

1A, 200V - 1000V Fast Recovery Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Low power loss, high efficiency
- Low profile package
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

APPLICATIONS

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

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: 0.027g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	1	A
V_{RRM}	200 - 1000	V
I_{FSM}	30	A
$T_{J\ MAX}$	175	°C
Package	SOD-128	
Configuration	Single die	


SOD-128


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	RS1D FSH	RS1G FSH	RS1J FSH	RS1K FSH	RS1M FSH	UNIT
Marking code on the device		RS1DFS	RS1GFS	RS1JFS	RS1KFS	RS1MFS	
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	1					A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30					A
Junction temperature	T_J	-55 to +175					°C
Storage temperature	T_{STG}	-55 to +175					°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	29	$^{\circ}\text{C}/\text{W}$
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	$^{\circ}\text{C}/\text{W}$
Junction-to-case thermal resistance	$R_{\theta JC}$	30	$^{\circ}\text{C}/\text{W}$

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⁾	$I_F = 0.5\text{A}, T_J = 25^{\circ}\text{C}$	V_F	0.94	1.10	V	
	$I_F = 1.0\text{A}, T_J = 25^{\circ}\text{C}$		1.01	1.30	V	
	$I_F = 0.5\text{A}, T_J = 125^{\circ}\text{C}$		0.79	1.00	V	
	$I_F = 1.0\text{A}, T_J = 125^{\circ}\text{C}$		0.88	1.20	V	
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^{\circ}\text{C}$	I_R	-	5	μA	
	$T_J = 125^{\circ}\text{C}$		-	50	μA	
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	C_J	7	-	pF	
Reverse recovery time	RS1DFSH	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	150	ns
	RS1GFSH			-	250	ns
	RS1JFSH			-	500	ns
	RS1KFSH RS1MFSH			-	500	ns

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
RS1xFSH	SOD-128	14,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(RS1DFSH) to 1000V(RS1MFSH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

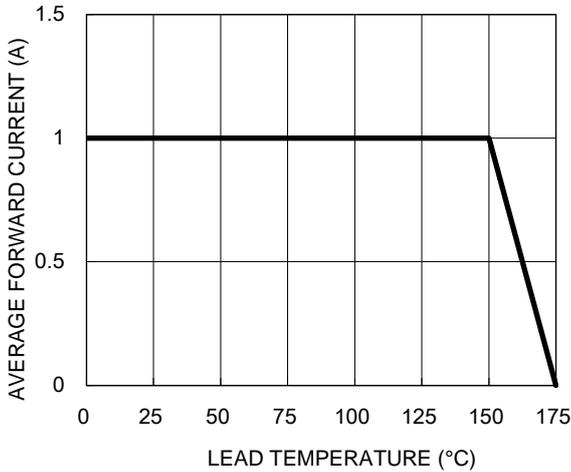


Fig.2 Typical Junction Capacitance

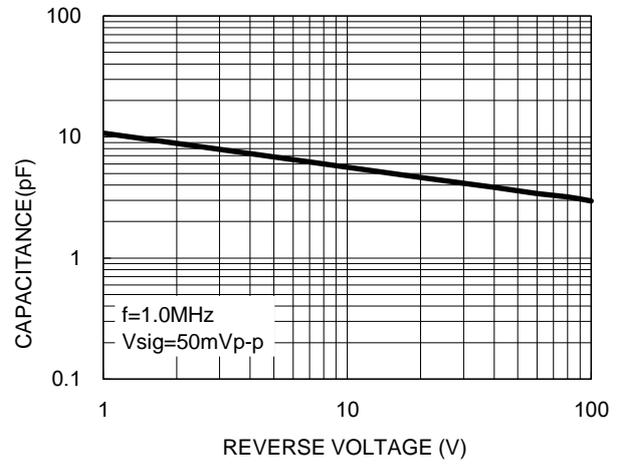


Fig.3 Typical Reverse Characteristics

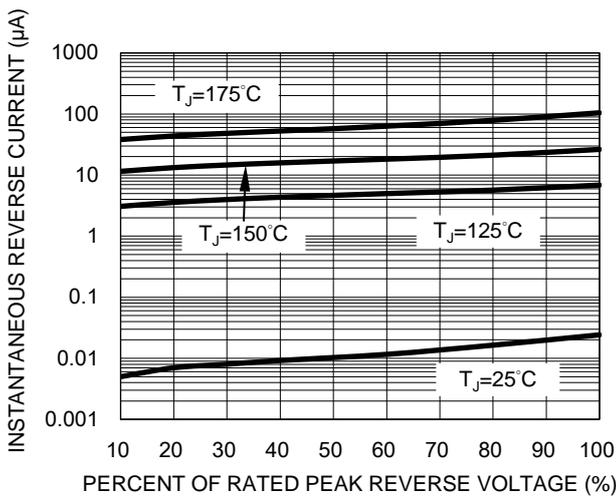
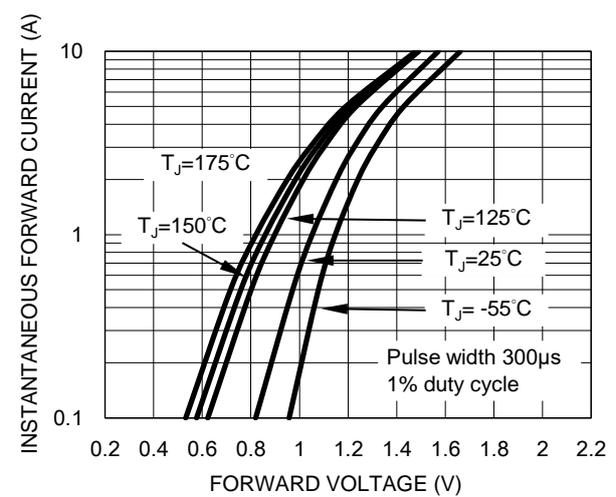
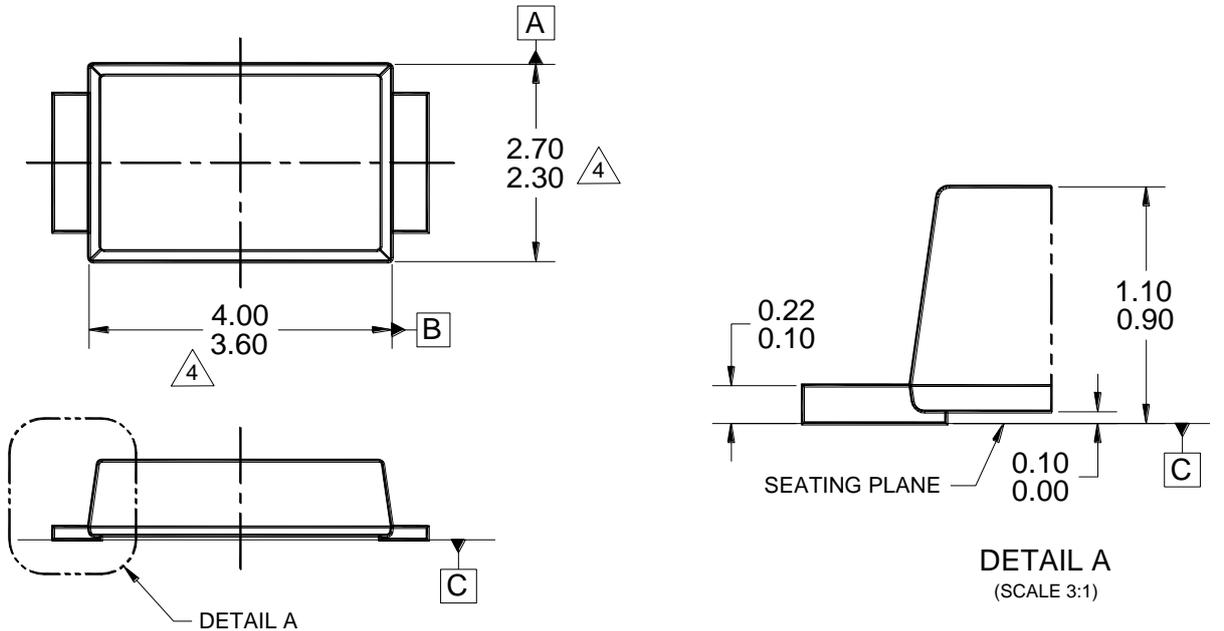


Fig.4 Typical Forward Characteristics

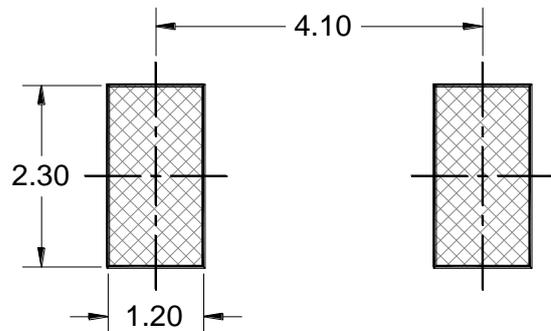
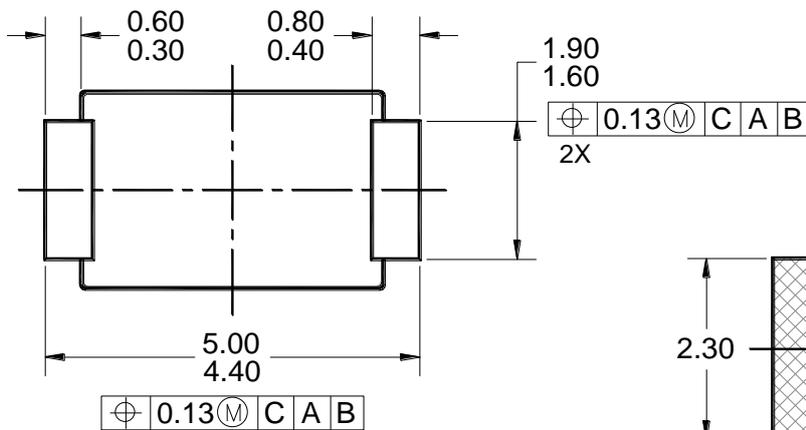


PACKAGE OUTLINE DIMENSIONS

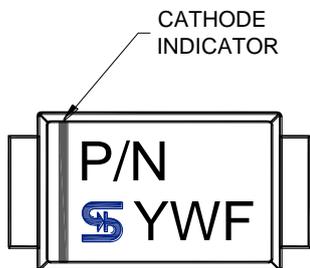
SOD-128



DETAIL A
(SCALE 3:1)



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE
YW = DATE CODE
F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-221, VARIATION AD, ISSUE B.
4. MODIFIED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. DWG NO. REF: HQ2SD07-SOD128-039 REV A.

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.