

## 1A, 20V - 150V Schottky Barrier Surface Mount Rectifier

### FEATURES

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

### APPLICATIONS

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

### 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: 0.093g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	30	A
$T_{JMAX}$	125, 150	°C
Package	DO-214AA (SMB)	
Configuration	Single die	



DO-214AA (SMB)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
PARAMETER	SYMBOL	SK	SK	SK	SK	SK	SK	SK	SK	UNIT	
		12BH	13BH	14BH	15BH	16BH	19BH	110BH	115BH		
Marking code on the device		SK 12B	SK 13B	SK 14B	SK 15B	SK 16B	SK 19B	SK 110B	SK 115B		
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	$I_F$	1								A	
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	30								A	
Critical rate of rise of off-state voltage	dV/dt	10,000								V/ $\mu\text{s}$	
Junction temperature	$T_J$	- 55 to +125			- 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	$R_{\theta JL}$	25	°C/W

<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>	SK12BH SK13BH SK14BH	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.50	V
	SK15BH SK16BH			-	0.75	V
	SK19BH SK110BH			-	0.85	V
	SK115BH			-	0.95	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK12BH SK13BH SK14BH SK15BH SK16BH	$T_J = 25^\circ\text{C}$	$I_R$	-	0.5	mA
	SK19BH SK110BH SK115BH			-	0.1	mA
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK12BH SK13BH SK14BH	$T_J = 100^\circ\text{C}$	$I_R$	-	10	mA
	SK15BH SK16BH			-	5	mA
	SK19BH SK110BH SK115BH			-	-	mA
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK12BH SK13BH SK14BH	$T_J = 125^\circ\text{C}$	$I_R$	-	-	mA
	SK15BH SK16BH			-	-	mA
	SK19BH SK110BH SK115BH			-	2	mA

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
SK1xBH	DO-214AA (SMB)	3,000 / Tape & Reel

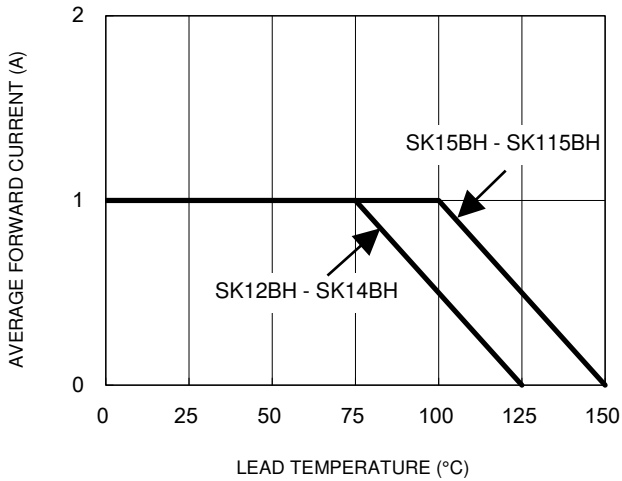
**Notes:**

1. "x" defines voltage from 20V(SK12BH) to 150V(SK115BH)

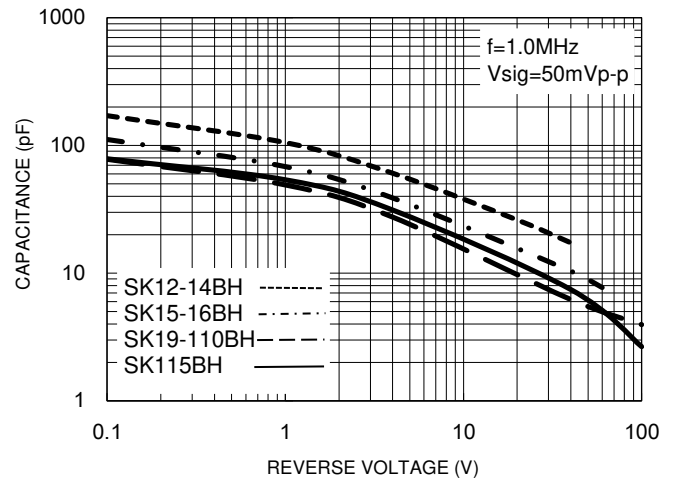
**CHARACTERISTICS CURVES**

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

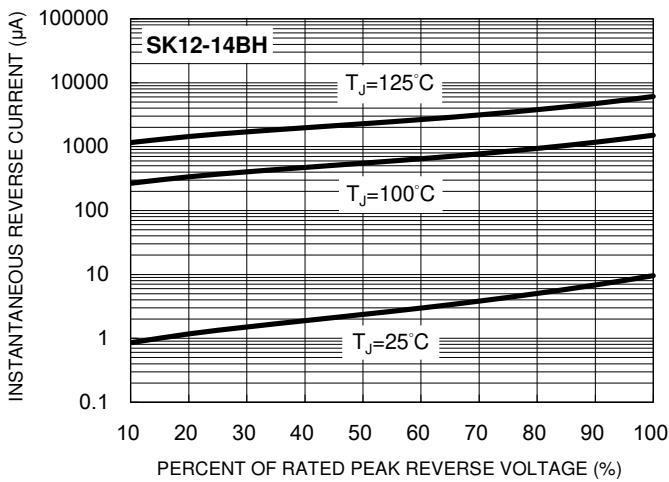
**Fig.1 Forward Current Derating Curve**



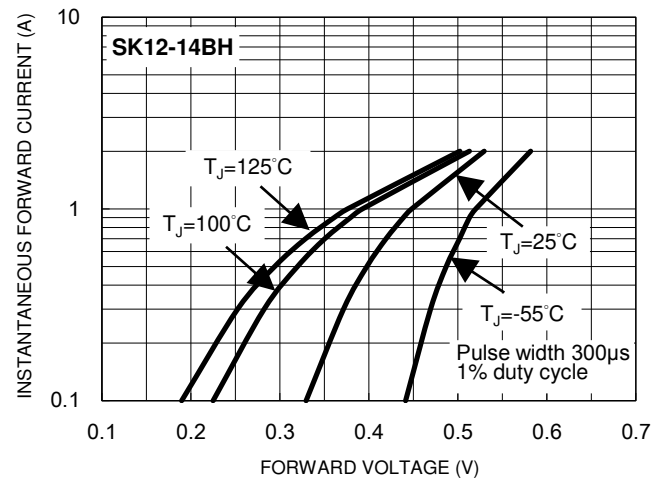
**Fig.2 Typical Junction Capacitance**



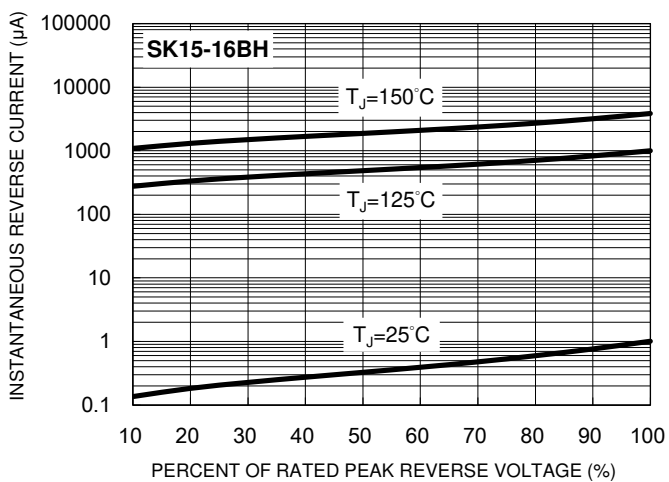
**Fig.3 Typical Reverse Characteristics**



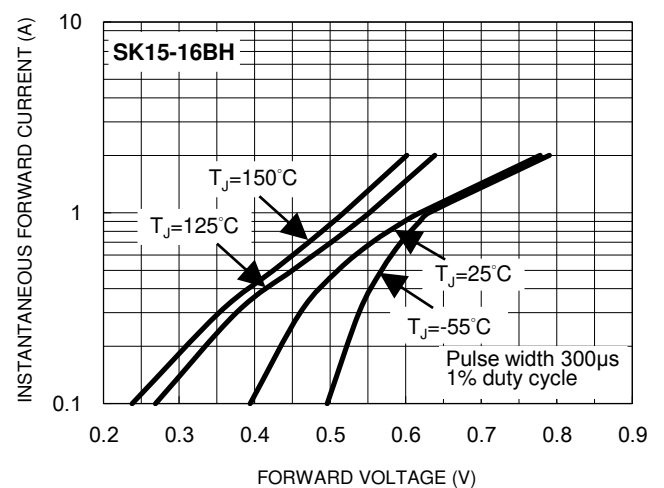
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



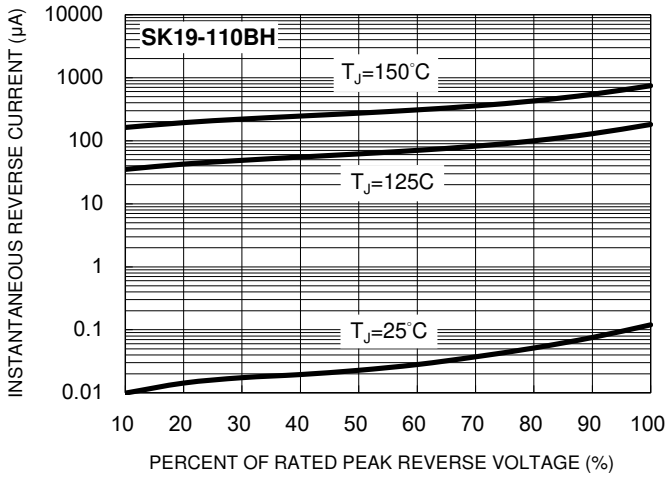
**Fig.6 Typical Forward Characteristics**



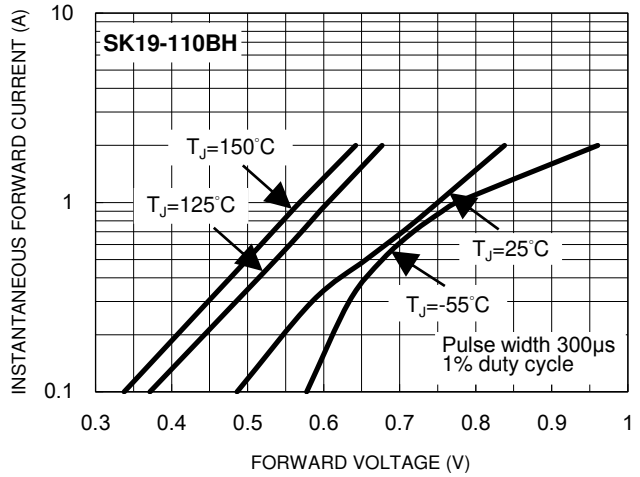
**CHARACTERISTICS CURVES**

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

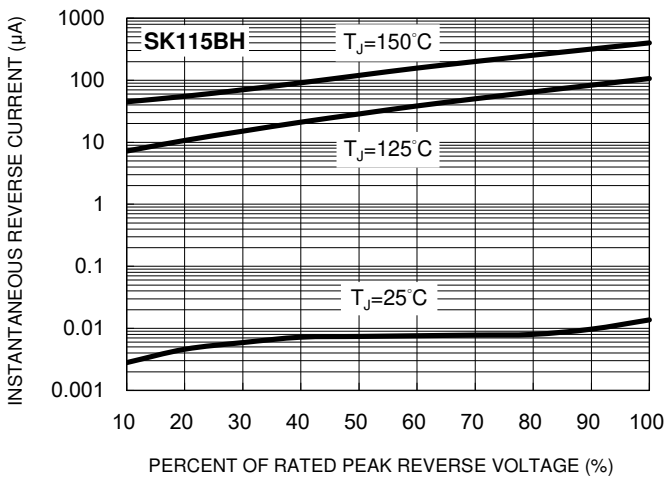
**Fig.7 Typical Reverse Characteristics**



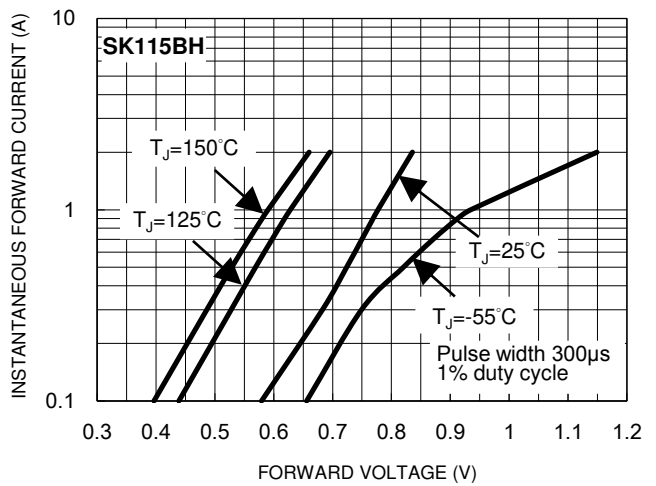
**Fig.8 Typical Forward Characteristics**



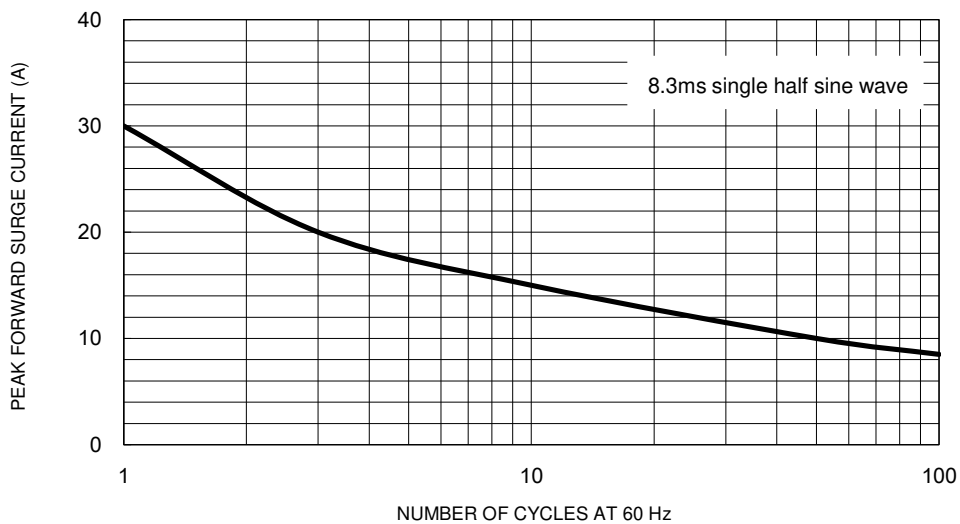
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**



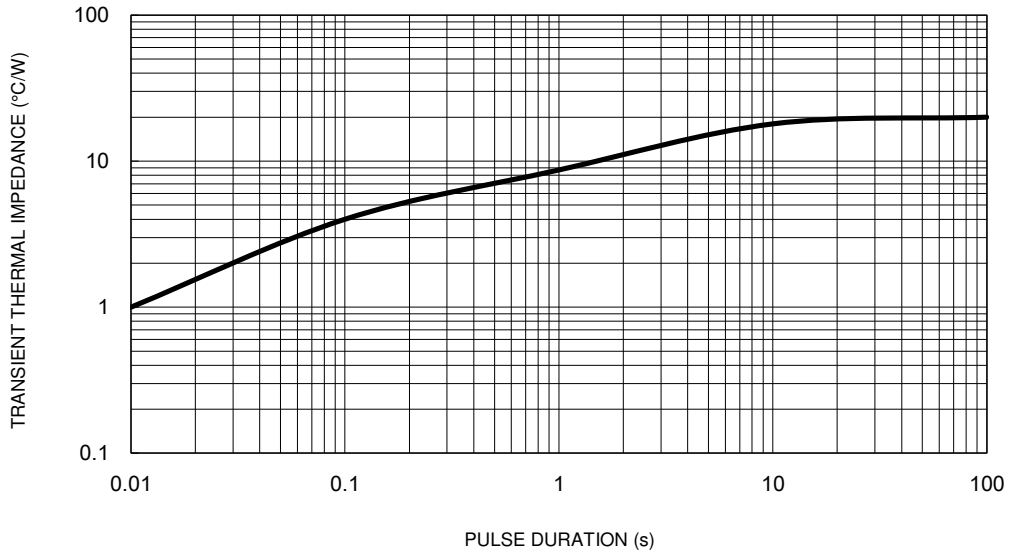
**Fig.11 Maximum Non-Repetitive Forward Surge Current**



**CHARACTERISTICS CURVES**

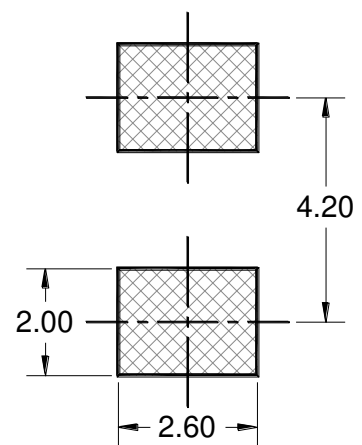
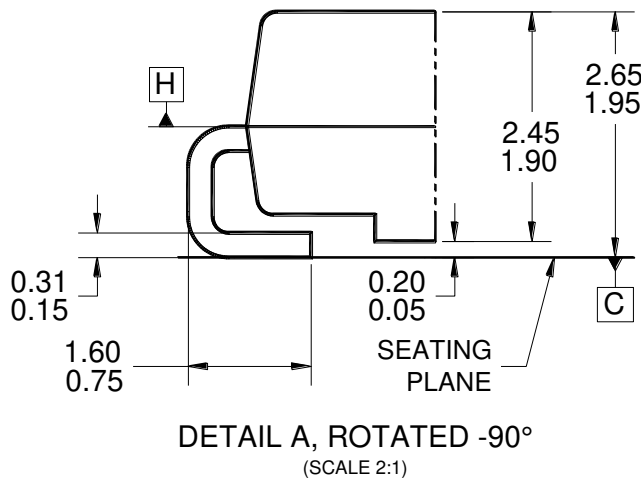
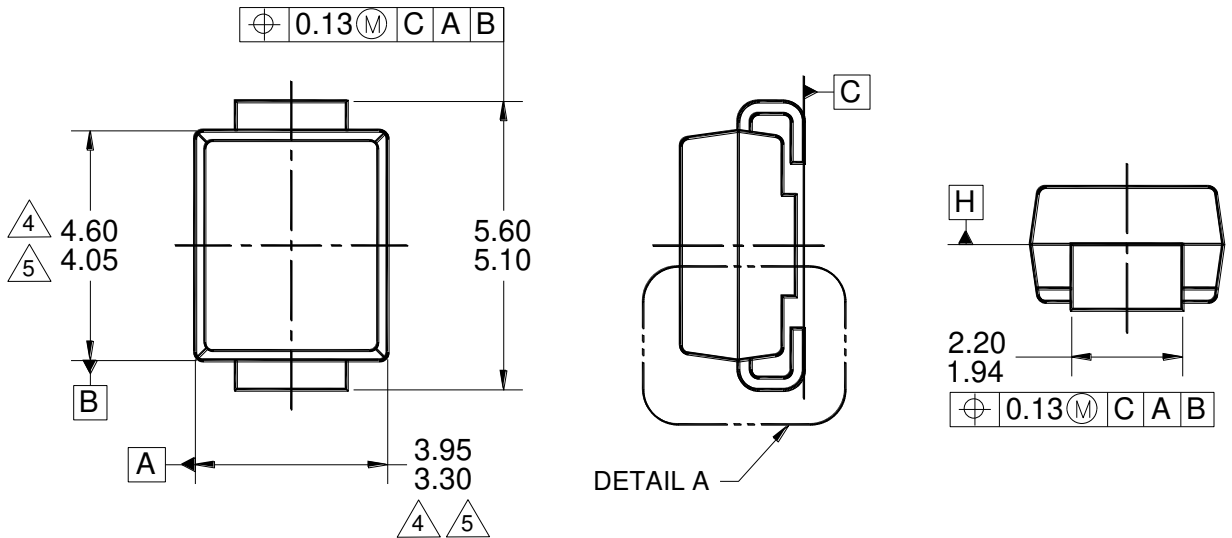
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.12 Typical Transient Thermal Characteristics**

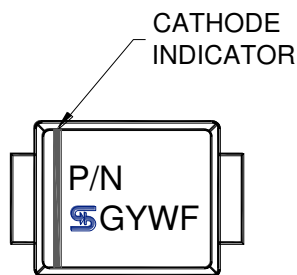


**PACKAGE OUTLINE DIMENSIONS**

**DO-214AA (SMB)**



**SUGGESTED PAD LAYOUT**



**MARKING DIAGRAM**

P/N = MARKING CODE  
G = GREEN COMPOUND  
YW = DATE CODE  
F = FACTORY CODE

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AA, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMB-035 REV A.

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