

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

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low power loss, high efficiency
- Fast switching for high efficiency
- Low profile package
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS

PARAMETER	VALUE	UNIT
I_F	2	A
V_{RRM}	200 - 1000	V
I_{FSM}	60	A
$T_{J\ MAX}$	150	°C
Package	SOD-128	
Configuration	Single die	

APPLICATIONS

- Freewheeling
- Snubber
- DC/DC converters
- Automotive application


SOD-128


MECHANICAL DATA

- Case: SOD-128
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.028g (approximately)

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

PARAMETER	SYMBOL	HS2D FSH	HS2G FSH	HS2J FSH	HS2K FSH	HS2M FSH	UNIT	
Marking code on the device		HS2DFH	HS2GFH	HS2JFH	HS2KFH	HS2MFH		
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}					60	A
	$t = 1.0\text{ms}$						120	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	$R_{\theta JL}$	17	$^{\circ}C/W$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	53	$^{\circ}C/W$
Junction-to-case thermal resistance	$R_{\theta JC}$	21	$^{\circ}C/W$

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

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	HS2DFSH	$I_F = 1A, T_J = 25^{\circ}C$	V_F	0.81	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		0.87	1.00	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.67	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		0.74	0.82	V
	HS2GFSH	$I_F = 1A, T_J = 25^{\circ}C$		0.90	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		0.99	1.30	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.76	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		0.86	0.96	V
	HS2JFSH	$I_F = 1A, T_J = 25^{\circ}C$		1.00	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		1.10	1.70	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.80	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		0.92	1.10	V
	HS2KFSH HS2MFSH	$I_F = 1A, T_J = 25^{\circ}C$		1.30	-	V
		$I_F = 2A, T_J = 25^{\circ}C$		1.48	1.70	V
		$I_F = 1A, T_J = 125^{\circ}C$		0.94	-	V
		$I_F = 2A, T_J = 125^{\circ}C$		1.11	1.23	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^{\circ}C$	I_R	-	1	μA
		$T_J = 125^{\circ}C$		-	80	μA
Reverse recovery time	HS2DFSH	$I_F = 0.5A, I_R = 1.0A,$ $I_{rr} = 0.25A$	t_{rr}	-	50	ns
	HS2GFSH			-	75	ns
	HS2JFSH			-	75	ns
	HS2KFSH			-	75	ns
	HS2MFSH			-	75	ns
Junction capacitance	HS2DFSH	1MHz, $V_R = 4.0V$	C_J	32	-	pF
	HS2GFSH			25	-	pF
	HS2JFSH			17	-	pF
	HS2KFSH			12	-	pF
	HS2MFSH			12	-	pF

Notes:

(1) Pulse test with PW = 0.3ms

(2) Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE⁽¹⁾	PACKAGE	PACKING
HS2xFSH	SOD-128	14,000 / Tape & Reel

Notes:

(1) “x” defines voltage from 200V(HS2DFSH) to 1000V(HS2MFSH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

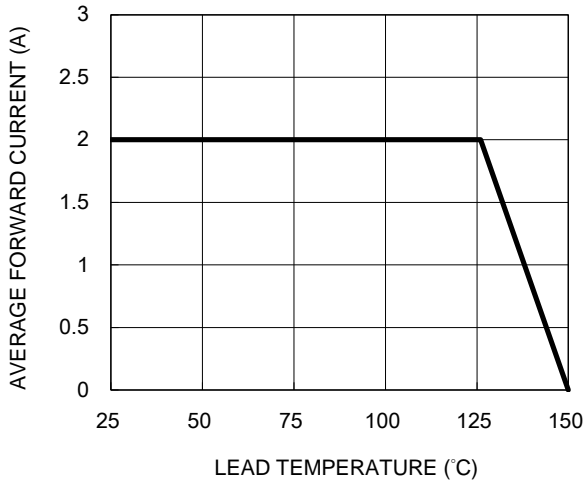


Fig.2 Typical Junction Capacitance

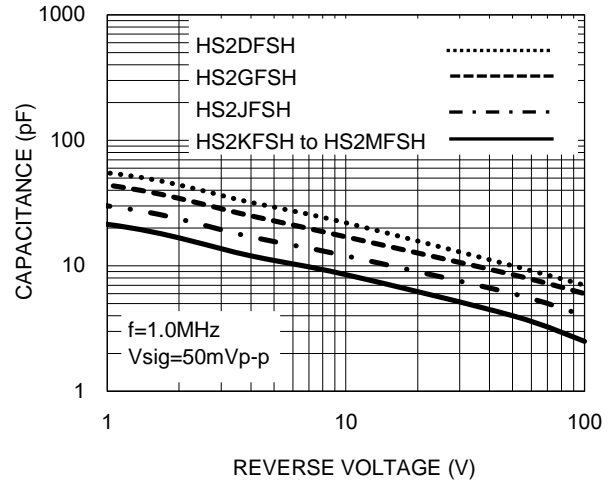


Fig.3 Typical Reverse Characteristics

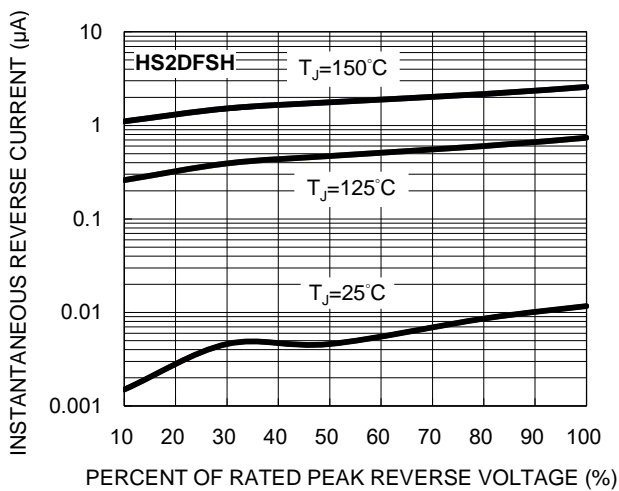


Fig.4 Typical Forward Characteristics

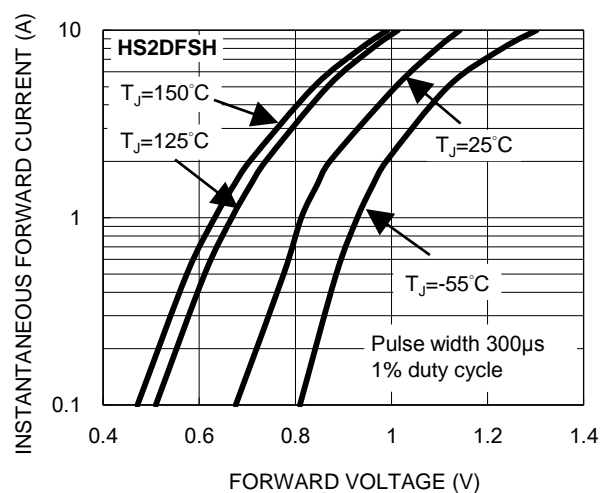


Fig.5 Typical Reverse Characteristics

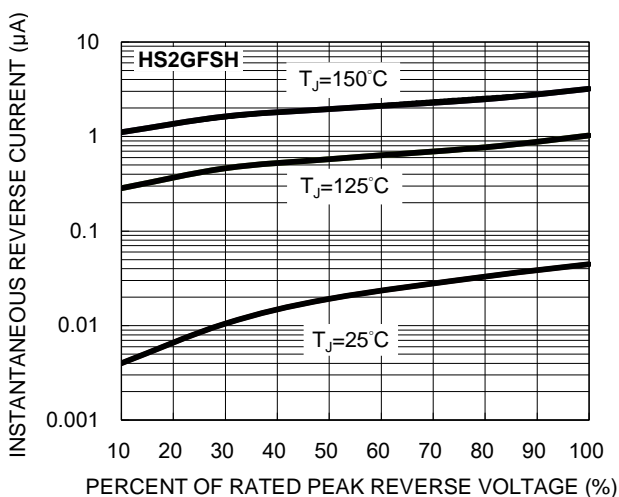
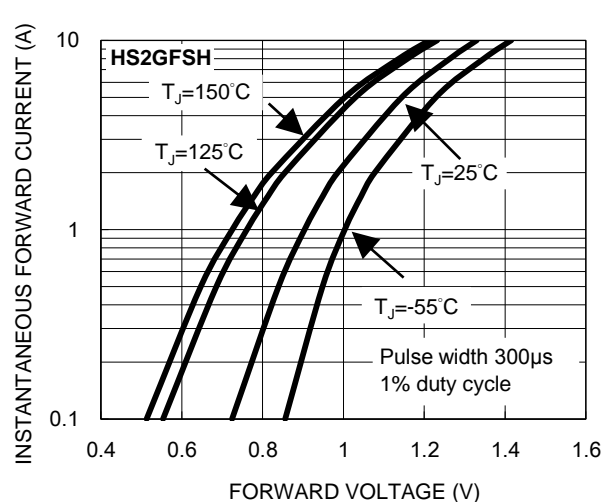


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

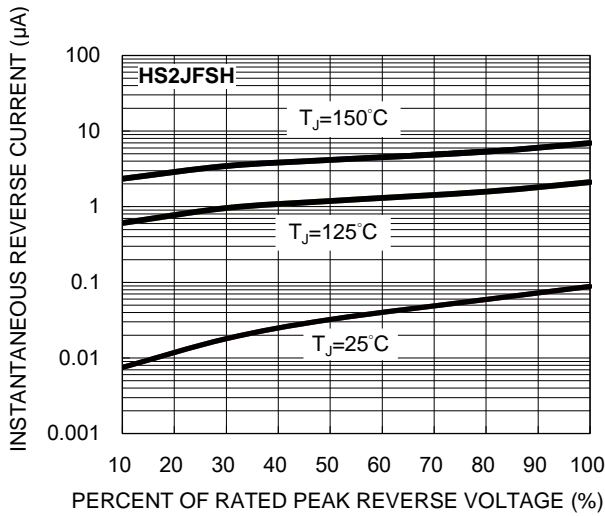


Fig.8 Typical Forward Characteristics

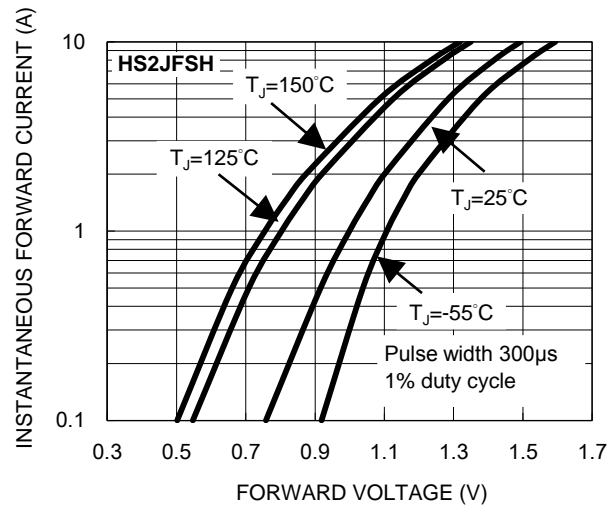


Fig.9 Typical Reverse Characteristics

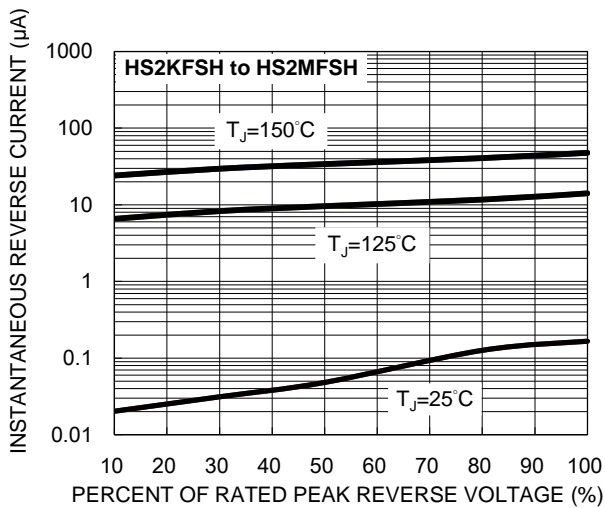


Fig.10 Typical Forward Characteristics

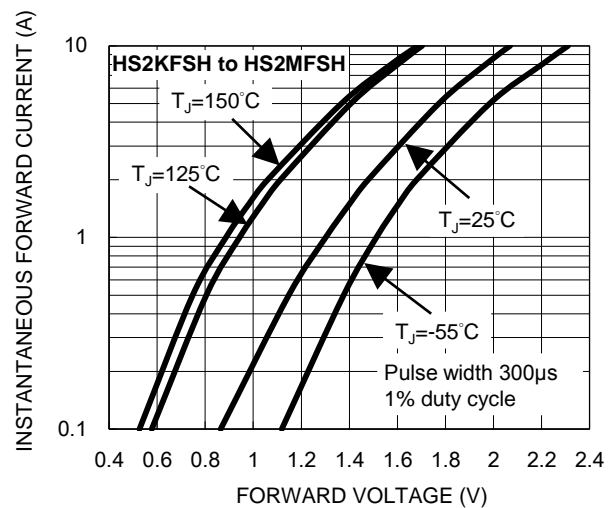
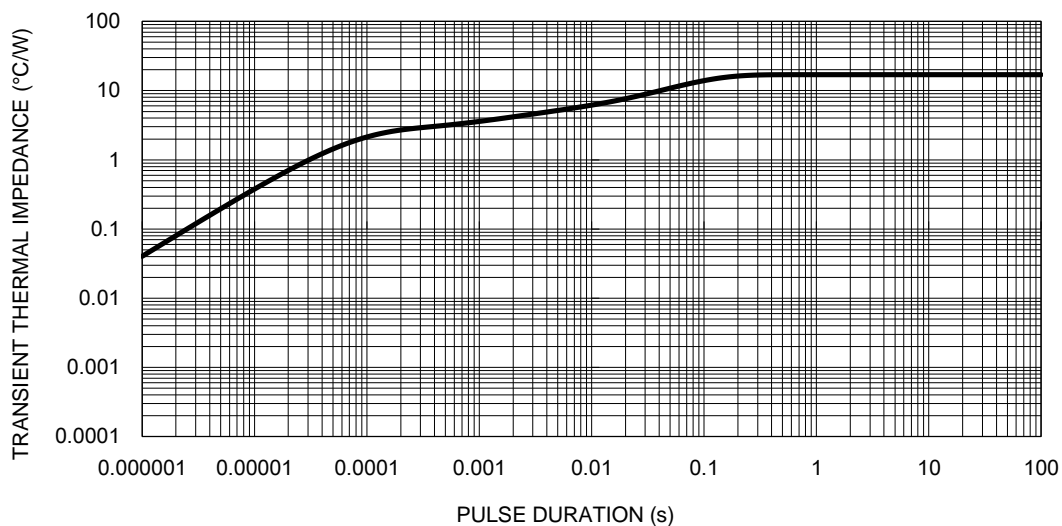
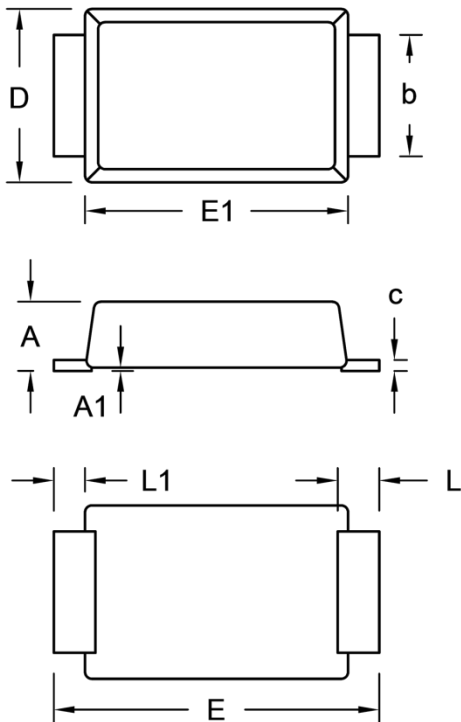


Fig.11 Typical Transient Thermal Impedance



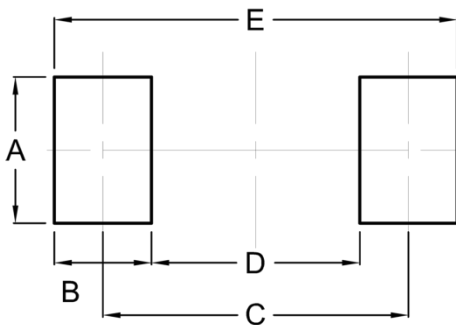
PACKAGE OUTLINE DIMENSIONS

SOD-128



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	0.00	0.10	0.000	0.004
b	1.60	1.90	0.063	0.075
c	0.10	0.22	0.004	0.009
D	2.30	2.70	0.091	0.106
E	4.40	5.00	0.173	0.197
E1	3.60	4.00	0.142	0.157
L	0.40	0.80	0.016	0.031
L1	0.30	0.60	0.012	0.024

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	2.10	0.083
B	1.40	0.055
C	4.40	0.173
D	3.00	0.118
E	5.80	0.228

MARKING DIAGRAM



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

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