5A, 20V - 200V 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-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.21 g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	5	A
V_{RRM}	20 - 200	V
I_{FSM}	120	A
$T_{J\ MAX}$	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT

DO-214AB (SMC)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	SK 52C	SK 53C	SK 54C	SK 55C	SK 56C	SK 59C	SK 510C	SK 515C	SK 520C	UNIT
Marking code on the device		SK 52C	SK 53C	SK 54C	SK 55C	SK 56C	SK 59C	SK 510C	SK 515C	SK 520C	
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
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	90	100	150	200	V
Forward current	$I_{F(AV)}$	5									A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	120									A
Critical rate of rise of off-state voltage	dV/dt	10,000									V/μs
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 per diode	$R_{\Theta JL}$	17	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	50	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Forward voltage per diode (1)	SK52C SK53C SK54C	I_F = 5A, T_J = 25°C	V_F	-	0.55	V
	SK55C SK56C			-	0.75	V
	SK59C SK510C			-	0.85	V
	SK515C SK520C			-	0.95	V
Reverse current @ rated V_R per diode (2)	SK52C SK53C SK54C SK55C SK56C	T_J = 25°C	I_R	-	0.5	mA
	SK59C SK510C SK515C SK520C			-	0.3	mA
Reverse current @ rated V_R per diode (2)	SK52C SK53C SK54C	T_J = 100°C	I_R	-	20	mA
	SK55C SK56C			-	10	mA
	SK59C SK510C SK515C SK520C			-	-	mA
Reverse current @ rated V_R per diode (2)	SK52C SK53C SK54C	T_J = 125°C	I_R	-	-	mA
	SK55C SK56C			-	-	mA
	SK59C SK510C SK515C SK520C			-	5	mA

Notes:

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
SK5xxC (Note 1,2)	H	R7	G	SMC	850 / 7" Plastic reel
		R6		SMC	3,000 / 13" Paper reel
		M6		SMC	3,000 / 13" Plastic reel
		V7		Matrix SMC	850 / 7" Plastic reel
		V6		Matrix SMC	3,000 / 13" Plastic reel

Note :

1. "xx" defines voltage from 20V (SK52C) to 200V (SK520C)
2. Only V6 and V7 are all green compound (halogen free)

EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
SK52CHR7G	SK52C	H	R7	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

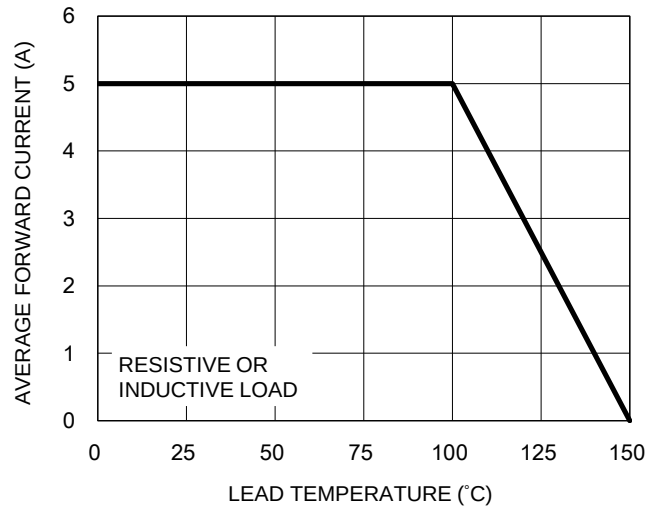


Fig.2 Typical Junction Capacitance

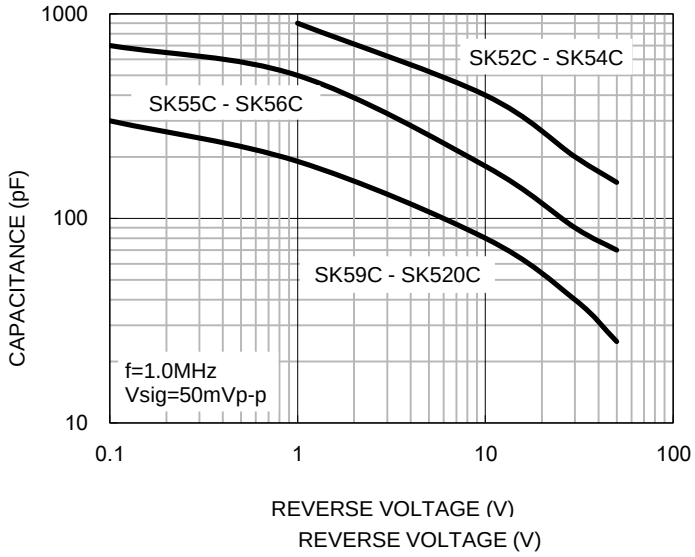


Fig.3 Typical Reverse Characteristics

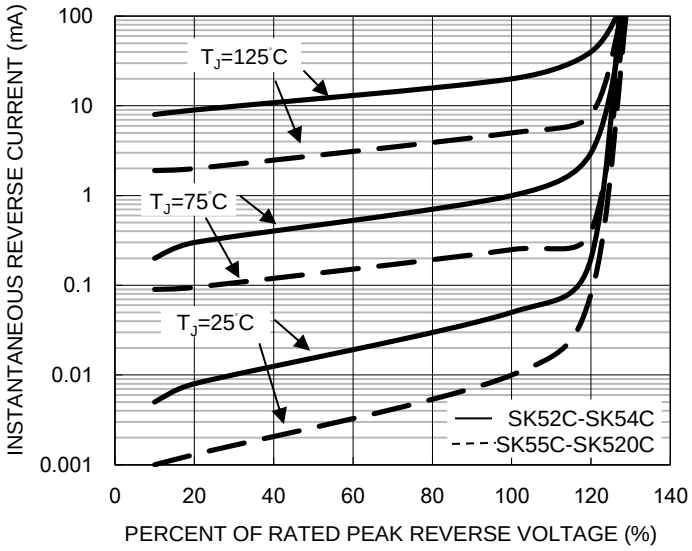
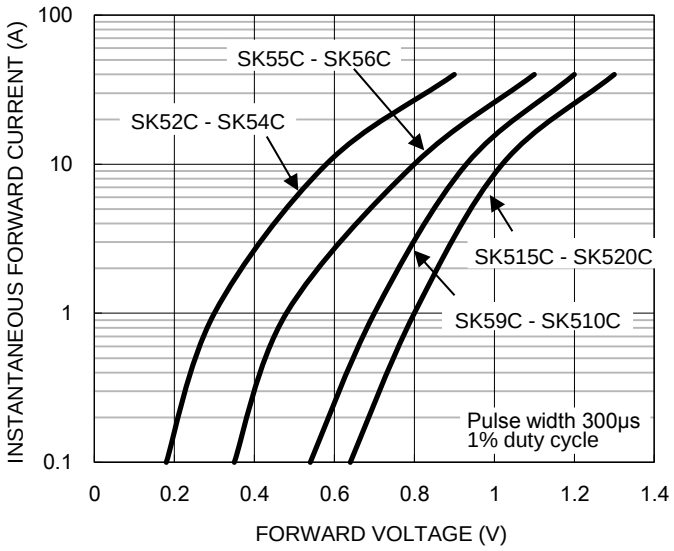


Fig.4 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Maximum Non-repetitive Forward Surge Current

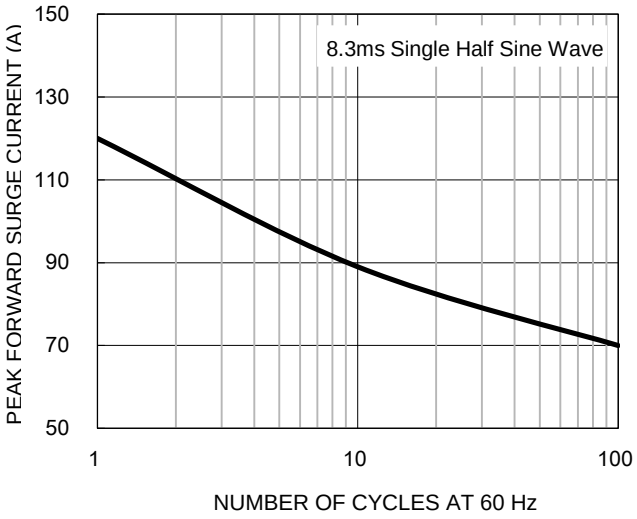
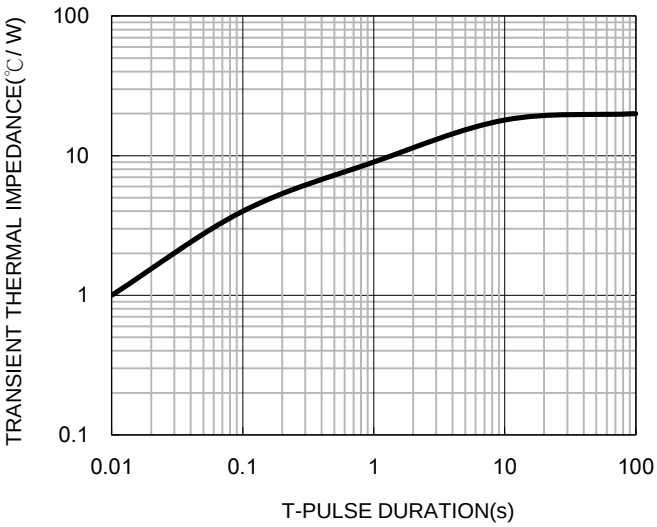
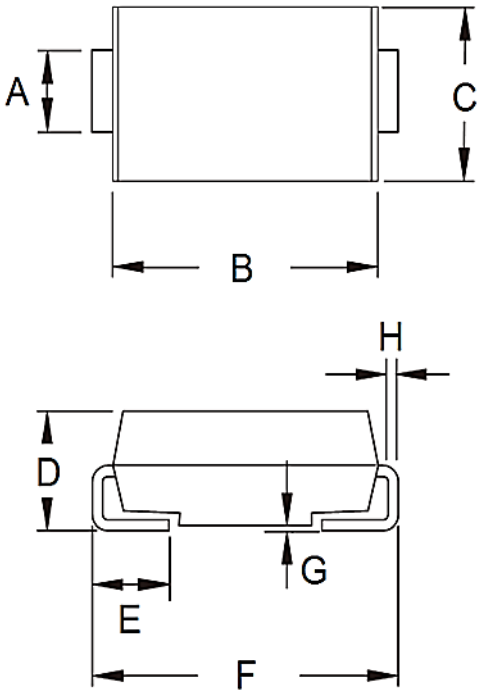


Fig.6 Typical Transient Thermal Characteristics



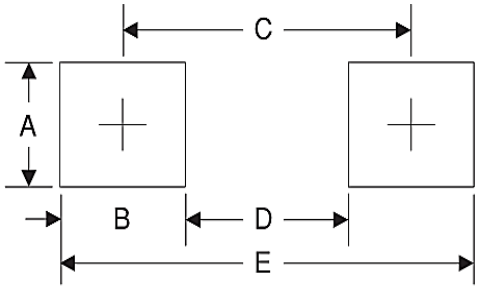
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.00	2.62	0.079	0.103
E	1.00	1.60	0.039	0.063
F	7.75	8.13	0.305	0.320
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

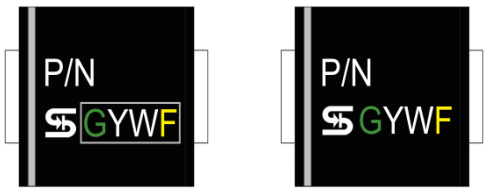
SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM

Matrix SMC **SMC**



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

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