

12A, 400V - 1000V Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Low forward voltage drop
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- General purpose

MECHANICAL DATA

- Case: DO-214AB (SMC)
- 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: 0.270g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	12	A
V_{RRM}	400 - 1000	V
I_{FSM}	300	A
$T_{J\ MAX}$	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	



DO-214AB (SMC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	S12GCH	S12JCH	S12KCH	S12MCH	UNIT
Marking code on the device		S12GC	S12JC	S12KC	S12MC	
Repetitive peak reverse voltage	V_{RRM}	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	280	420	560	700	V
Forward current	I_F	12				A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	300				A
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	$R_{\theta JL}$	9	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	44	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	$I_F = 12\text{A}$, $T_J = 25^\circ\text{C}$	V_F	-	1.1	V
Reverse current @ rated V_R ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	1	μA
	$T_J = 125^\circ\text{C}$		-	250	μA
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	C_J	78	-	pF

Notes:

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

ORDERING INFORMATION

ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
S12xCH	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

1. "x" defines voltage from 400V(S12GCH) to 1000V(S12MCH)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

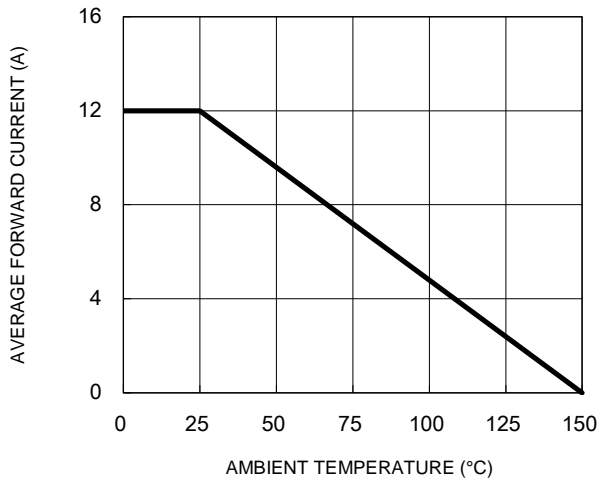


Fig.2 Maximum Non-Repetitive Forward Surge Current

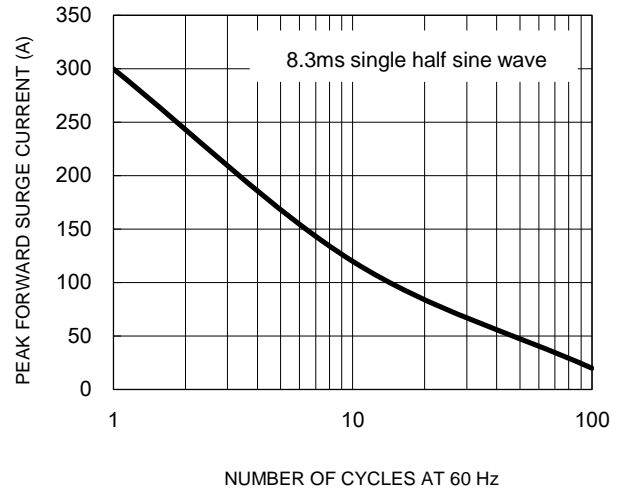


Fig.3 Typical Reverse Characteristics

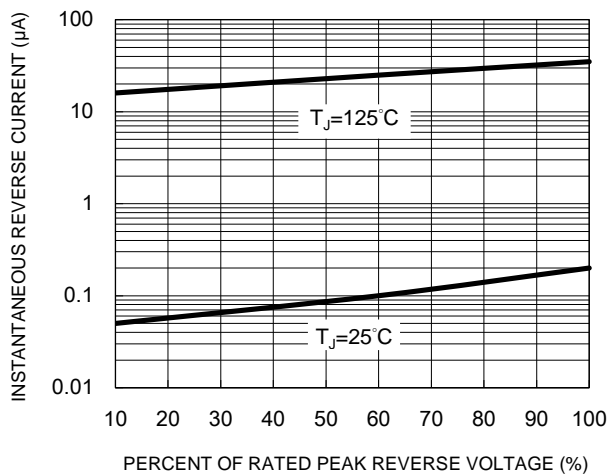
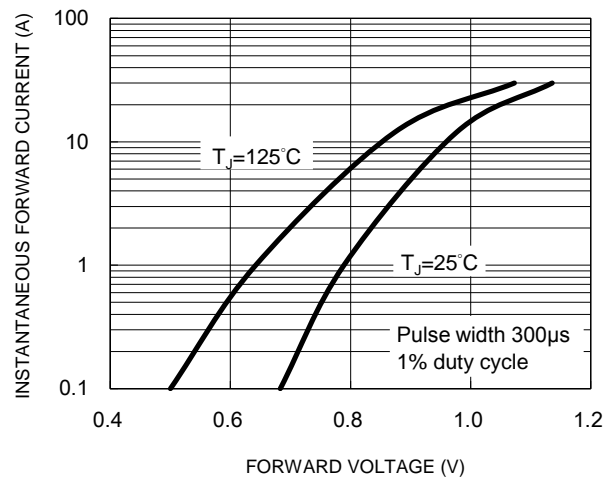
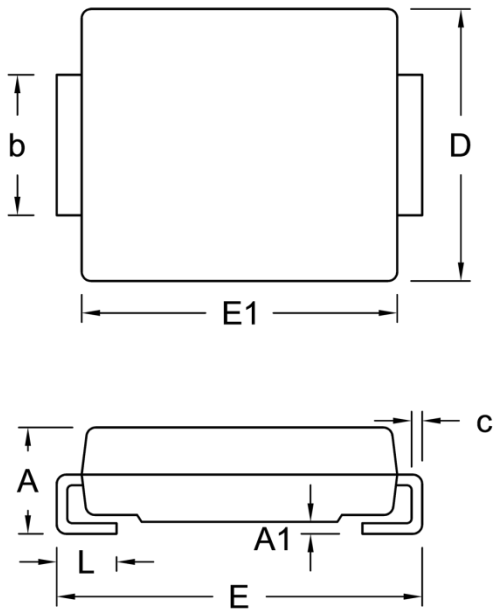


Fig.4 Typical Forward Characteristics



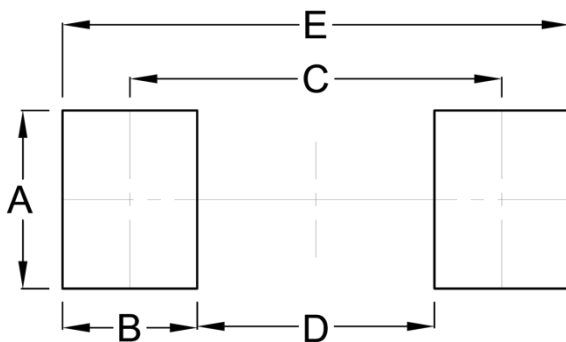
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM



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

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