

## 1A, 200V - 1000V Standard Surface Mount Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low profile package
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- General purpose

### MECHANICAL DATA

- Case: Thin SMA
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure 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
$I_F$	1	A
$V_{RRM}$	200 - 1000	V
$I_{FSM}$	30	A
$T_{J\ MAX}$	150	°C
Package	Thin SMA	
Configuration	Single die	



Thin SMA



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)								
PARAMETER		SYMBOL	S1DAL	S1GAL	S1JAL	S1KAL	S1MAL	UNIT
Marking code on the device			S1DAL	S1GAL	S1JAL	S1KAL	S1MAL	
Repetitive peak reverse voltage		V <sub>RRM</sub>	200	400	600	800	1000	V
Reverse voltage, total rms value		V <sub>R(RMS)</sub>	140	280	420	560	700	V
Forward current		I <sub>F</sub>	1					A
Surge peak forward current single half sine wave superimposed on rated load	t = 8.3ms	I <sub>FSM</sub>	30					A
	t = 1.0ms		100					A
Junction temperature		T <sub>J</sub>	-55 to +150					°C
Storage temperature		T <sub>STG</sub>	-55 to +150					°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	29	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	82	°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 <sup>(1)</sup>	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.90	-	V
	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$		0.96	1.10	V
	$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.78	-	V
	$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.85	0.98	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	1	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	50	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	8	-	pF

**Notes:**

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

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
S1xAL	Thin SMA	14,000 / Tape & Reel

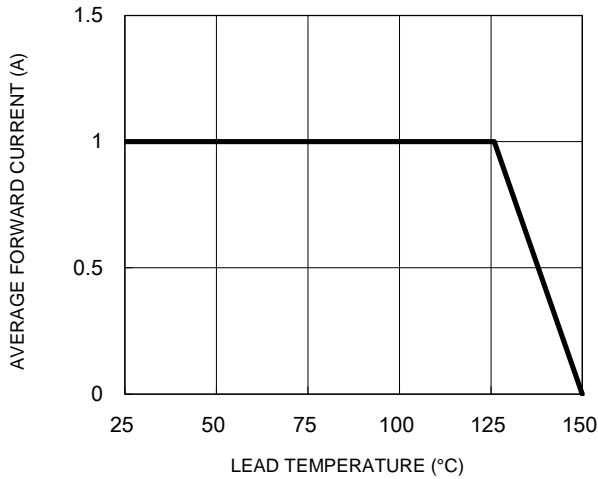
**Notes:**

1. "x" defines voltage from 200V(S1DAL) to 1000V(S1MAL)

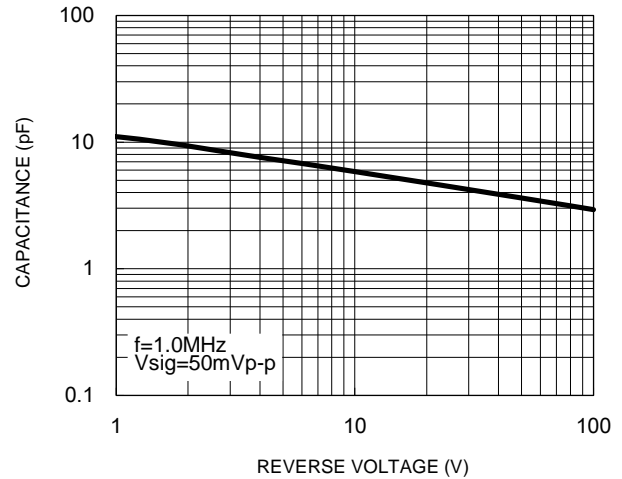
## CHARACTERISTICS CURVES

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

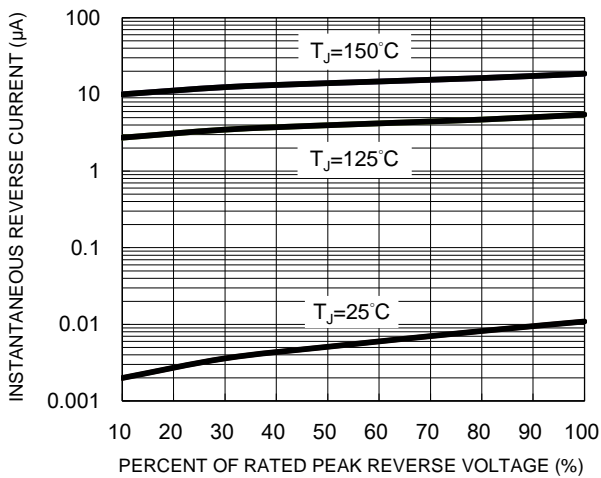
**Fig.1 Forward Current Derating Curve**



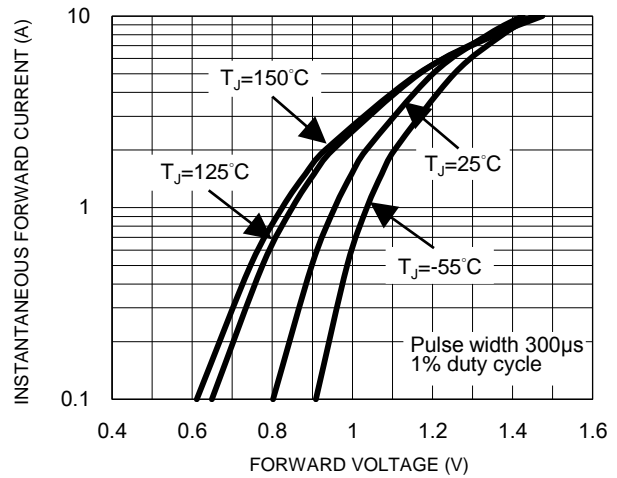
**Fig.2 Typical Junction Capacitance**



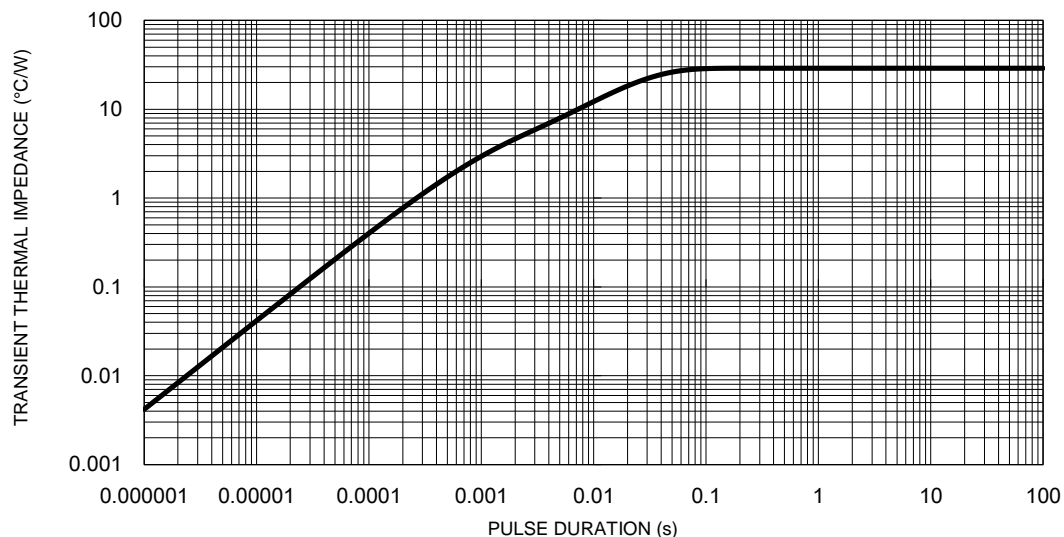
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

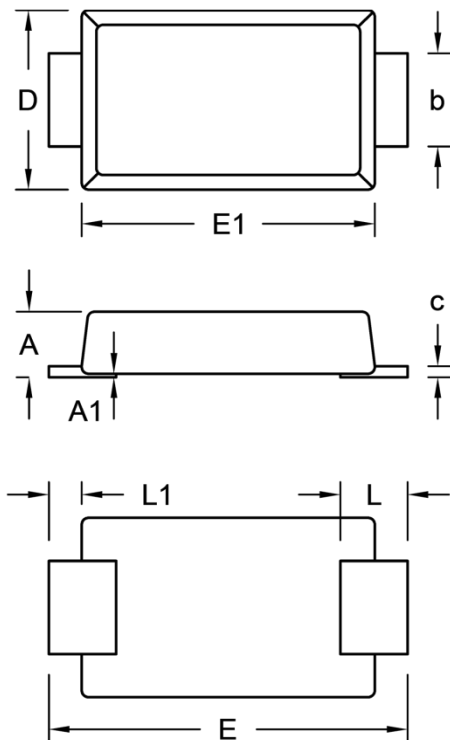


**Fig.5 Typical Transient Thermal Impedance**



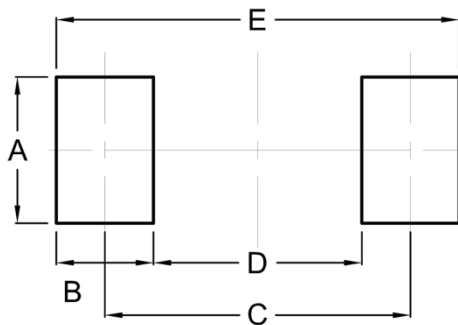
## PACKAGE OUTLINE DIMENSIONS

Thin SMA



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.90	1.00	0.035	0.039
A1	0.00	0.10	0.000	0.004
b	1.25	1.45	0.049	0.057
c	0.10	0.22	0.004	0.009
D	2.50	2.70	0.098	0.106
E	5.05	5.35	0.199	0.211
E1	4.15	4.35	0.163	0.171
L	0.75	1.20	0.030	0.047
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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