

## 3A, 20V - 200V Schottky Barrier Surface Mount Rectifier

### FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- 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 frequency
- 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: 0.100g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	3	A
$V_{RRM}$	20 - 200	V
$I_{FSM}$	70	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	SK	UNIT
		32B	33B	34B	35B	36B	39B	310B	315B	320B	
Marking code on the device		SK 32B	SK 33B	SK 34B	SK 35B	SK 36B	SK 39B	SK 310B	SK 315B	SK 320B	
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	140	V
Forward current	$I_F$	3									A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	70									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

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	23	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	63	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage <sup>(1)</sup>	SK32BH	$I_F = 3A, T_J = 25^\circ C$	$V_F$	-	0.50	V
	SK33BH			-	0.75	V
	SK34BH			-	0.85	V
	SK35BH			-	0.95	V
	SK36BH			-	-	-
	SK39BH			-	-	-
	SK310BH			-	-	-
	SK315BH			-	-	-
	SK320BH			-	-	-
Reverse current @ rated $V_R$ <sup>(2)</sup>	SK32BH	$T_J = 25^\circ C$	$I_R$	-	500	$\mu A$
	SK33BH			-	100	$\mu A$
	SK34BH			-	-	-
	SK35BH			-	-	-
	SK36BH			-	-	-
	SK39BH			-	-	-
	SK310BH			-	-	-
	SK315BH			-	-	-
	SK320BH			-	-	-
	SK32BH	$T_J = 100^\circ C$	$I_R$	-	10	mA
	SK33BH			-	5	mA
	SK34BH			-	-	-
	SK35BH			-	-	-
	SK36BH			-	-	-
	SK39BH			-	-	-
	SK310BH			-	-	-
	SK315BH			-	-	-
	SK320BH			-	-	-
SK32BH	$T_J = 125^\circ C$	$I_R$	-	-	mA	
SK33BH			-	-	mA	
SK34BH			-	-	-	
SK35BH			-	-	-	
SK36BH			-	2	mA	
SK39BH			-	-	-	
SK310BH	-	-	-			
SK315BH	-	-	-			
SK320BH	-	-	-			

**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>
SK3xBH	DO-214AA (SMB)	3,000 / Tape & Reel

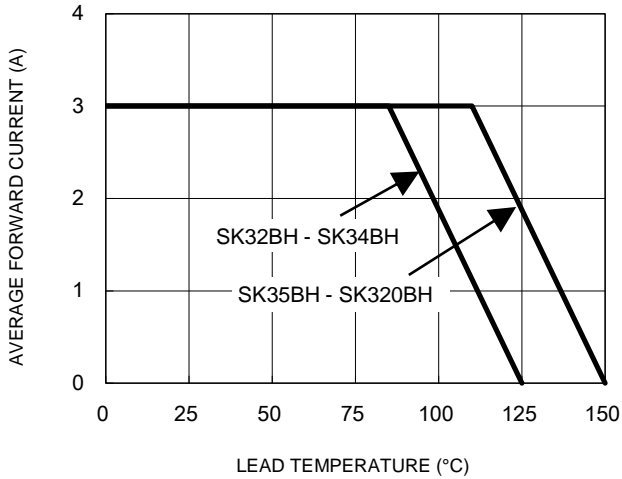
**Notes:**

1. "x" defines voltage from 20V(SK32BH) to 200V(SK320BH)

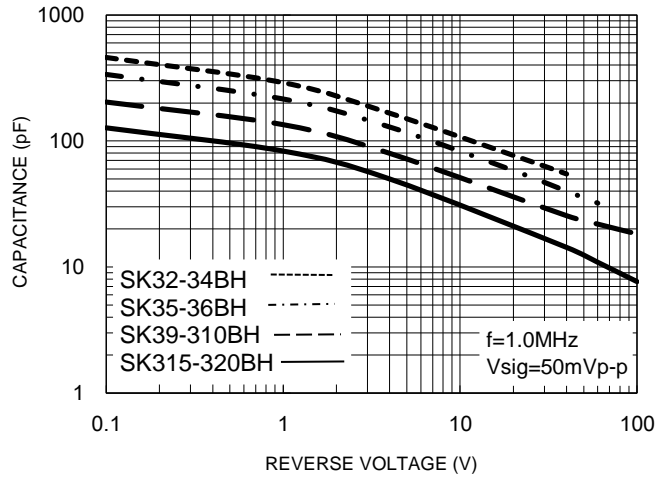
**CHARACTERISTICS CURVES**

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

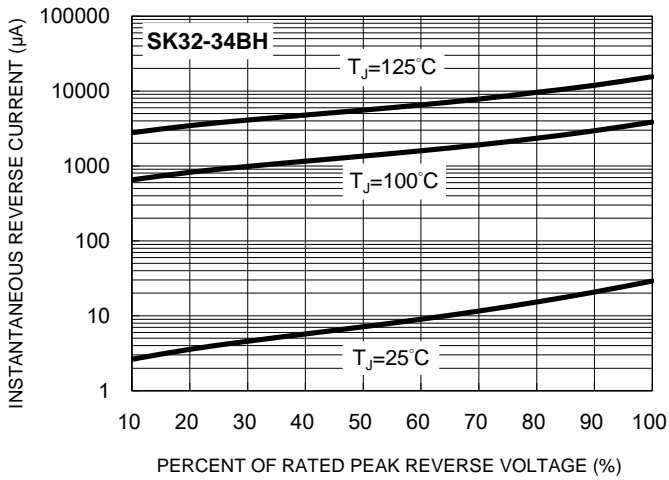
**Fig.1 Forward Current Derating Curve**



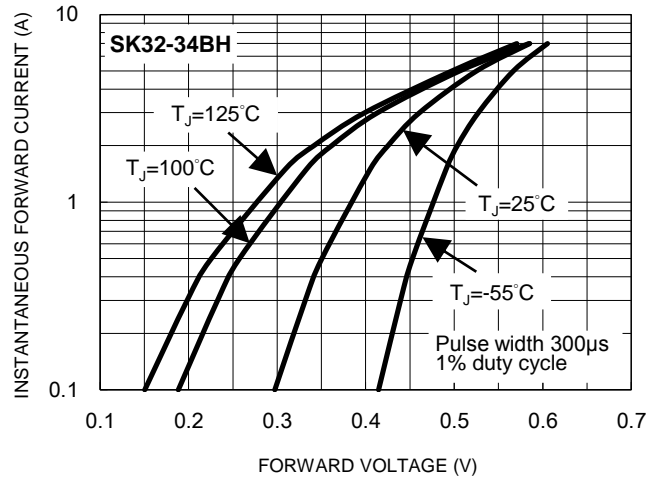
**Fig.2 Typical Junction Capacitance**



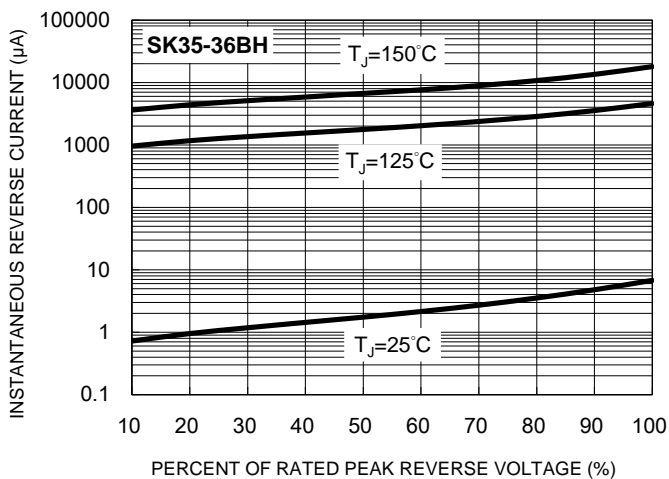
**Fig.3 Typical Reverse Characteristics**



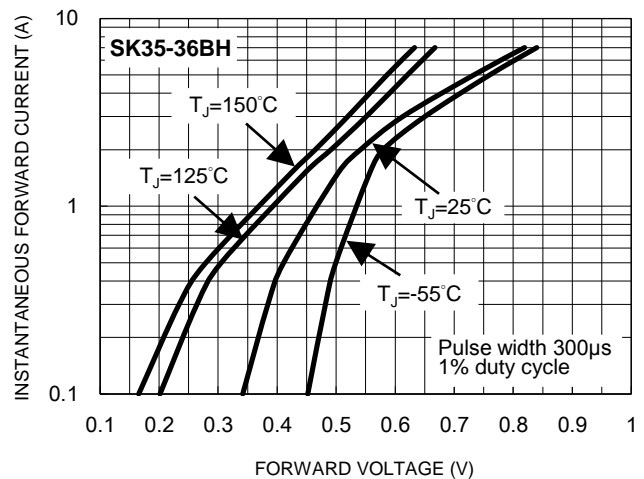
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



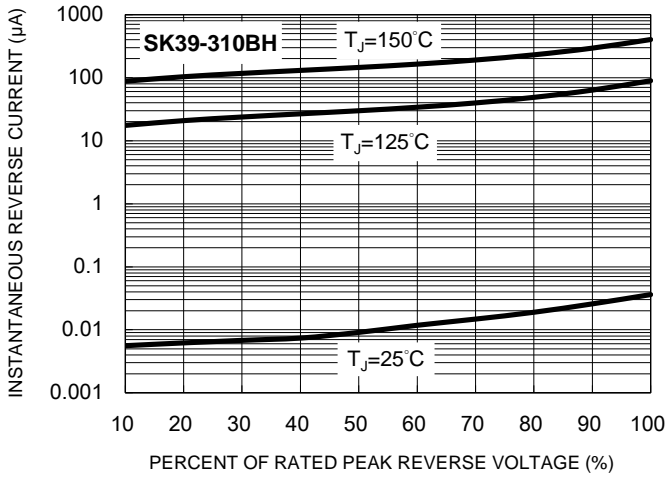
**Fig.6 Typical Forward Characteristics**



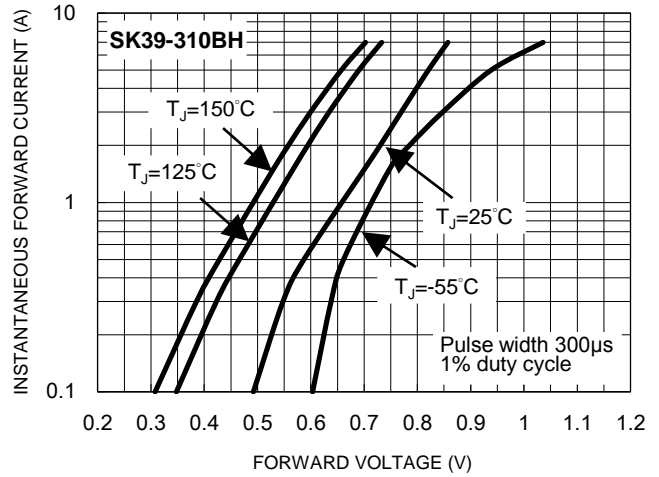
**CHARACTERISTICS CURVES**

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

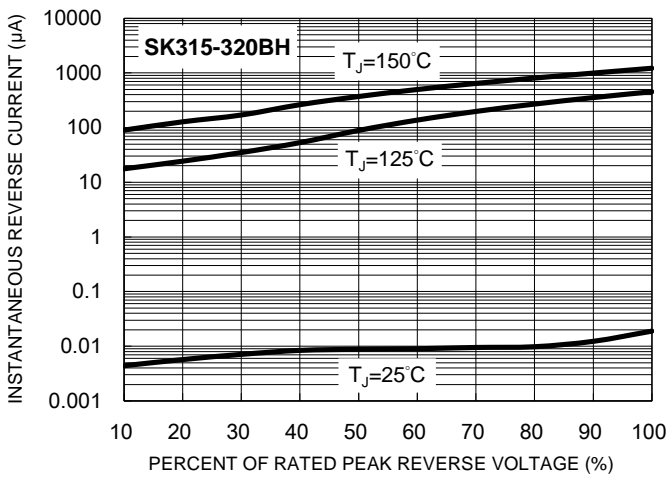
**Fig.7 Typical Reverse Characteristics**



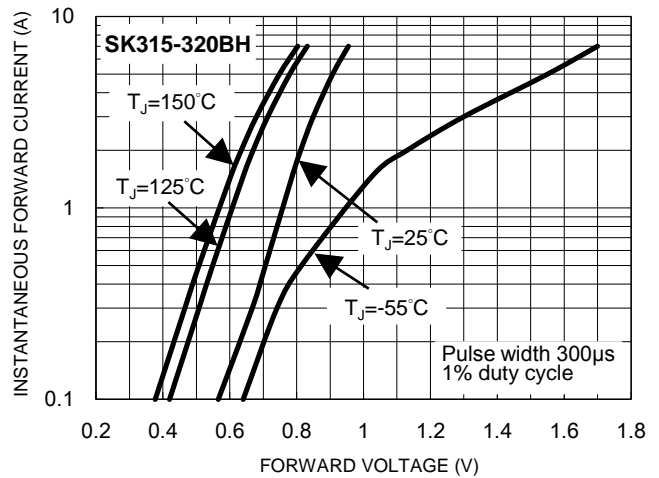
**Fig.8 Typical Forward Characteristics**



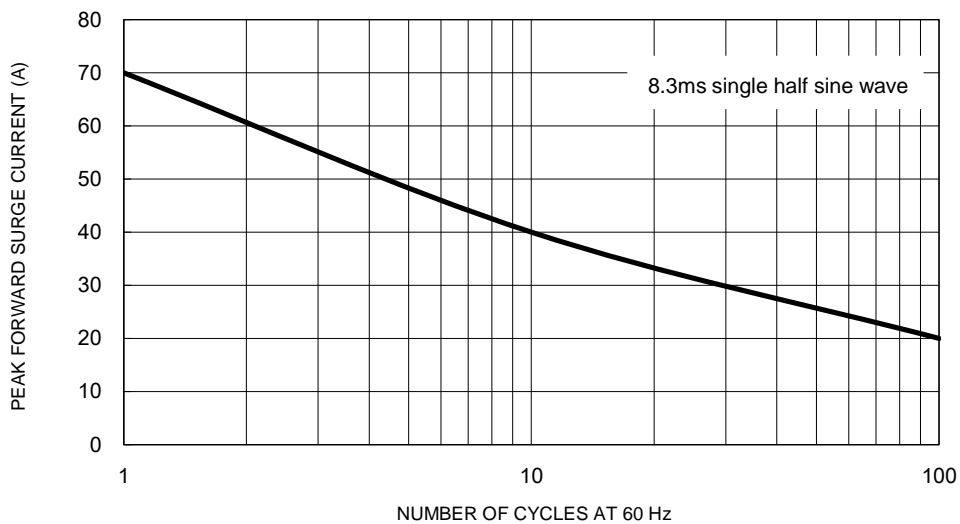
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**



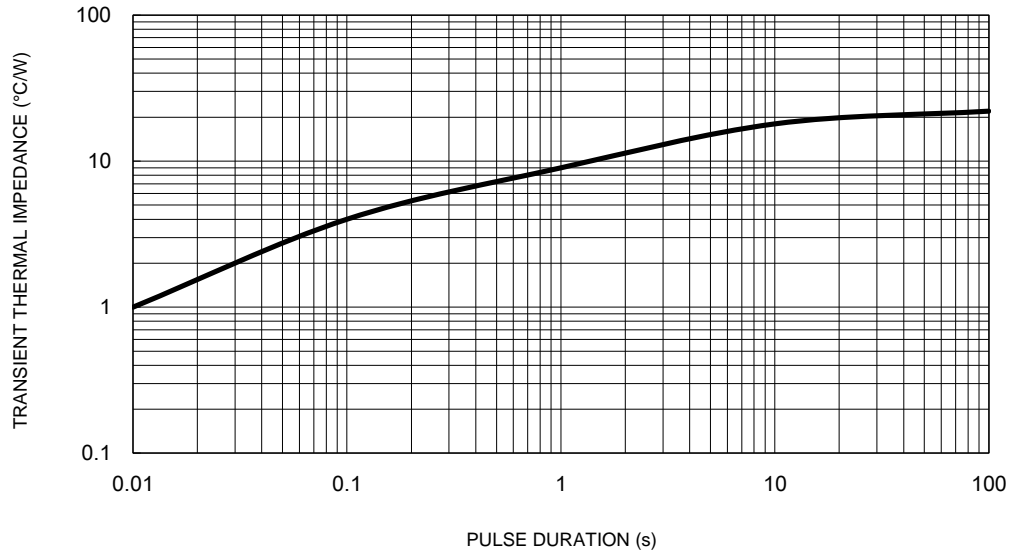
**Fig.11 Maximum Non-Repetitive Forward Surge Current**



**CHARACTERISTICS CURVES**

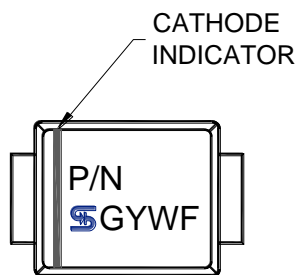
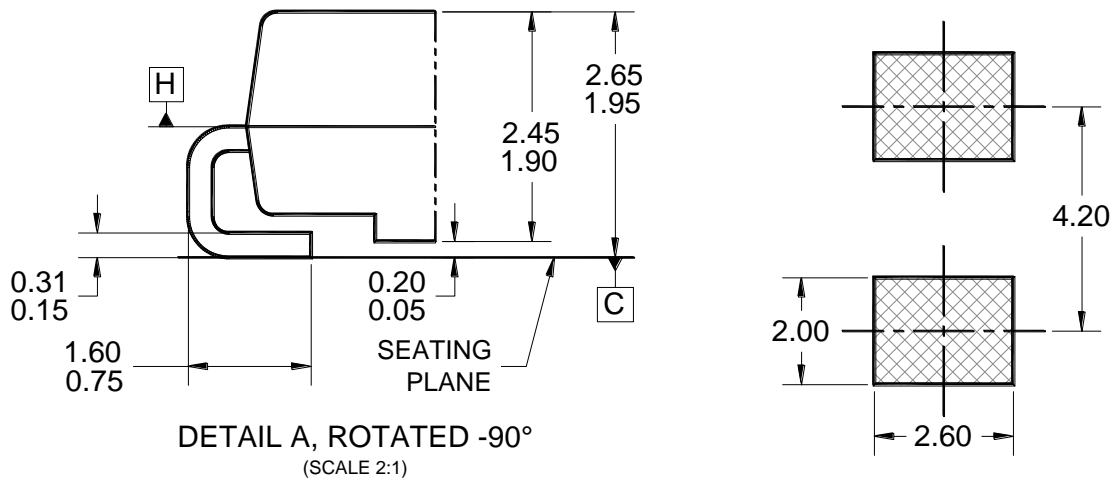
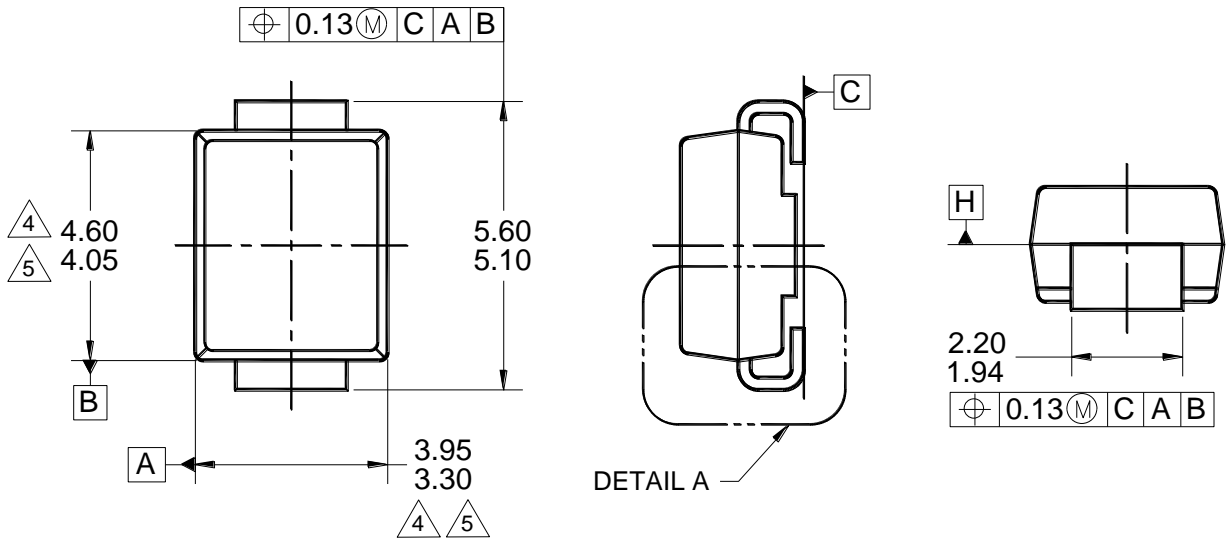
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.12 Typical Transient Thermal Characteristics**



**PACKAGE OUTLINE DIMENSIONS**

**DO-214AA (SMB)**



**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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