

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	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	84	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	30	°C/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

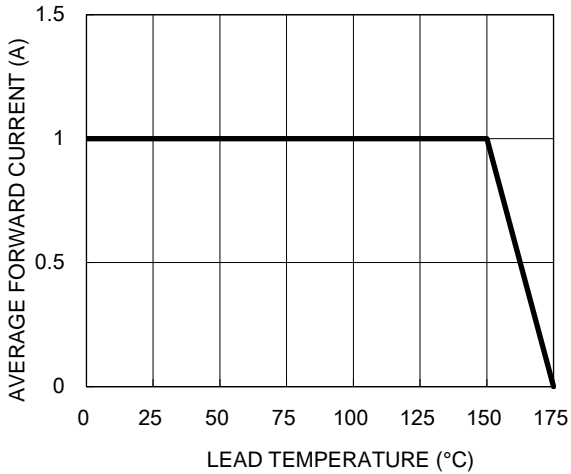


Fig.2 Typical Junction Capacitance

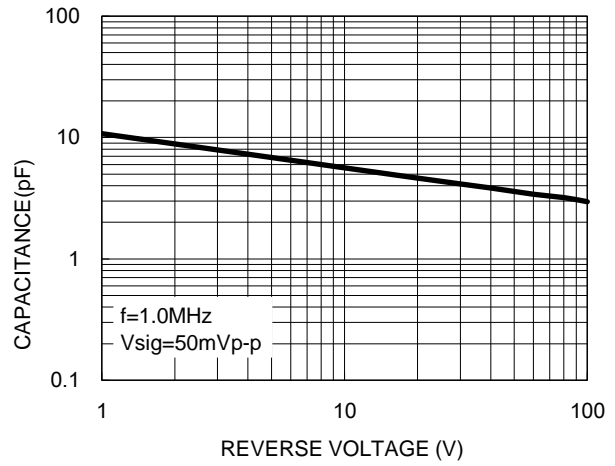


Fig.3 Typical Reverse Characteristics

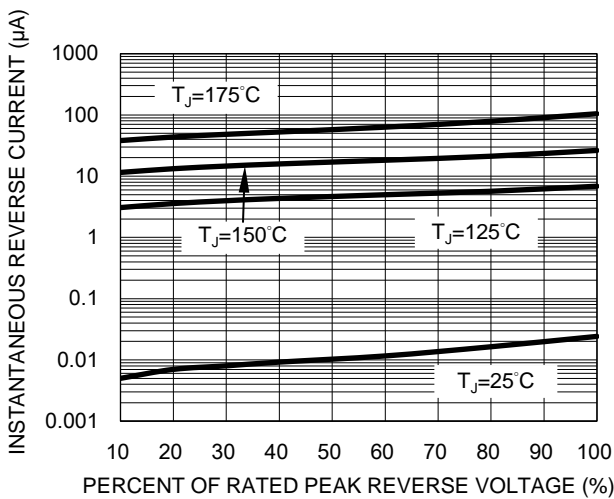
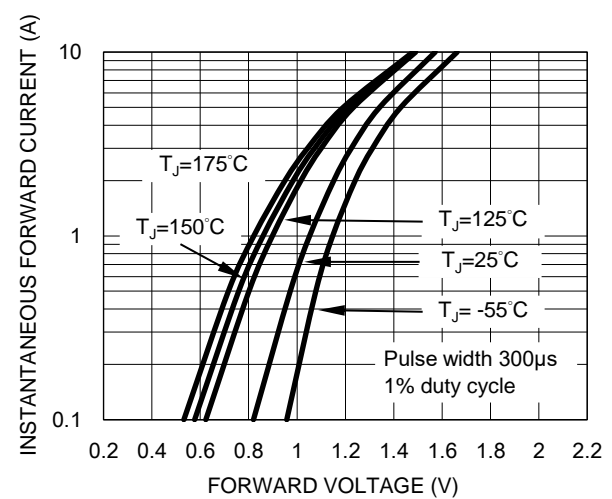
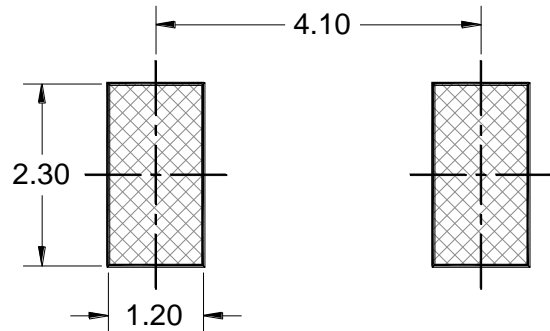
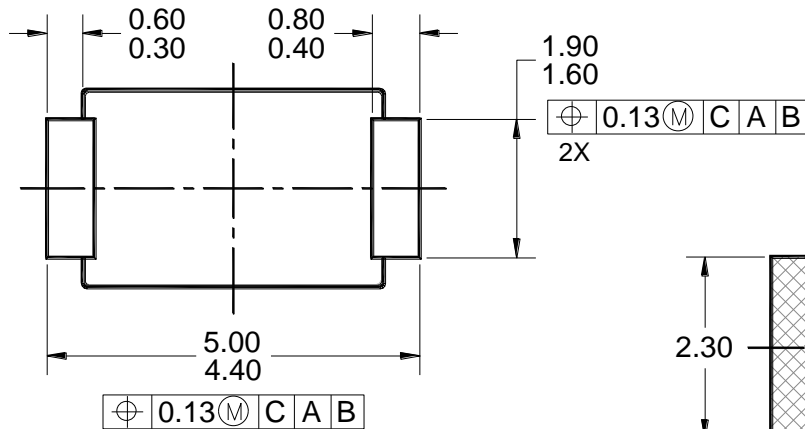
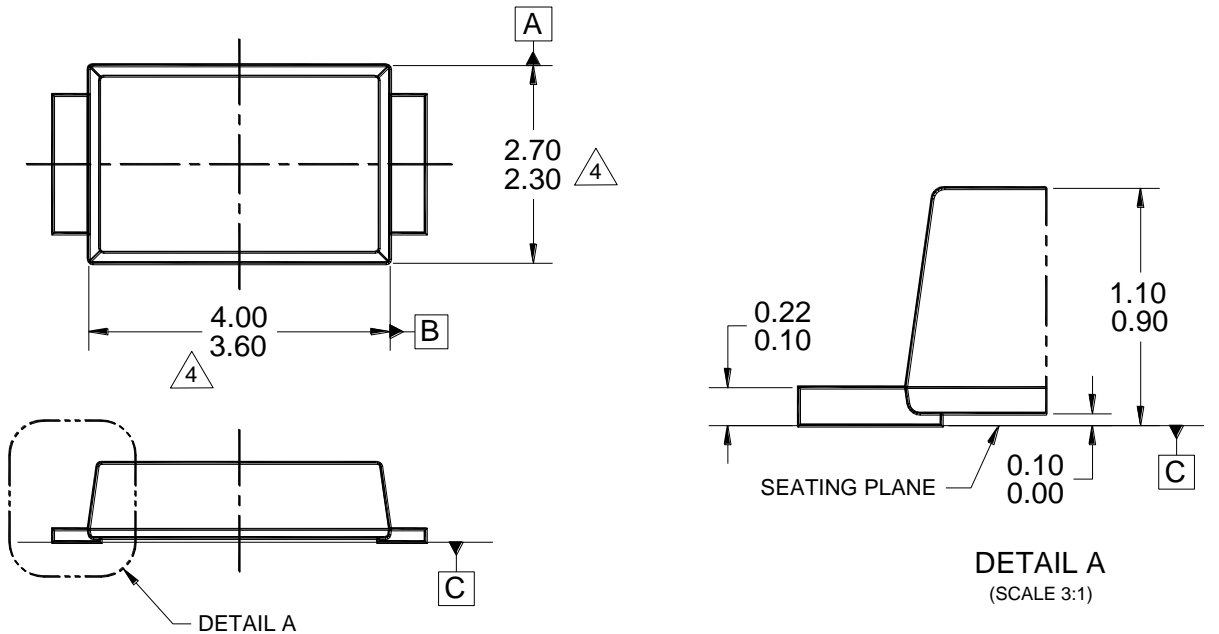


Fig.4 Typical Forward Characteristics

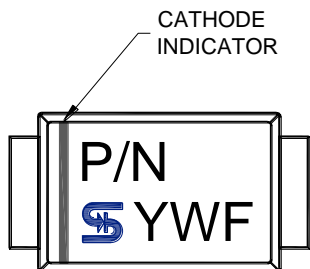


PACKAGE OUTLINE DIMENSIONS

SOD-128



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE
Y W = 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.

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