

## 5A, 50V - 1000V Standard Surface Mount Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low forward voltage drop
- High current capability
- High surge current capability
- 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: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 0.250g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	5	A
$V_{RRM}$	50 - 1000	V
$I_{FSM}$	100	A
$T_{JMAX}$	150	°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	S5 AC-K	S5 BC-K	S5 DC-K	S5 GC-K	S5 JC-K	S5 KC-K	S5 MC-K	UNIT
Marking code on the device		S5A	S5B	S5D	S5G	S5J	S5K	S5M	
Repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Forward current	$I_F$	5							A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	100							A
Junction temperature	$T_J$	- 55 to +150							°C
Storage temperature	$T_{STG}$	- 55 to +150							°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-lead thermal resistance	$R_{\theta JL}$	11	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	48	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	12	°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>	$I_F = 2.5\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.90	-	V
	$I_F = 5.0\text{A}, T_J = 25^\circ\text{C}$		0.96	1.15	V
	$I_F = 2.5\text{A}, T_J = 125^\circ\text{C}$		0.78	-	V
	$I_F = 5.0\text{A}, T_J = 125^\circ\text{C}$		0.85	1.00	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	10	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	250	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	34	-	pF

**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>
S5xC-K	DO-214AB (SMC)	3,000 / Tape & Reel

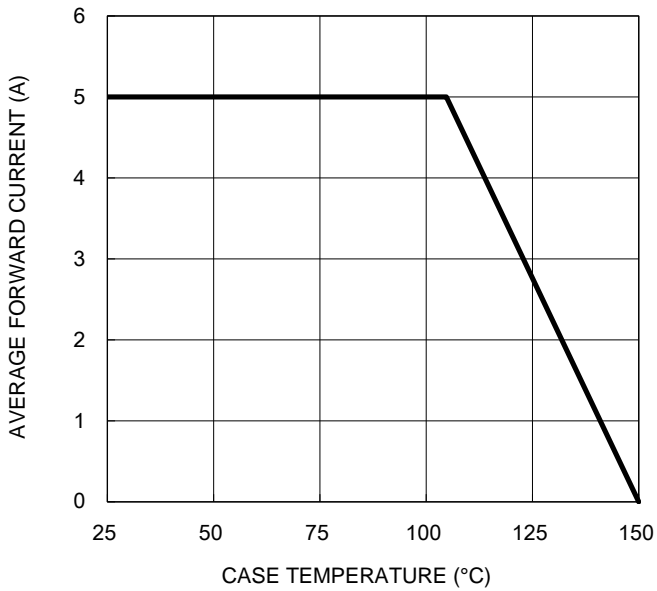
**Notes:**

1. "x" defines voltage from 50V(S5AC-K) to 1000V(S5MC-K)

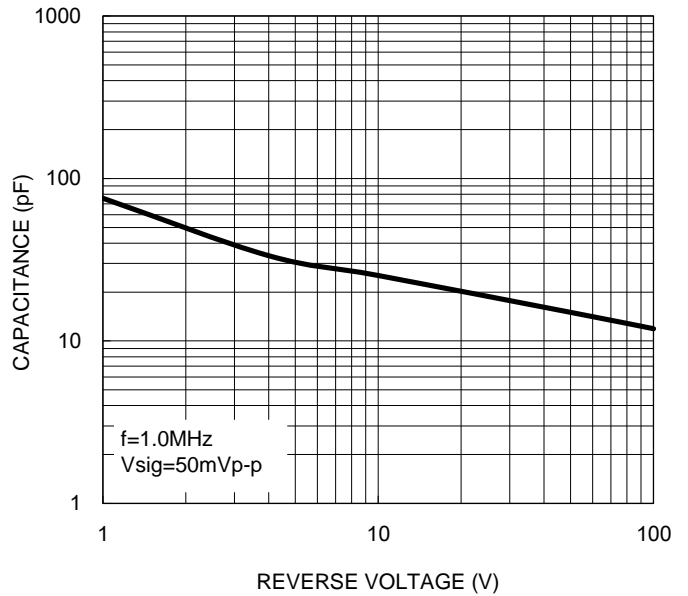
**CHARACTERISTICS CURVES**

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

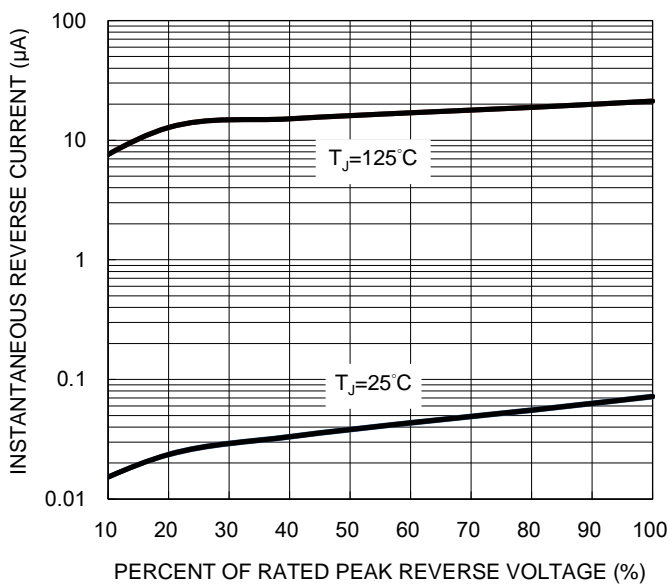
**Fig.1 Forward Current Derating Curve**



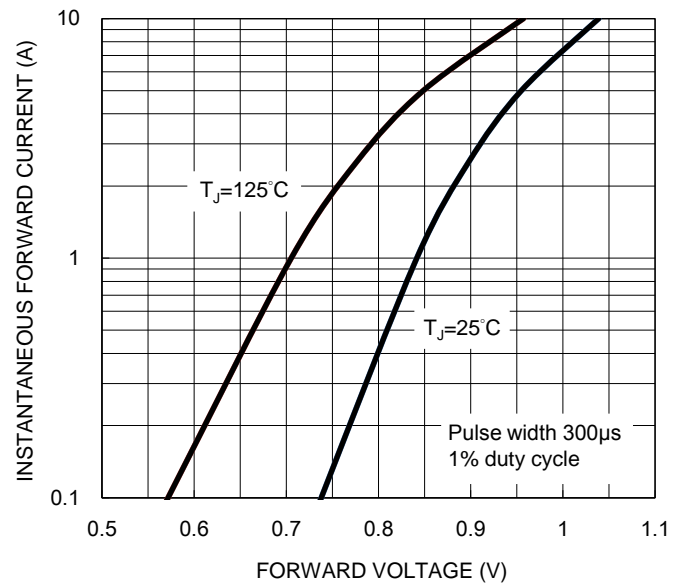
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

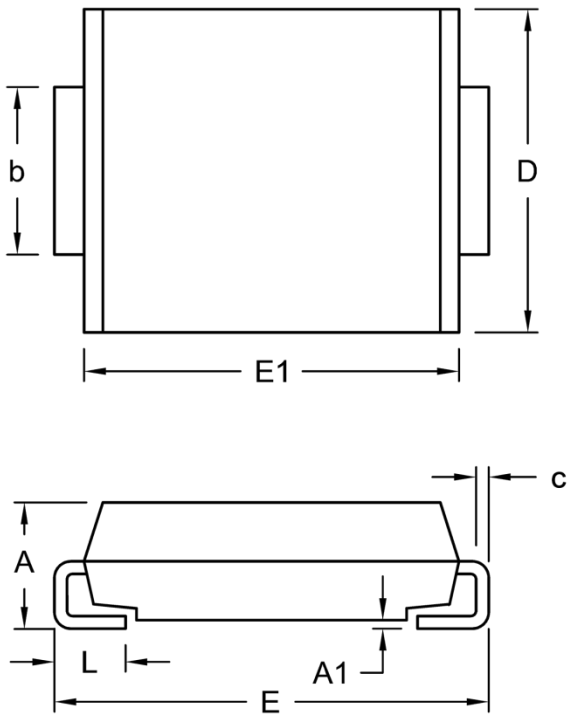


**Fig.4 Typical Forward Characteristics**



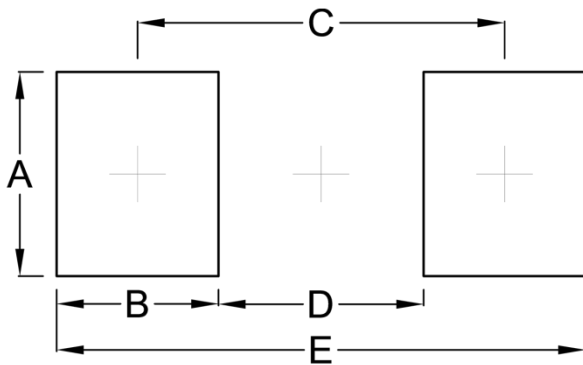
**PACKAGE OUTLINE DIMENSIONS**

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.61	0.078	0.103
A1	0.10	0.20	0.004	0.008
b	2.85	3.27	0.112	0.129
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	0.76	1.52	0.030	0.060

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	3.82	0.150
B	3.03	0.119
C	6.87	0.270
D	3.84	0.151
E	9.90	0.390

**MARKING DIAGRAM**



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

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