

## 1A, 100V - 200V Ultra Fast Surface Mount Rectifier

### FEATURES

- Planar technology
- Low power loss, high efficiency
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High frequency switching
- DC/DC
- Snubber

### MECHANICAL DATA

- Case: DO-214AC (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: 0.060g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	100 - 200	V
$I_{FSM}$	45	A
$T_{J\ MAX}$	175	°C
Package	DO-214AC (SMA)	
Configuration	Single die	



DO-214AC (SMA)



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)					
PARAMETER		SYMBOL	PU1BA	PU1DA	UNIT
Marking code on the device			PU1BA	PU1DA	
Repetitive peak reverse voltage		V <sub>RRM</sub>	100	200	V
Reverse voltage, total rms value		V <sub>R(RMS)</sub>	70	140	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>	45		A
	t = 1.0ms		100		
Junction temperature		T <sub>J</sub>	-55 to +175		°C
Storage temperature		T <sub>STG</sub>	-55 to +175		°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	20	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	76	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	23	°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>	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.79	-	V
	$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$		0.84	0.93	V
	$I_F = 0.5\text{A}, T_J = 125^\circ\text{C}$		0.64	-	V
	$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$		0.70	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	2	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	10	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	19	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	$t_{rr}$	-	25	ns
	$I_F = 1.0\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$		34	-	
Reverse recovery current	$I_F = 1.0\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 100\text{V}$	$I_{RM}$	3.4	-	A
Reverse recovery charge		$Q_{rr}$	27	-	nC
Reverse recovery time		$t_{rr}$	19	-	ns

**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
PU1xA	DO-214AC (SMA)	7,500/ Tape & Reel

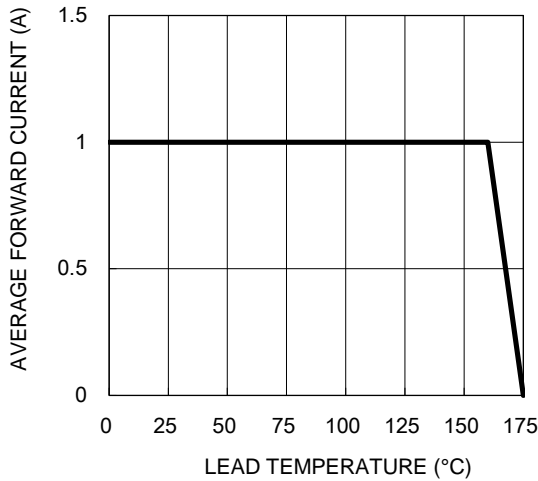
**Notes:**

1. "x" defines voltage from 100V(PU1BA) to 200V(PU1DA)

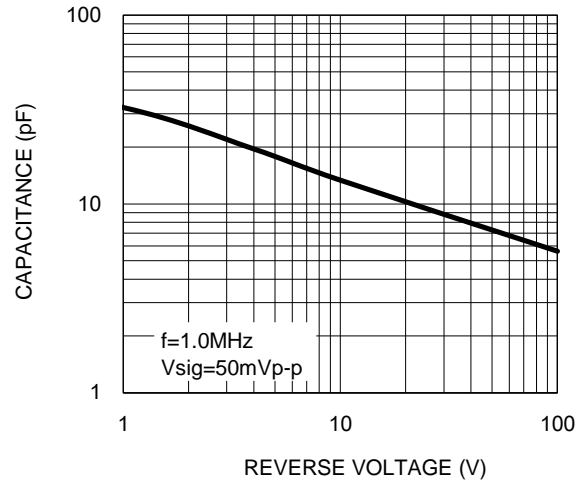
## CHARACTERISTICS CURVES

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

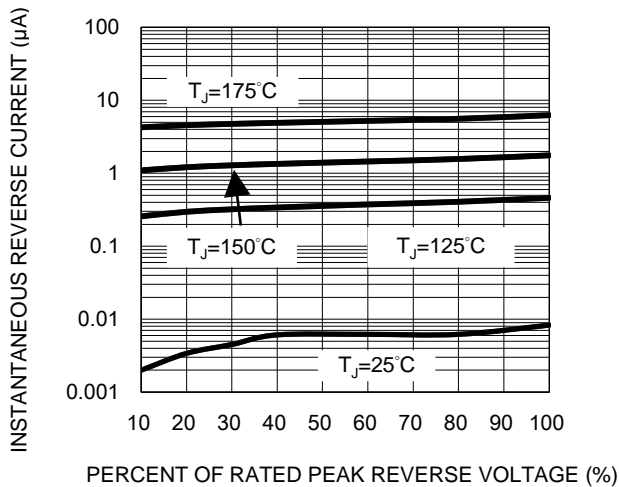
**Fig.1 Forward Current Derating Curve**



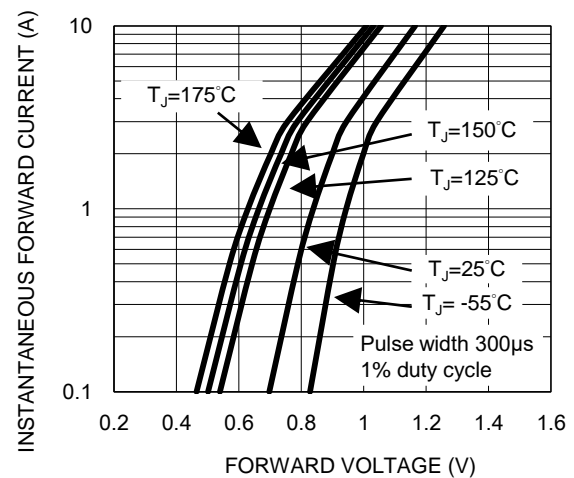
**Fig.2 Typical Junction Capacitance**



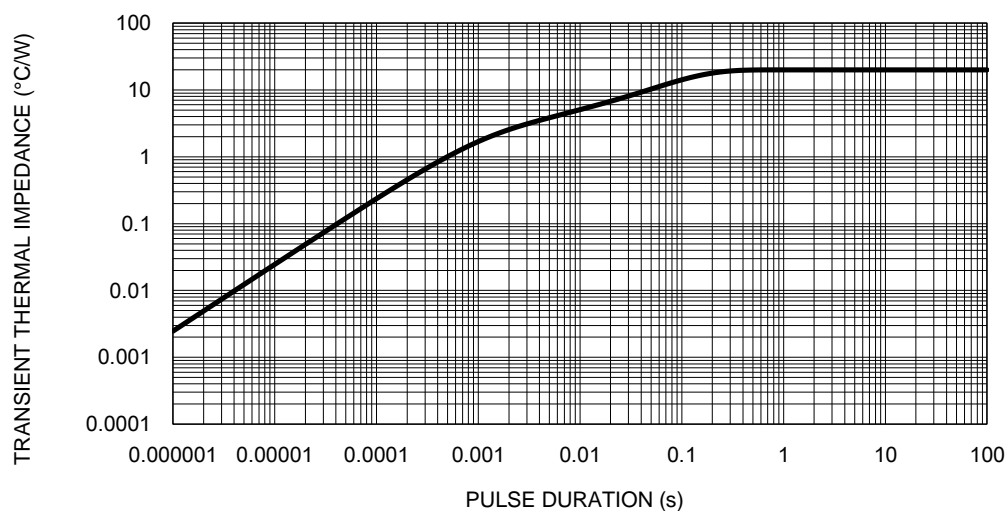
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

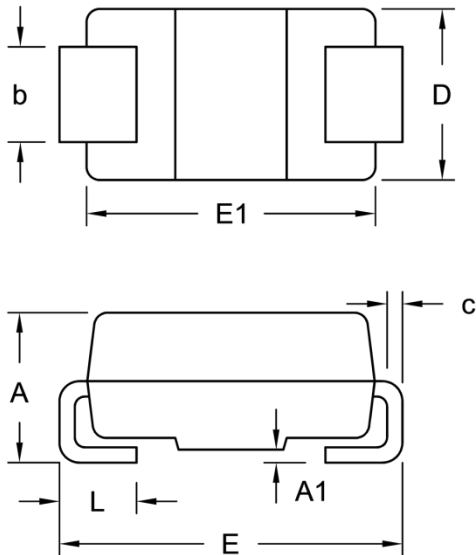


**Fig.5 Typical Transient Thermal Impedance**



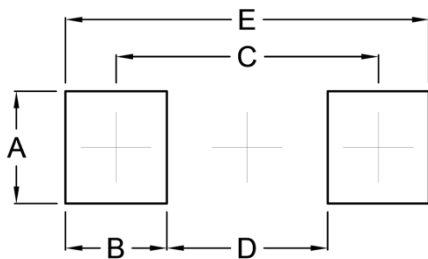
## PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.10	0.20	0.004	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

## SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

## MARKING DIAGRAM



P/N = Marking Code  
 G = Green Compound  
 YW = Date Code  
 F = Factory Code

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