

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

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter

### MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.093 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	1	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	30	A
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 12B	SK 13B	SK 14B	SK 15B	SK 16B	SK 19B	SK 110B	SK 115B	UNIT
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
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	90	100	150	V
Forward current	$I_{F(AV)}$	1								A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	30								A
Critical rate of rise of off-state voltage	dV/dt	10000								V/ $\mu\text{s}$
Junction temperature	$T_J$	- 55 to +125			- 55 to +150					$^\circ\text{C}$
Storage temperature	$T_{STG}$	- 55 to +150								

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>LIMIT</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 per diode <sup>(1)</sup>	SK12B	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.50	V
	SK13B					V
	SK14B					V
	SK15B					V
	SK16B					V
	SK19B					V
	SK110B					V
	SK115B					V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	SK12B	$T_J = 25^\circ\text{C}$	$I_R$	-	0.5	mA
	SK13B					mA
	SK14B					mA
	SK15B					mA
	SK16B					mA
	SK19B					mA
	SK110B					mA
	SK115B					mA
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	SK12B	$T_J = 100^\circ\text{C}$	$I_R$	-	10	mA
	SK13B					mA
	SK14B					mA
	SK15B					mA
	SK16B					mA
	SK19B					mA
	SK110B					mA
	SK115B					mA
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	SK12B	$T_J = 125^\circ\text{C}$	$I_R$	-	-	mA
	SK13B					mA
	SK14B					mA
	SK15B					mA
	SK16B					mA
	SK19B					mA
	SK110B					mA
	SK115B					mA

**Notes:**

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

**ORDERING INFORMATION**

<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX(*)</b>	<b>PACKAGE</b>	<b>PACKING</b>
SK1xxB (Note 1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

**Note:**

1. "x" defines voltage from 20V (SK12B) to 150V (SK115B)

\*: Optional available

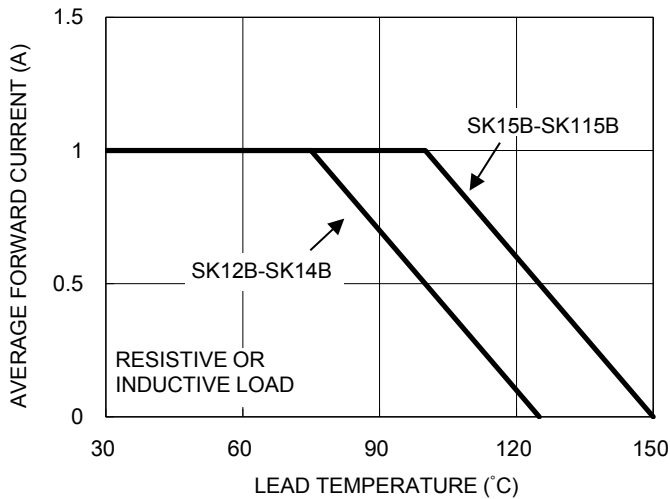
**EXAMPLE P/N**

<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
SK16BHR5G	SK16B	H	R5	G	AEC-Q101 qualified Green compound

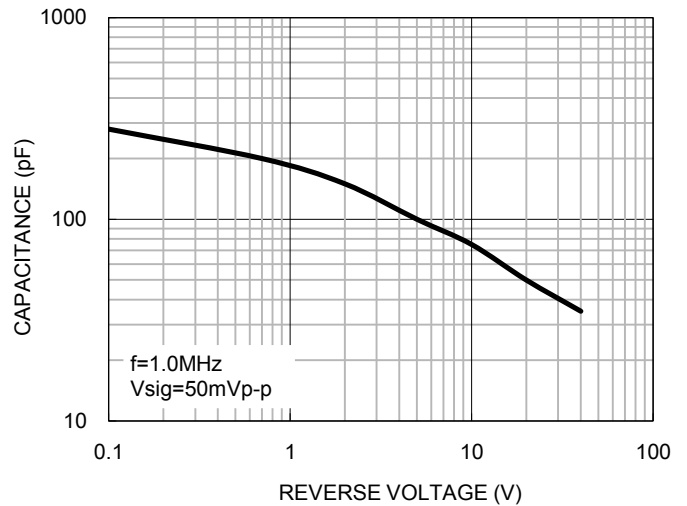
**CHARACTERISTICS CURVES**

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

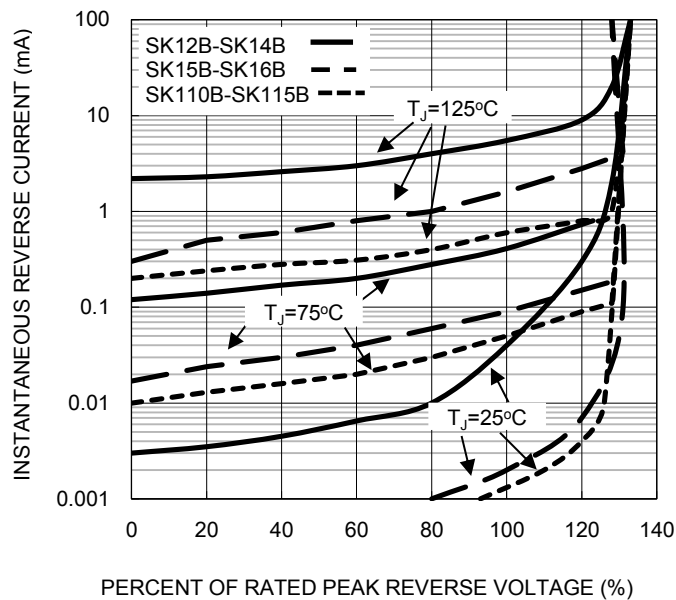
**Fig1. Forward Current Derating Curve**



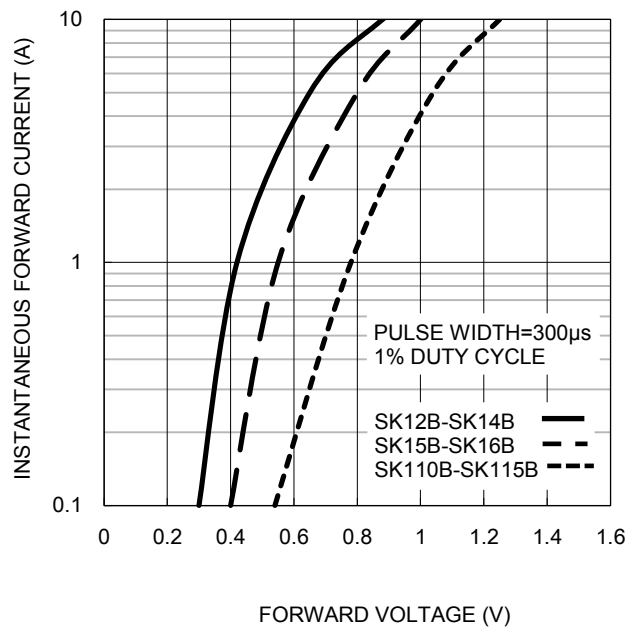
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



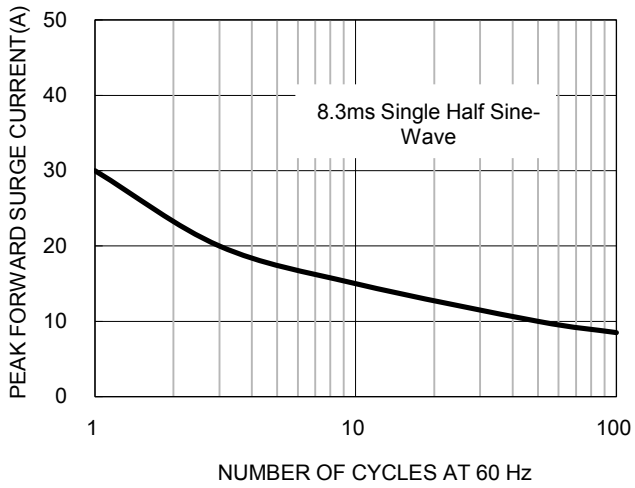
**Fig4. Typical Forward Characteristics**



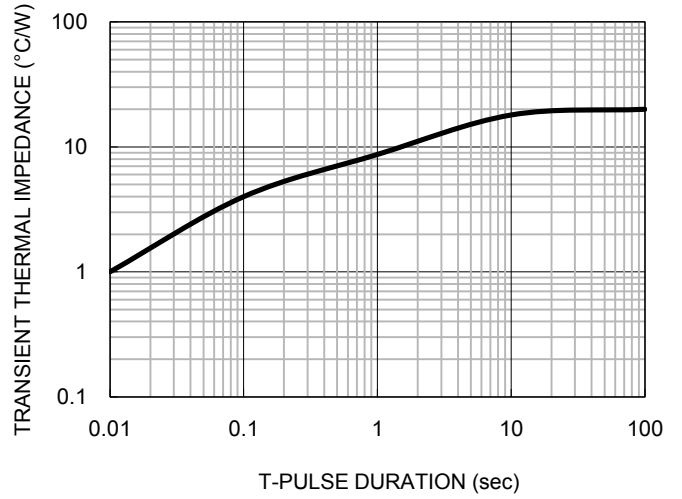
**CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)

**Fig5. Maximum Non-repetitive Forward Surge Current**



**Fig6. Typical Transient Thermal Characteristics**



**PACKAGE OUTLINE DIMENSIONS**

DO-214AA (SMB)



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

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

**MARKING DIAGRAM**



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

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