

3A, 600V Standard Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- 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: Thin SMA
- 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: 0.029g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	3	A
V_{RRM}	600	V
I_{FSM}	50	A
$T_{J\ MAX}$	150	°C
Package	Thin SMA	
Configuration	Single die	



Thin SMA



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	S3JALH	UNIT
Marking code on the device			S3JAL	
Repetitive peak reverse voltage		V_{RRM}	600	V
Reverse voltage, total rms value		$V_{R(RMS)}$	420	V
Forward current		I_F	3	A
Surge peak forward current single half sine wave superimposed on rated load	$t = 8.3\text{ms}$	I_{FSM}	50	A
	$t = 1.0\text{ms}$		140	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	$R_{\theta JL}$	14	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	74	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	20	°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⁾	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$	V_F	0.95	-	V
	$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$		1.03	1.10	V
	$I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$		0.84	-	V
	$I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$		0.94	-	V
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	1	μA
	$T_J = 125^\circ\text{C}$		7	-	μA
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	C_J	14	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
S3JALH	Thin SMA	14,000 / Tape & Reel

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

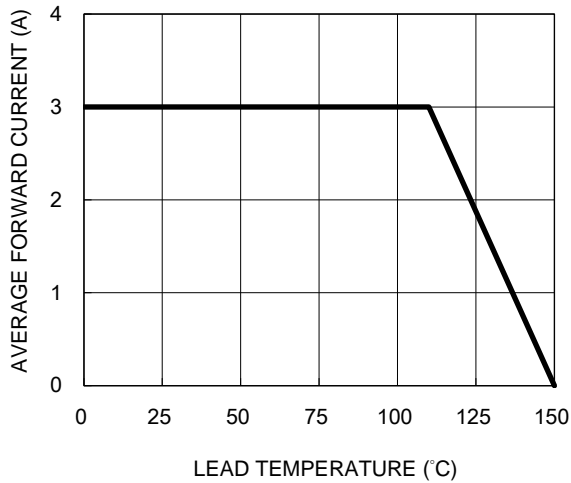


Fig.2 Typical Junction Capacitance

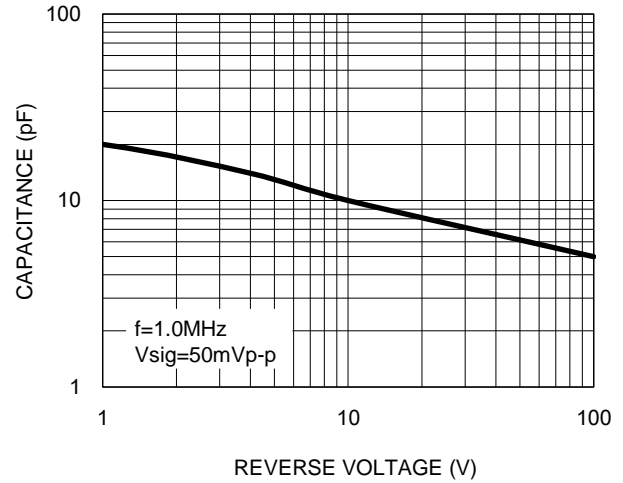


Fig.3 Typical Reverse Characteristics

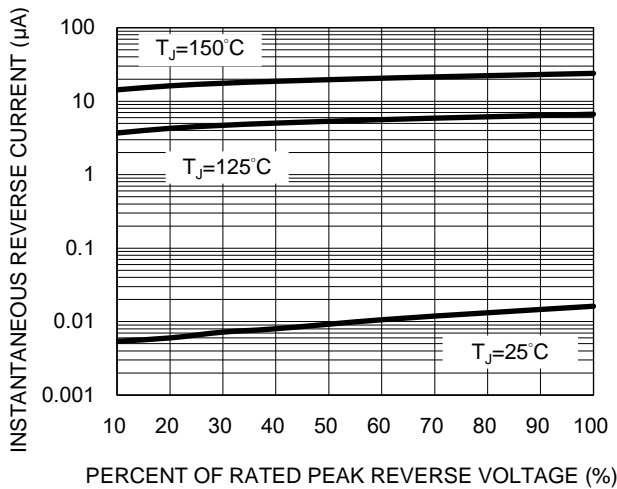


Fig.4 Typical Forward Characteristics

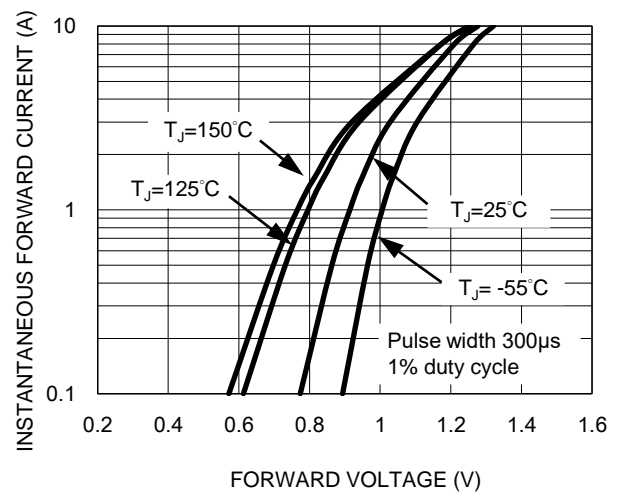
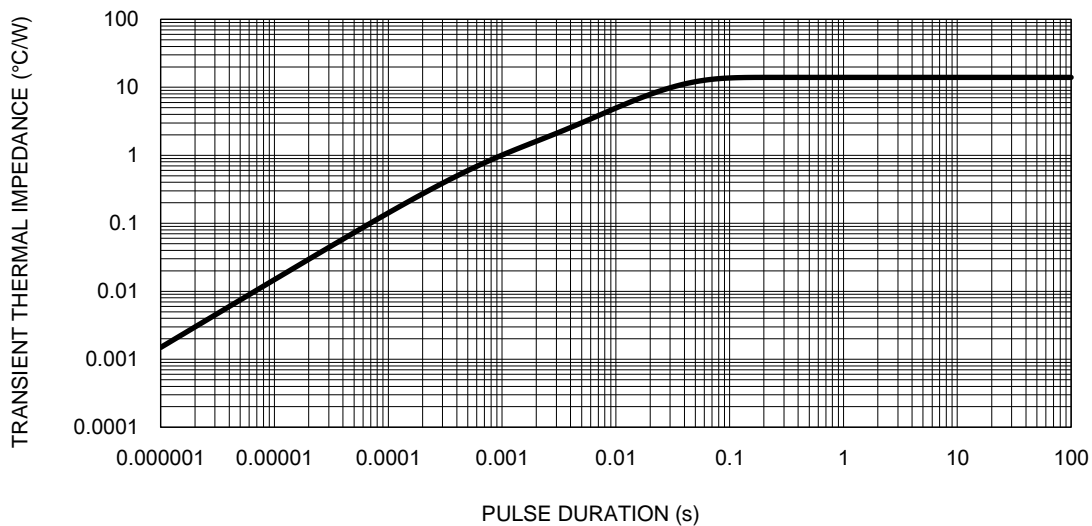
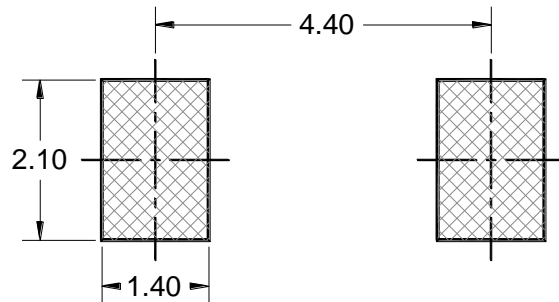
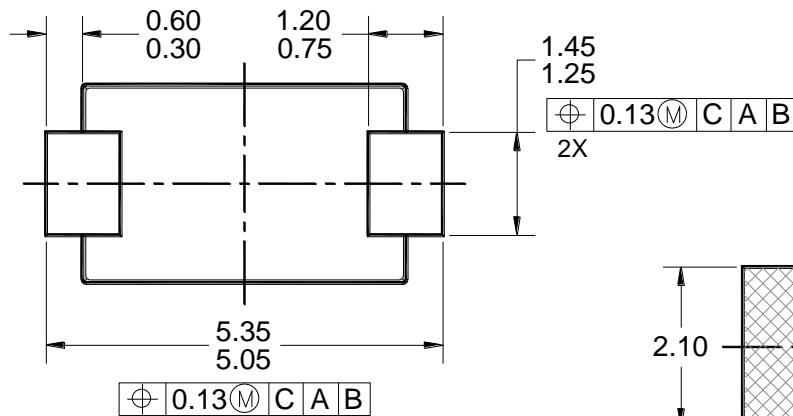
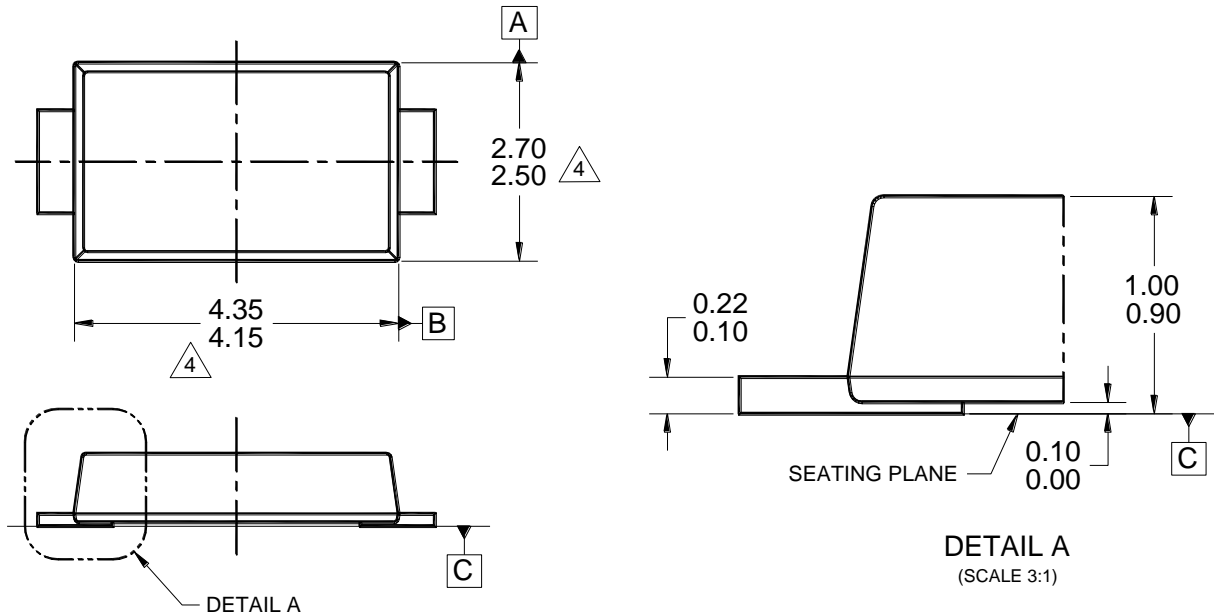


Fig.5 Typical Transient Thermal Impedance

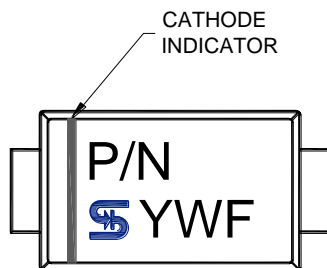


PACKAGE OUTLINE DIMENSIONS

Thin SMA



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

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

NOTES: UNLESS OTHERWISE SPECIFIED

- ALL DIMENSIONS ARE IN MILLIMETERS.
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
- PACKAGE OUTLINE REFERENCE: JEDEC DO-221, VARIATION AC, ISSUE B.
- MODED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
- SUGGESTED PAD LAYOUT IS FOR REFERENCE PURPOSE ONLY.
- DWG NO. REF: HQ2SD07-TSMA-074 REV A.

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