12A, 45V - 60V Schottky Barrier Rectifier

FEATURES

- AEC-Q101 qualified available
- Low forward voltage drop
- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

MECHANICAL DATA

- Case: DO-201AD
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 1.30g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	12	A
V_{RRM}	45 - 60	V
I_{FSM}	320	A
$T_{J\ MAX}$	175	°C
Package	DO-201AD	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-201AD

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SK12H45**	**SK12H60**	**UNIT**
Marking code on the device		SK12H45	SK12H60	
Repetitive peak reverse voltage	V_{RRM}	45	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	31	42	V
Forward current	I_F	12		A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	320		A
Junction temperature in DC forward mode	T_J	-55 to +175 ≤ 200		°C
Storage temperature	T_{STG}	-55 to +175		°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	30	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	10	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	SK12H45	I_F = 12A, T_J = 25°C	V_F	-	0.55	V
	SK12H60			-	0.70	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	150	μA
		T_J = 100°C		-	20	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
SK12Hx	DO-201AD	1,250 / Tape & Reel
SK12Hx A0G	DO-201AD	500 / Ammo box
SK12HxH	DO-201AD	1,250 / Tape & Reel
SK12HxHA0G	DO-201AD	500 / Ammo box

Notes:

1. "x" defines voltage from 45V (SK12H45) to 60V (SK12H60)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

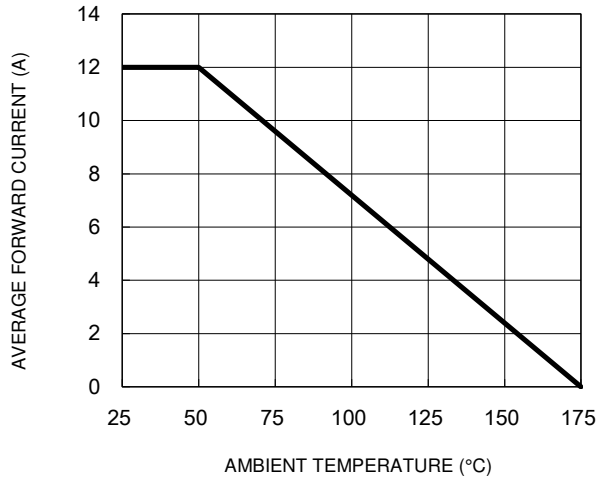


Fig.2 Typical Junction Capacitance

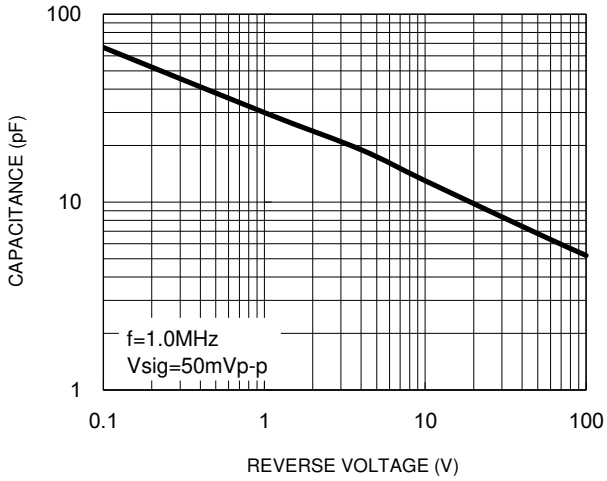


Fig.3 Typical Reverse Characteristics

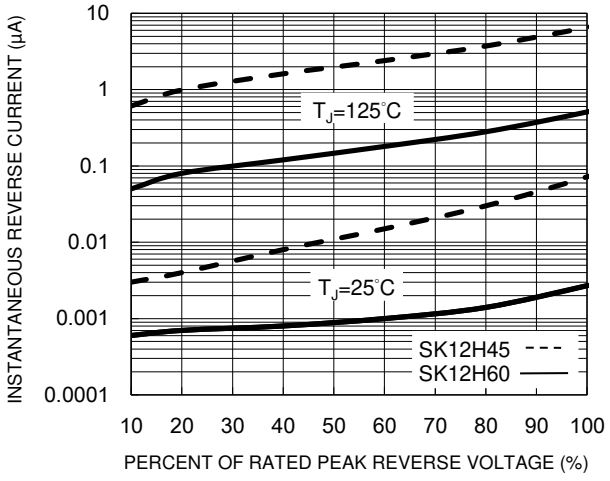


Fig.4 Typical Forward Characteristics

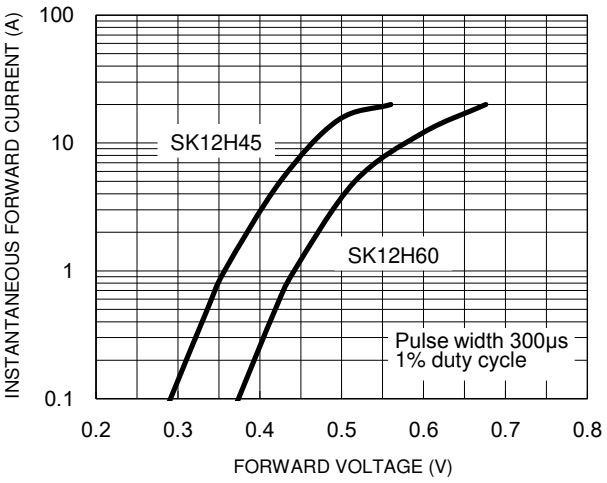
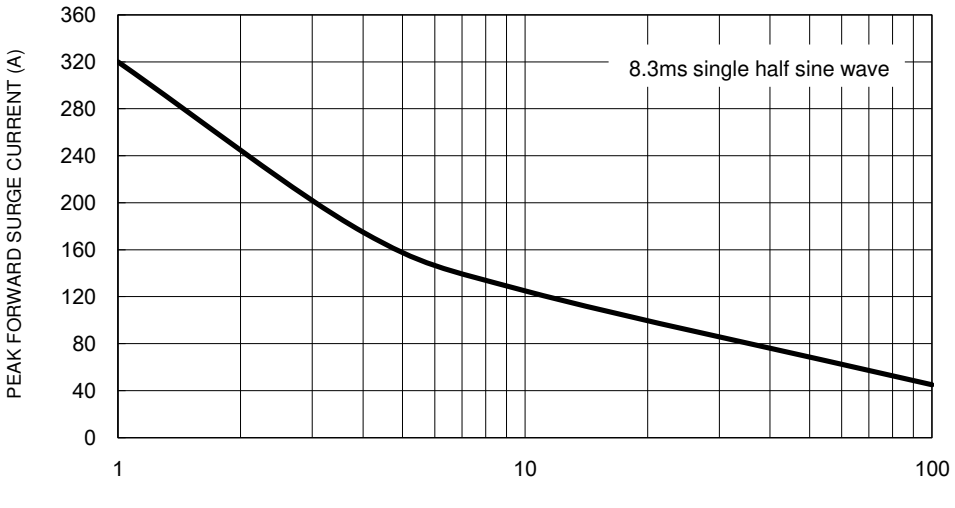


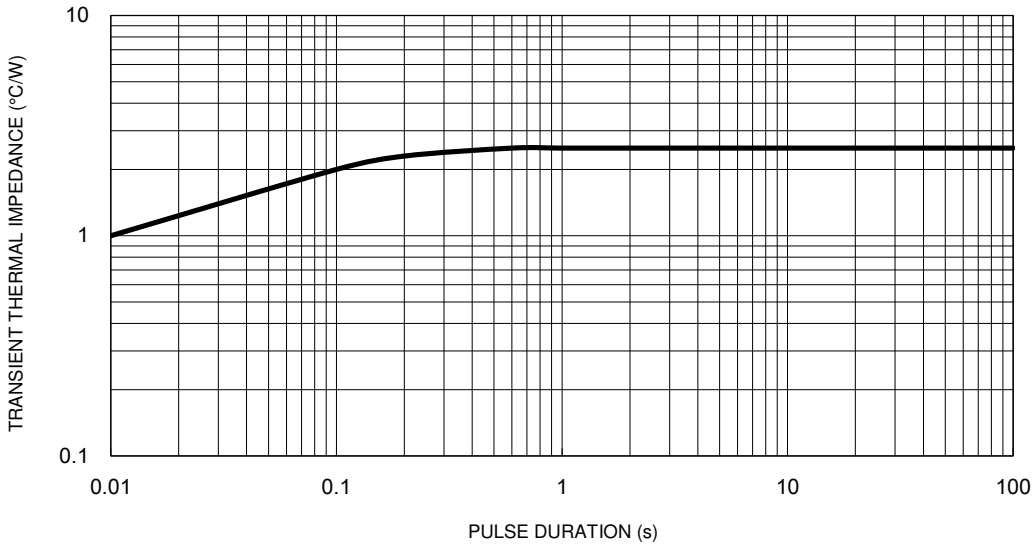
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

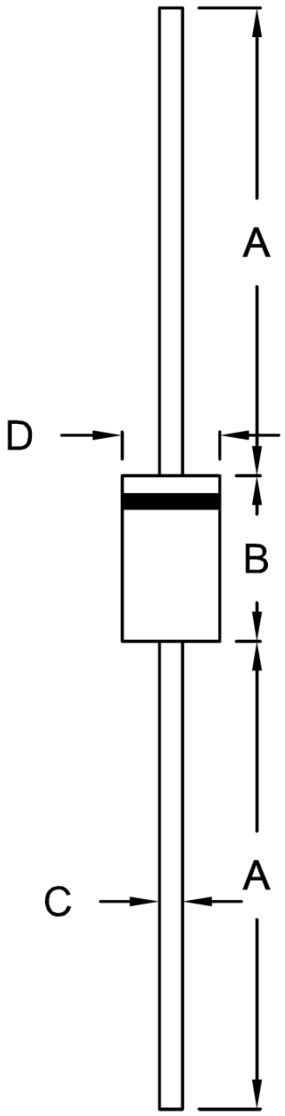
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Characteristics



PACKAGE OUTLINE DIMENSIONS

DO-201AD



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	8.50	9.50	0.335	0.374
C	1.20	1.30	0.047	0.051
D	5.00	5.60	0.197	0.220

MARKING DIAGRAM

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

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