

1A, 200V - 1000V Fast Recovery 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

KEY PARAMETERS

PARAMETER	VALUE	UNIT
I_F	1	A
V_{RRM}	200 - 1000	V
I_{FSM}	30	A
$T_J \text{ MAX}$	175	°C
Package	Thin SMA	
Configuration	Single die	

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)



Thin SMA



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	RS1D ALH	RS1G ALH	RS1J ALH	RS1K ALH	RS1M ALH	UNIT
Marking code on the device		RS1DAH	RS1GAH	RS1JAH	RS1KAH	RS1MAH	
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, single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	I_{FSM}					A
	$t = 1.0\text{ms}$						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	$R_{\theta JL}$	19	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	81	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	19	°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⁾	RS1DALH RS1GALH RS1JALH	I _F = 0.5A, T _J = 25°C	V _F	0.90	-	V
		I _F = 1.0A, T _J = 25°C		0.97	1.30	V
		I _F = 0.5A, T _J = 125°C		0.75	-	V
		I _F = 1.0A, T _J = 125°C		0.83	0.94	V
	RS1KALH RS1MALH	I _F = 0.5A, T _J = 25°C		0.96	-	V
		I _F = 1.0A, T _J = 25°C		1.04	1.30	V
		I _F = 0.5A, T _J = 125°C		0.80	-	V
		I _F = 1.0A, T _J = 125°C		0.90	1.11	V
Reverse current @ rated V _R ⁽²⁾		T _J = 25°C	I _R	-	1	μA
		T _J = 125°C		-	33	μA
Reverse recovery time	RS1DALH RS1GALH	I _F = 0.5A, I _R = 1.0A, I _{rr} = 0.25A	t _{rr}	-	150	ns
	RS1JALH			-	250	ns
	RS1KALH RS1MALH			-	500	ns
Junction capacitance		1MHz, V _R = 4.0V	C _J	7	-	pF

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
RS1xALH	Thin SMA	14,000 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(RS1DALH) to 1000V(RS1MALH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

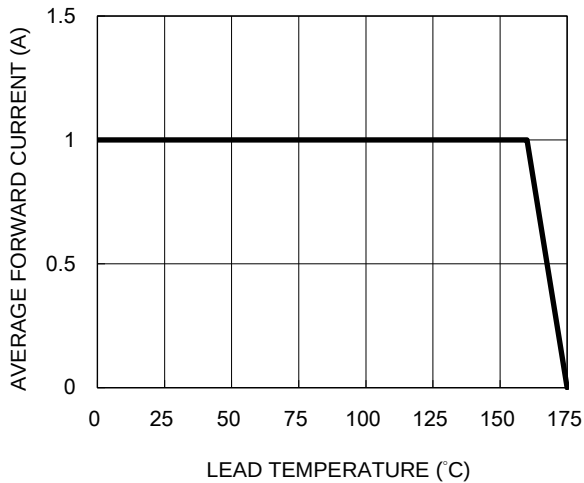


Fig.2 Typical Junction Capacitance

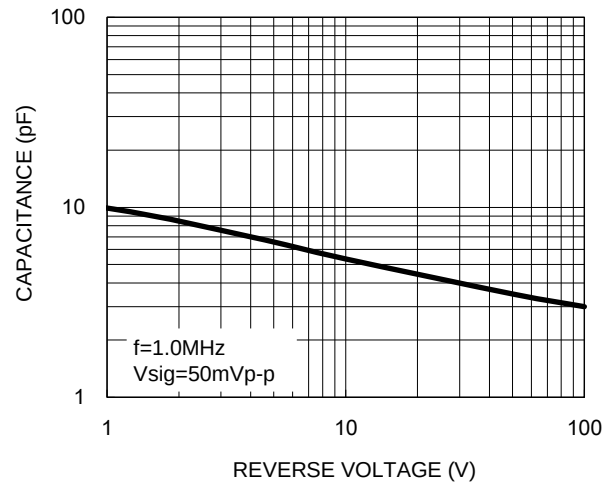


Fig.3 Typical Reverse Characteristics

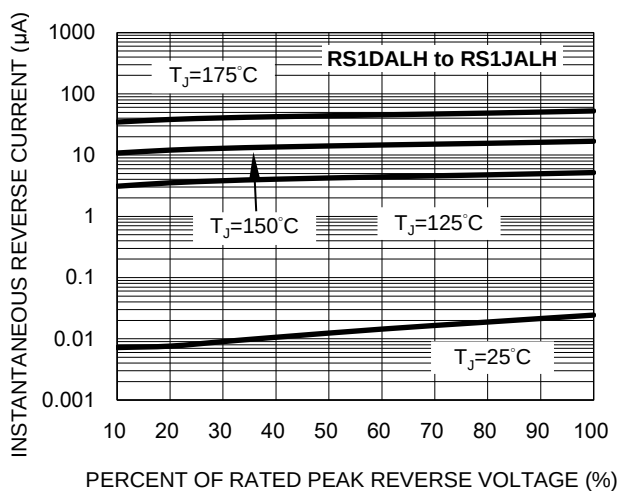


Fig.5 Typical Reverse Characteristics

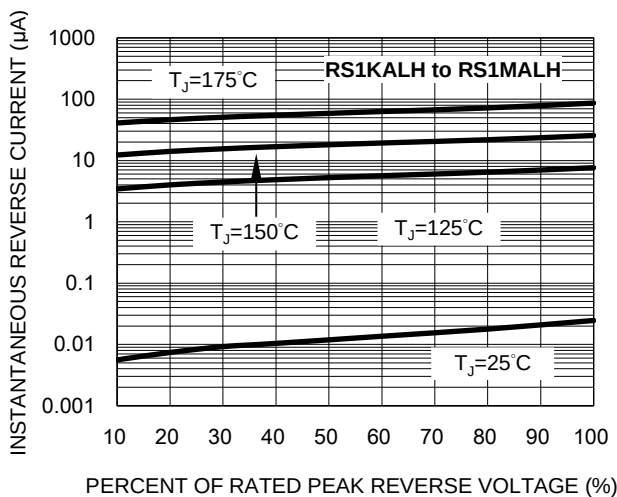


Fig.4 Typical Forward Characteristics

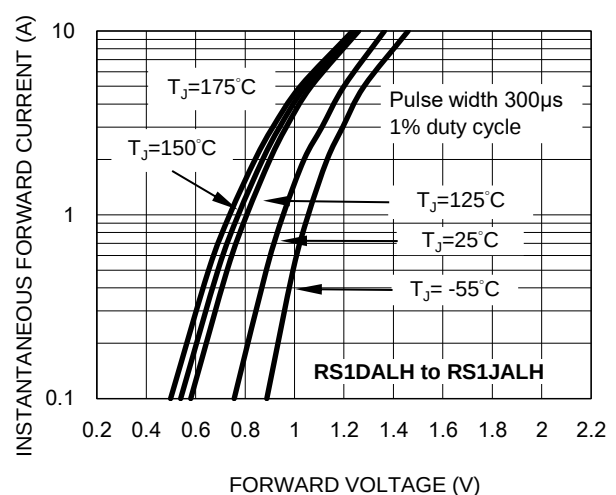
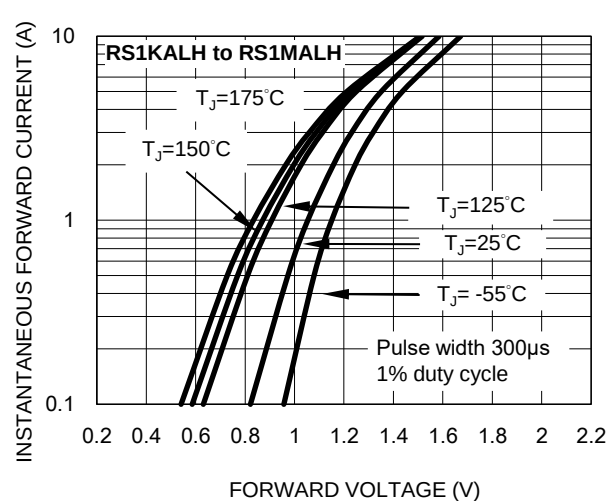


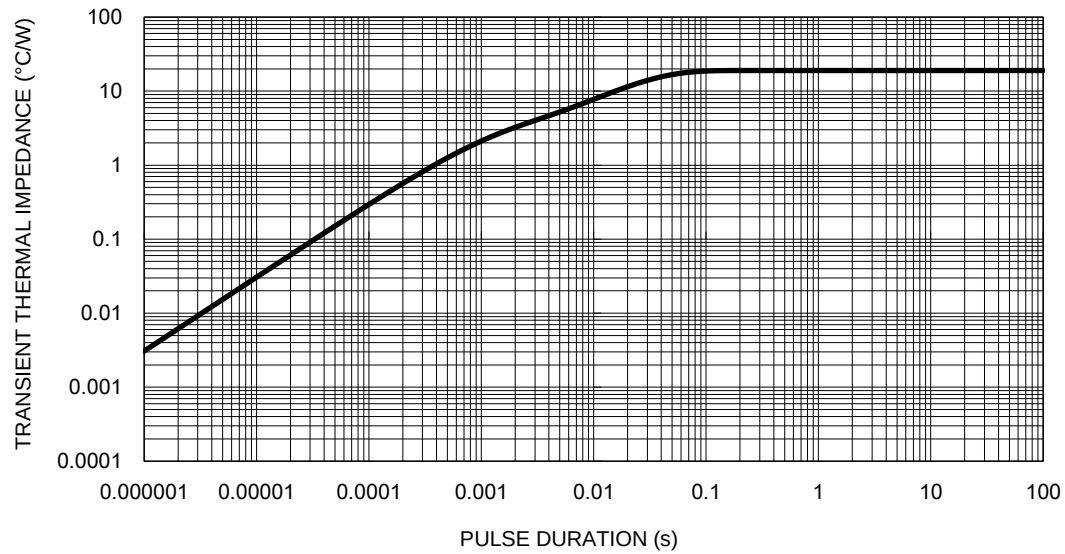
Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

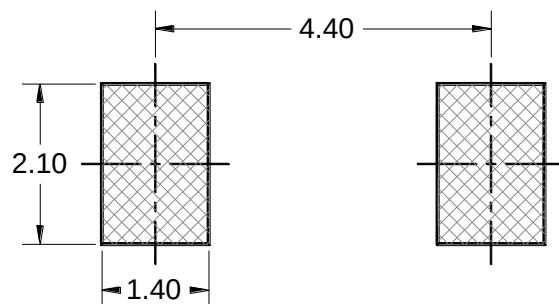
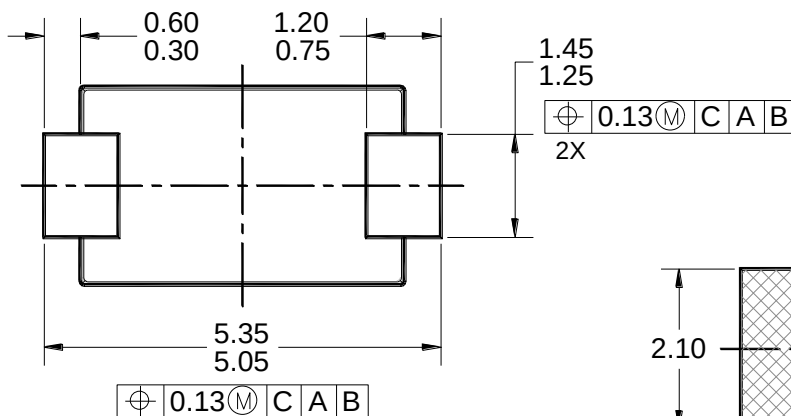
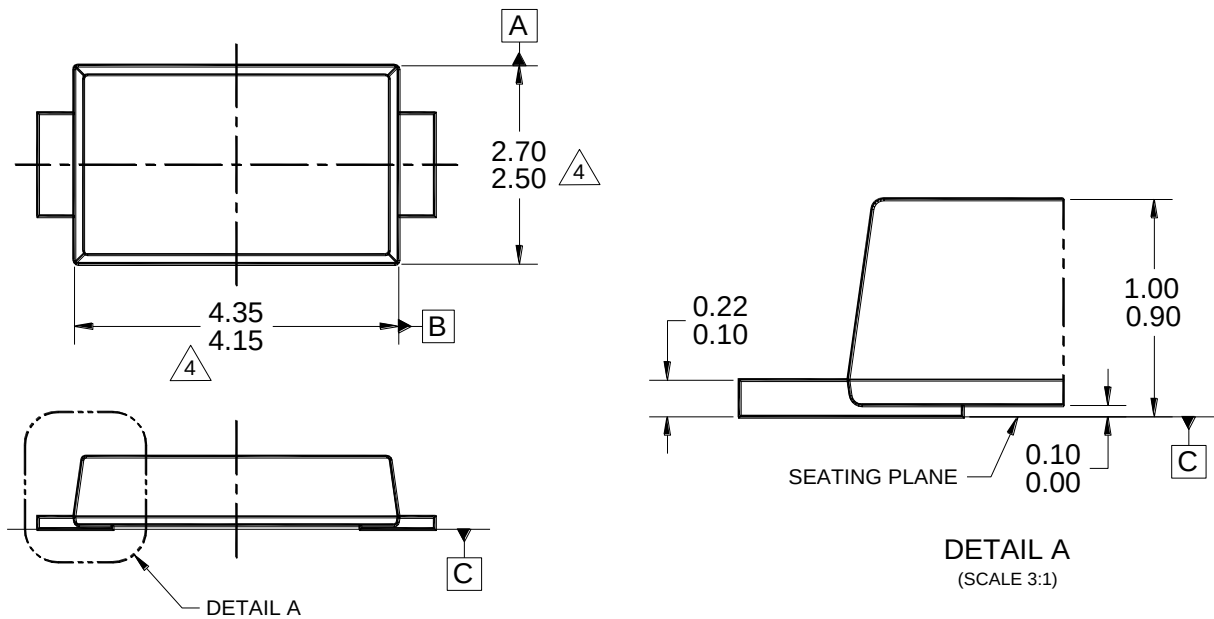
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 Typical Transient Thermal Impedance

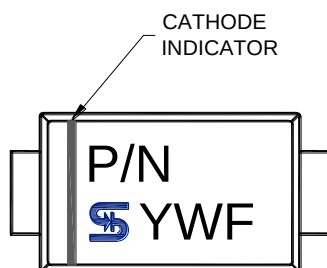


PACKAGE OUTLINE DIMENSIONS

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.
- MODIFIED 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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