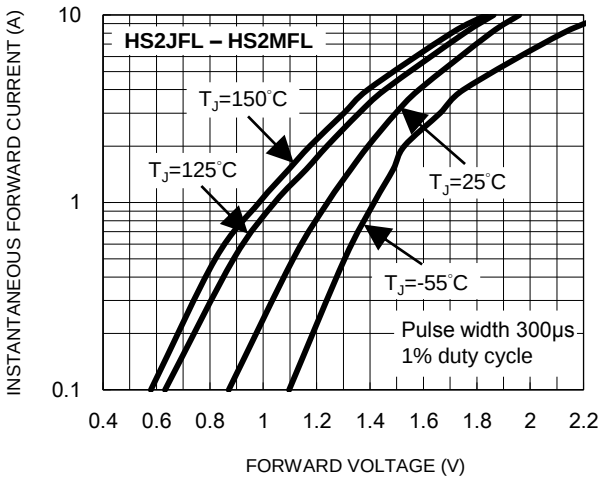
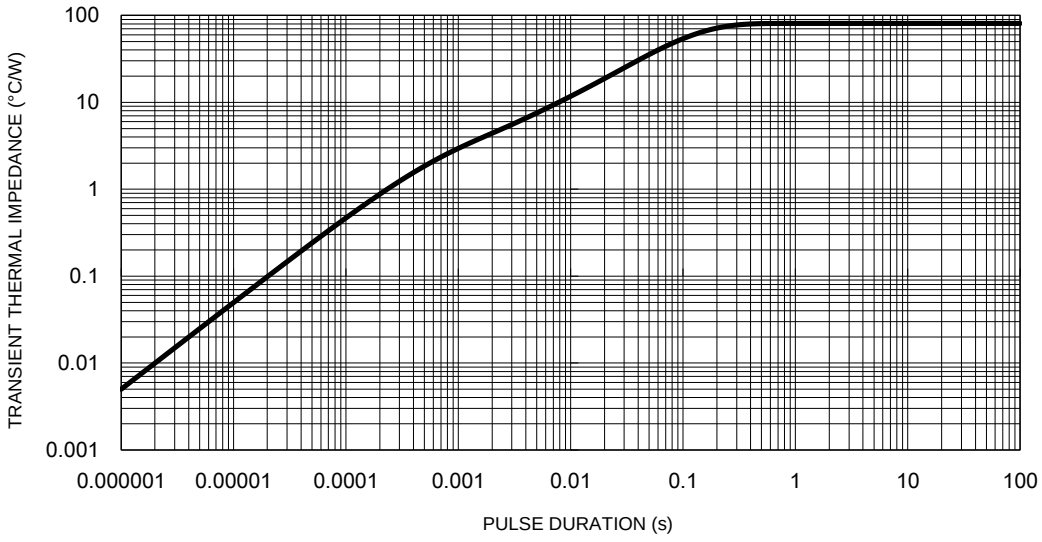
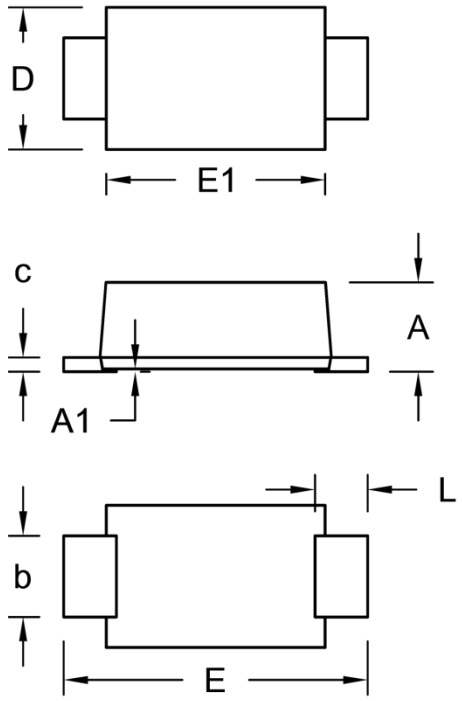


Fig.9 Typical Transient Thermal Impedance



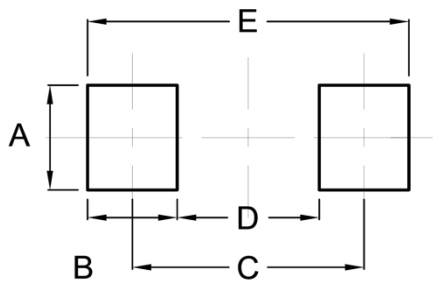
PACKAGE OUTLINE DIMENSIONS

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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