

## 5A, 20V - 150V Schottky Barrier Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	5	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	120	A
$T_{J\ MAX}$	150	°C
Package	DO-214AA (SMB)	
Configuration	Single die	

### APPLICATIONS

- Low voltage, high freq. inverter
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting



DO-214AA (SMB)

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- 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: 0.100g (approximately)



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

PARAMETER	SYMBOL	SK 52B	SK 53B	SK 54B	SK 55B	SK 56B	SK 59B	SK 510B	SK 515B	UNIT
		H	H	H	H	H	H	H	H	
Marking code on the device		SK 52B	SK 53B	SK 54B	SK 55B	SK 56B	SK 59B	SK 510B	SK 515B	
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	V
Forward current	$I_F$	5								A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	120								A
Critical rate of rise of off-state voltage	dV/dt	10,000								V/ $\mu$ s
Junction temperature	$T_J$	- 55 to +150								°C
Storage temperature	$T_{STG}$	- 55 to +150								°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	19	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	60	°C/W

**ELECTRICAL SPECIFICATIONS** (TA = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage <sup>(1)</sup>	SK52BH	$I_F = 5A, T_J = 25^\circ C$	$V_F$	-	0.55	V
	SK53BH					
	SK54BH			-	0.75	V
	SK55BH					
	SK56BH			-	0.85	V
	SK59BH					
	SK510BH			-	0.95	V
	SK515BH					
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK52BH	$T_J = 25^\circ C$	$I_R$	-	0.5	mA
	SK53BH					
	SK54BH			-	0.1	mA
	SK55BH					
	SK56BH			-	-	-
	SK59BH					
	SK510BH			-	-	-
	SK515BH					
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK52BH	$T_J = 100^\circ C$	$I_R$	-	20	mA
	SK53BH					
	SK54BH			-	10	mA
	SK55BH					
	SK56BH			-	-	-
	SK59BH					
	SK510BH			-	-	-
	SK515BH					
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK52BH	$T_J = 125^\circ C$	$I_R$	-	-	mA
	SK53BH					
	SK54BH			-	-	mA
	SK55BH					
	SK56BH			-	2	mA
	SK59BH					
	SK510BH			-	-	-
	SK515BH					

**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>
SK5xBH	DO-214AA (SMB)	3,000 / Tape & Reel

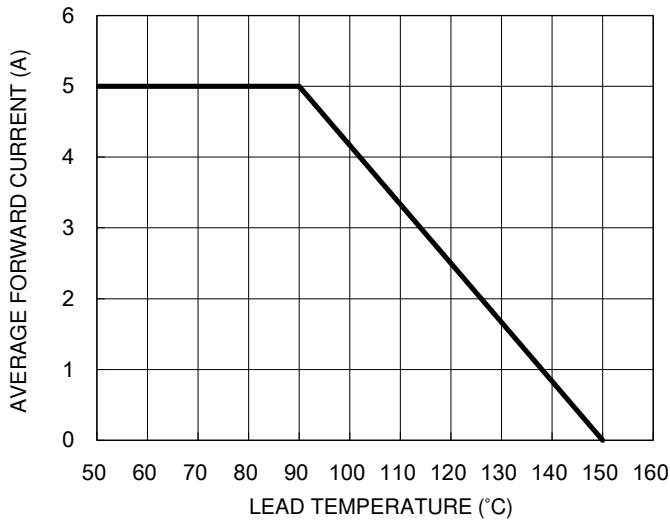
**Notes:**

1. "x" defines voltage from 20V(SK52BH) to 150V(SK515BH)

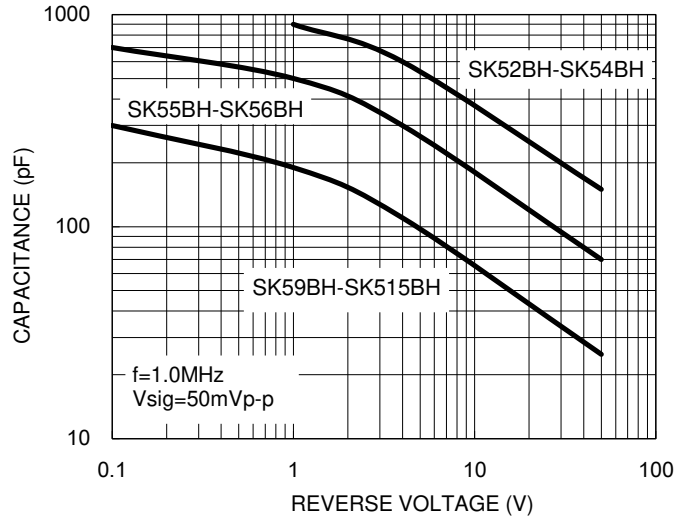
**CHARACTERISTICS CURVES**

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

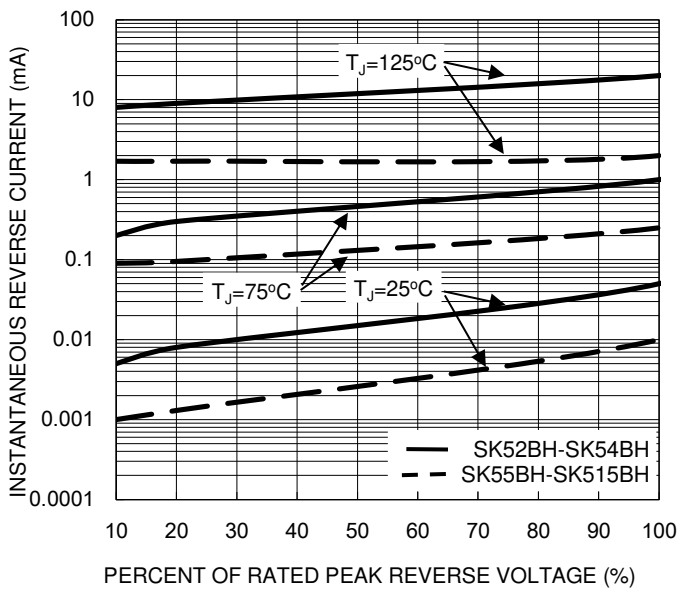
**Fig.1 Forward Current Derating Curve**



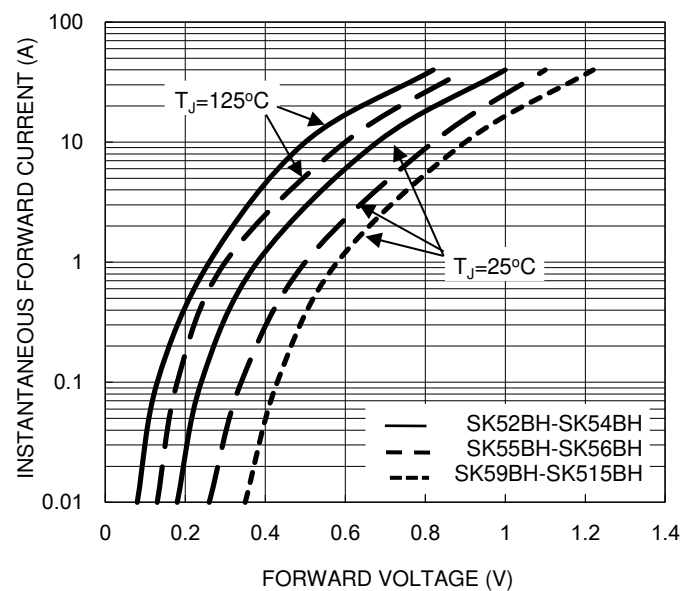
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



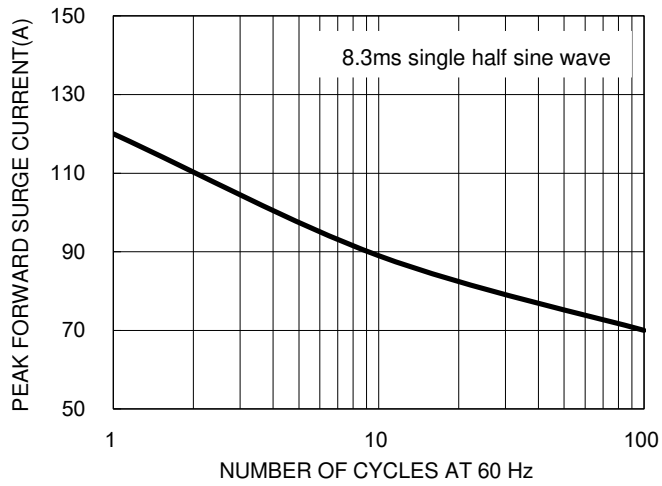
**Fig.4 Typical Forward Characteristics**



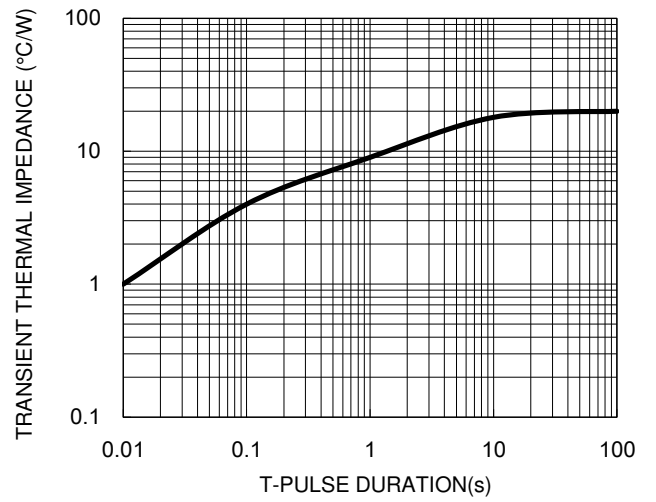
**CHARACTERISTICS CURVES**

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

**Fig.5 Maximum Non-repetitive Forward Surge Current**

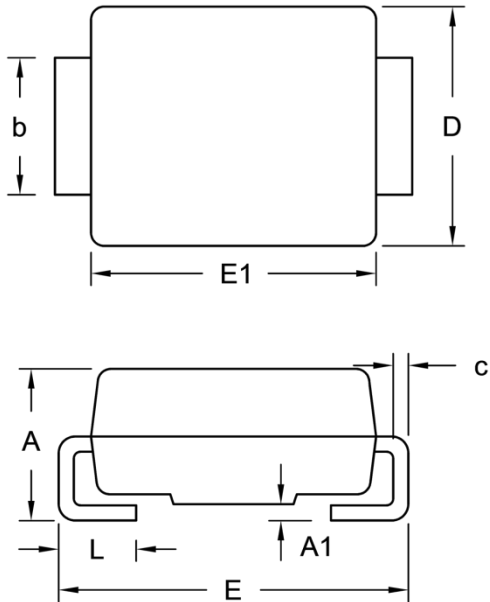


**Fig.6 Typical Transient Thermal Characteristics**



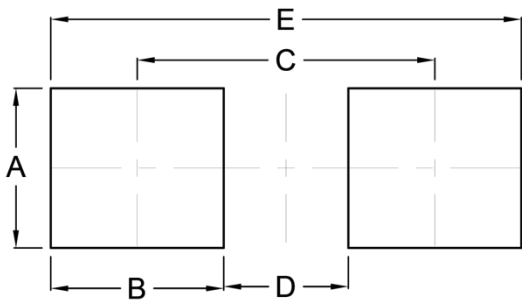
**PACKAGE OUTLINE DIMENSIONS**

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.95	2.65	0.077	0.104
A1	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.31	0.006	0.012
D	3.30	3.95	0.130	0.156
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
L	0.75	1.60	0.030	0.063

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	2.30	0.091
B	2.50	0.098
C	4.30	0.169
D	1.80	0.071
E	6.80	0.268

**MARKING DIAGRAM**



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

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