1A, 200V - 1000V High Efficient Surface Mount Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low forward voltage drop
- Fast switching for high efficiency
- 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-214AC (SMA)
- 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)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Weight: 0.06 g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	1	A
V_{RRM}	200 - 1000	V
I_{FSM}	30	A
$T_{J\ MAX}$	150	°C
Package	DO-214AC (SMA)	
Configuration	Single Die	

Pb-Free RoHS COMPLIANT

DO-214AC (SMA)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)							
PARAMETER	**SYMBOL**	**HS1D-K**	**HS1G-K**	**HS1J-K**	**HS1K-K**	**HS1M-K**	**UNIT**
Marking code on the device		HS1D	HS1G	HS1J	HS1K	HS1M	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	200	400	600	800	1000	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
Junction temperature	T_J	- 55 to +150					°C
Storage temperature	T_{STG}	- 55 to +150					°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	70	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	HS1D-K	I_F =1A, T_J=25°C	V_F	-	1.0	V
	HS1G-K			-	1.3	V
	HS1J-K			-	1.7	V
	HS1K-K					
	HS1M-K					
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	5	μA
		T_J =100°C		-	100	μA
		T_J =125°C		-	150	μA
Junction capacitance	HS1D-K	1 MHz, V_R=4.0V	C_J	20	-	pF
	HS1G-K					
	HS1J-K			15	-	pF
	HS1K-K					
	HS1M-K					
Reverse recovery time	HS1D-K	I_F=0.5A , I_R=1.0A I_{RR}=0.25A	t_{rr}	-	50	ns
	HS1G-K					
	HS1J-K			-	75	ns
	HS1K-K					
	HS1M-K					

Notes:

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

ORDERING INFORMATION

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
HS1x-K (Note 1, 2)	R3	G	SMA	1,800 / 7" Plastic reel
	R2		SMA	7,500 / 13" Paper reel
	M2		SMA	7,500 / 13" Plastic reel

Note:

1. "x" defines voltage from 200V (HS1D-K) to 1000V (HS1M-K)
2. Whole series with green compound

EXAMPLE P/N

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
HS1M-K R3G	HS1M-K	R3	G	Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig1. Forward Current Derating Curve

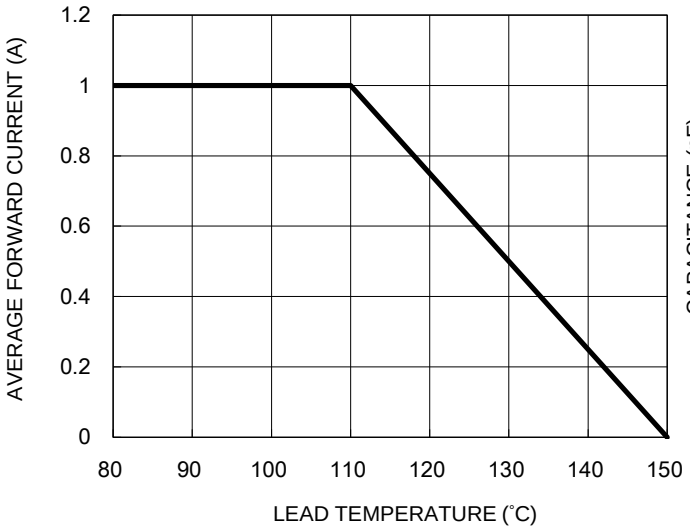


Fig2. Typical Junction Capacitance

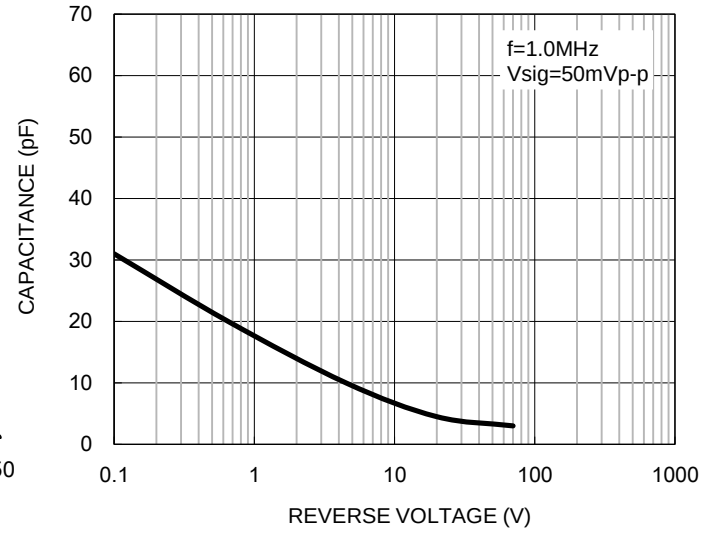


Fig3. Typical Reverse Characteristics

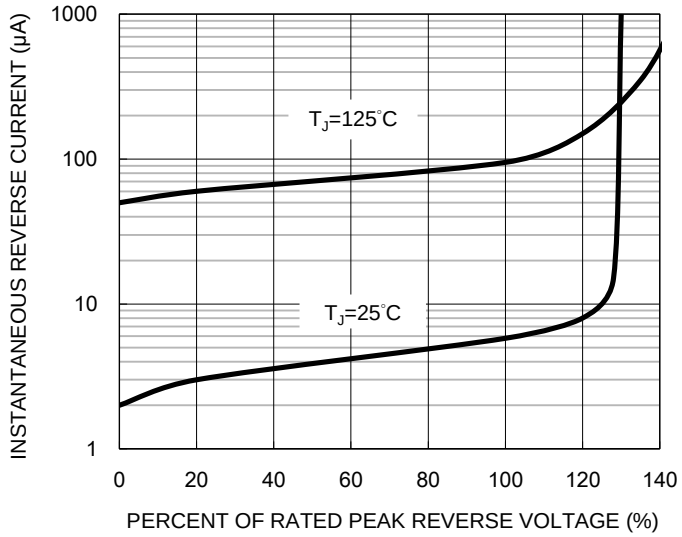
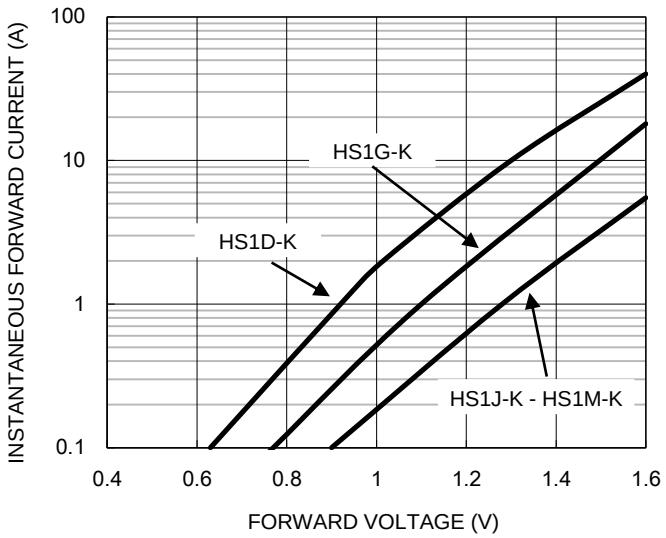


Fig4. Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig5. Maximum Non-repetitive Forward Surge Current

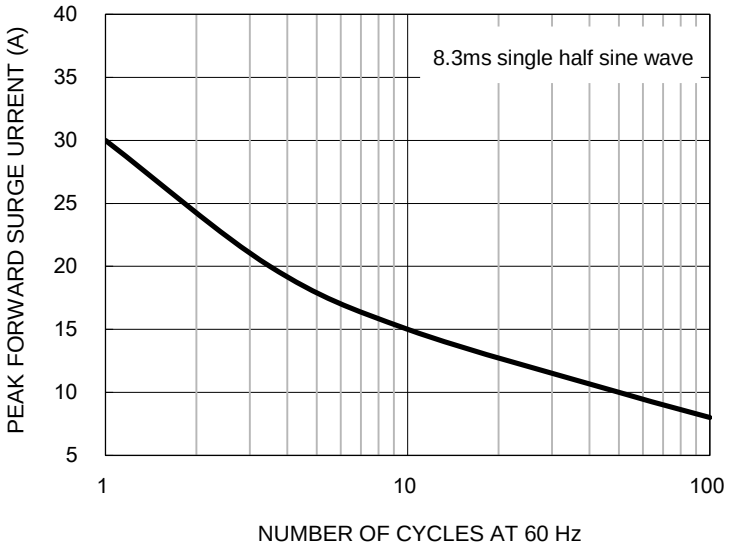
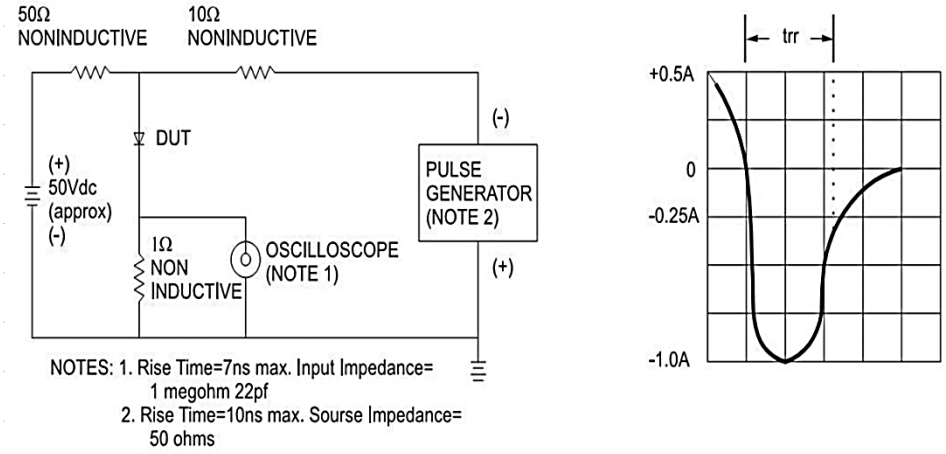
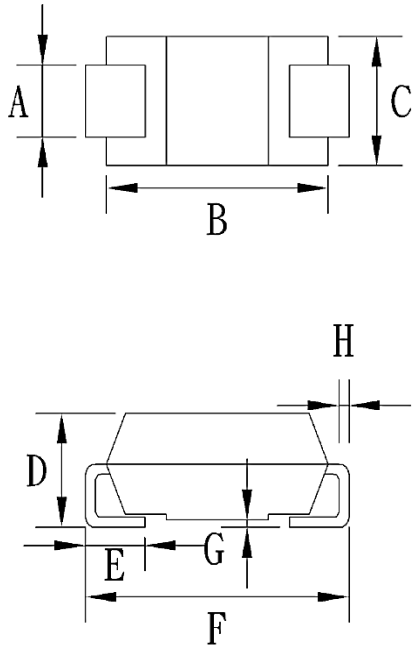


Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram



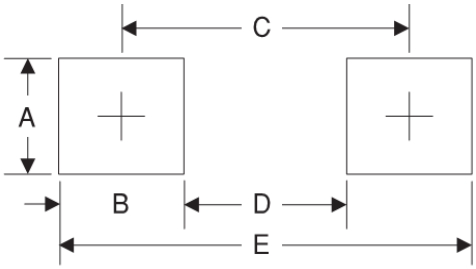
PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



DIM	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.27	1.58	0.050	0.062
B	4.06	4.60	0.160	0.181
C	2.29	2.83	0.090	0.111
D	1.99	2.50	0.078	0.098
E	0.90	1.41	0.035	0.056
F	4.95	5.33	0.195	0.210
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	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM

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

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