

## 6A, 100V - 200V Ultra Fast Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- 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-214AB (SMC)
- 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: 0.201g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	6	A
$V_{RRM}$	100 - 200	V
$I_{FSM}$	160	A
$T_{JMAX}$	175	°C
Package	DO-214AB (SMC)	
Configuration	Single die	



DO-214AB (SMC)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	PU6BCH	PU6DCH	UNIT
Marking code on the device		PU6BC	PU6DC	
Repetitive peak reverse voltage	$V_{RRM}$	100	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	140	V
Forward current	$I_F$	6		A
Surge peak forward current single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	160		A
	$t = 1.0\text{ms}$	360		
Junction temperature	$T_J$	-55 to +175		°C
Storage temperature	$T_{STG}$	-55 to +175		°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	12	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	57	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	13	°C/W

**Thermal Performance Note:** Units mounted on PCB (16mm x 16mm Cu pad test board)

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.79	-	V
	$I_F = 6\text{A}, T_J = 25^\circ\text{C}$		0.85	0.94	V
	$I_F = 3\text{A}, T_J = 125^\circ\text{C}$		0.65	-	V
	$I_F = 6\text{A}, T_J = 125^\circ\text{C}$		0.71	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	2	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	15	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	110	-	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
	$I_F = 1.0\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_R = 30\text{V}$		31	-	
Reverse recovery current	$I_F = 6.0\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_R = 100\text{V}$	$I_{RM}$	5.3	-	A
Reverse recovery charge		$Q_{rr}$	72	-	nC
Reverse recovery time		$t_{rr}$	27	-	ns

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
PU6xCH	DO-214AB (SMC)	3,000/ Tape & Reel

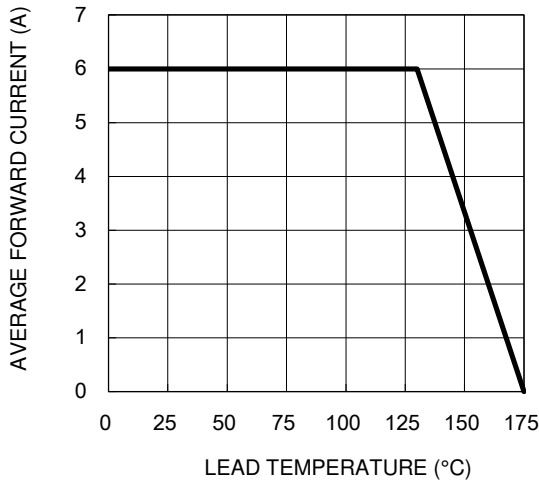
**Notes:**

1. "x" defines voltage from 100V(PU6BCH) to 200V(PU6DCH)

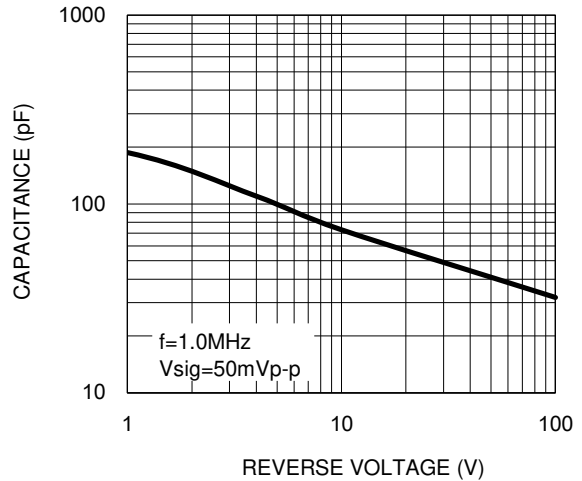
**CHARACTERISTICS CURVES**

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

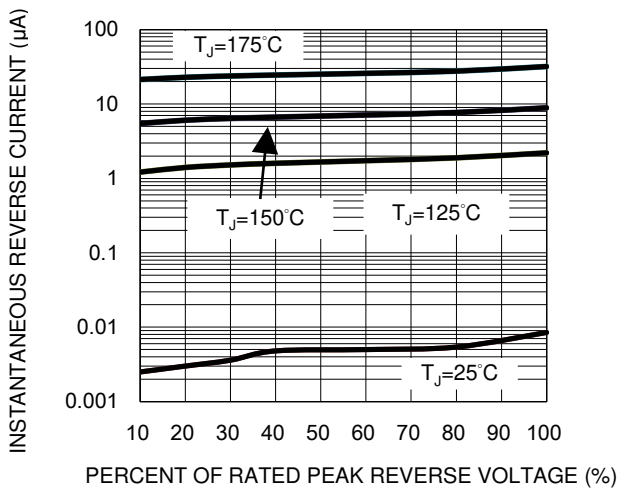
**Fig.1 Forward Current Derating Curve**



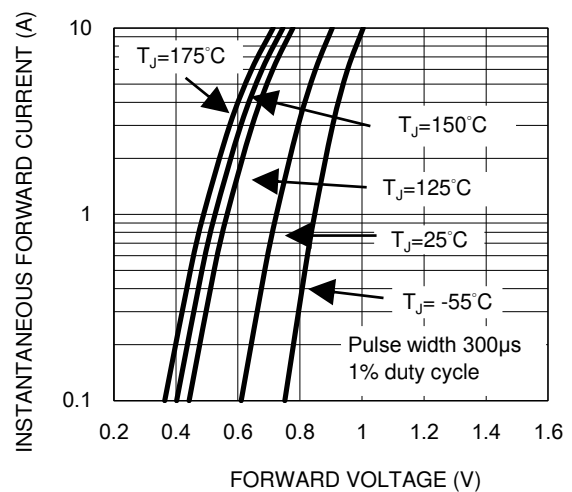
**Fig.2 Typical Junction Capacitance**



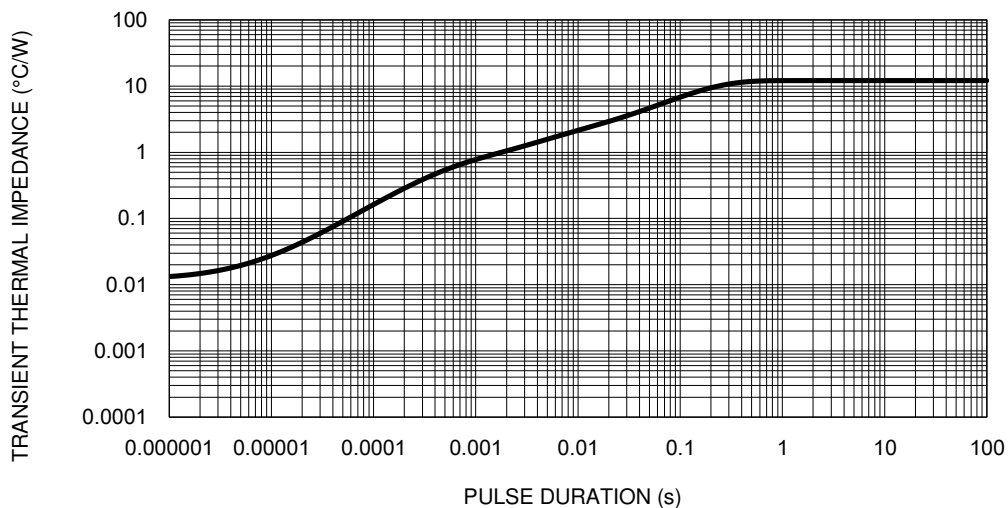
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

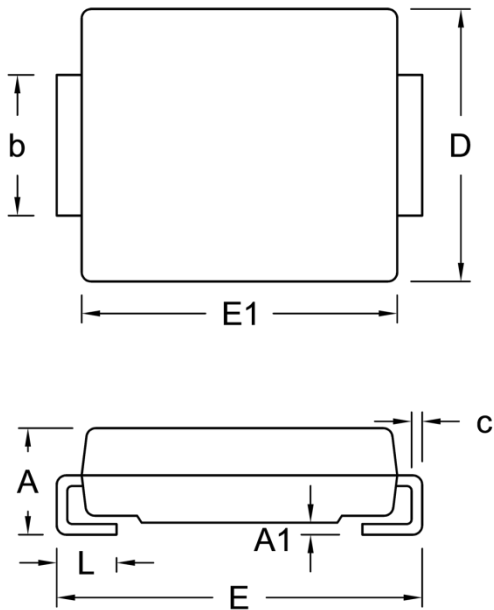


**Fig.5 Typical Transient Thermal Impedance**



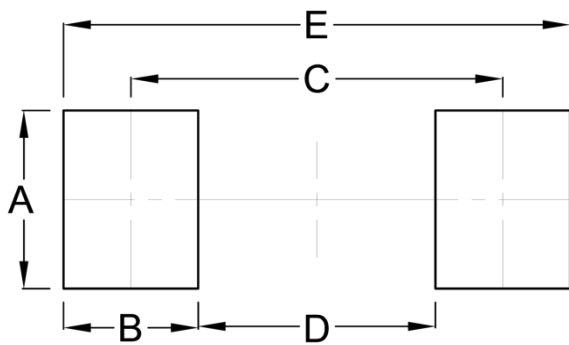
**PACKAGE OUTLINE DIMENSIONS**

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

**MARKING DIAGRAM**



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

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