Taiwan Semiconductor

1A, 200V - 1000V Surface Mount Fast Recovery 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	А
V _{RRM}	200 - 1000	V
I _{FSM}	30	А
T _{J MAX}	150	°C
Package	DO-214AC (SMA)	
Configuration	Single Die	





DO-214AC (SMA)

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)							
PARAMETER	SYMBOL	RS1D-T	RS1G-T	RS1J-T	RS1K-T	RS1M-T	UNIT
Marking code on the device		RS1D	RS1G	RS1J	RS1K	RS1M	
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			А
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode)	I _{FSM}			30			A
Junction temperature	TJ			- 55 to +150)		°C
Storage temperature	T _{STG}			- 55 to +150)		°C





THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	R _{OJA}	105	°C/W
Junction-to-case thermal resistance	R _{eJC}	32	°C/W

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	ТҮР	MAX	UNIT
Forward voltage per diode (1)		I _F =1A, T _J =25°C	V _F	-	1.3	V
Reverse current @ rated V_R per diode $^{(2)}$		$T_J = 25^{\circ}C$		-	5	μA
		T _J =125°C	I _R	-	50	μA
Junction capacitance		1 MHz, V _R =4.0V	CJ	10	-	pF
R: R:				-	150	ns
Reverse recovery time	RS1J-T	I _F =0.5A , I _R =1.0A I _{RR} =0.25A	t _{rr}	-	250	ns
	RS1K-T RS1M-T	I _{RR} =0.23A -		-	500	ns

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
RS1x-T	R3	C	SMA	1,800 / 7" Plastic reel
(Note 1, 2)	R2	9	SMA	7,500 / 13" Paper reel

Notes:

1. "x" defines voltage from 200V (RS1D-T) to 1000V (RS1M-T)

2. Whole series with green compound (halogen-free)

FYAMPI E P/N

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
RS1M-T R3G	RS1M-T	R3	G	Green compound



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

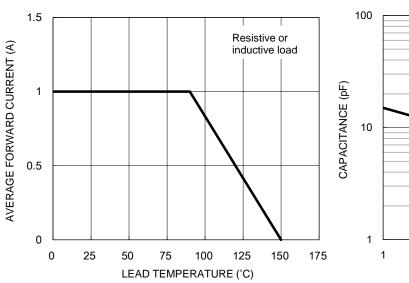


Fig1. Forward Current Derating Curve

Fig2. Typical Junction Capacitance

Fig4. Typical Forward Characteristics

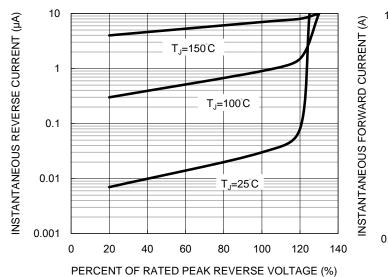
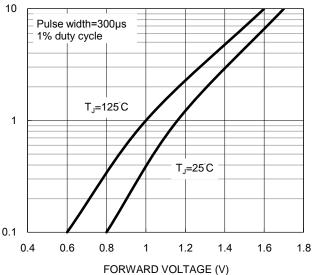


Fig3. Typical Reverse Characteristics





CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig5. Maximum Non-repetitive Forward Surge Current

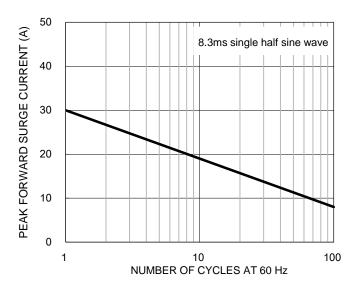
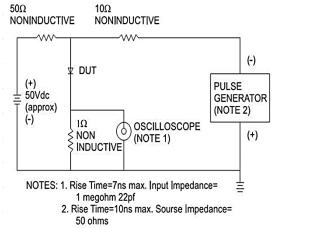
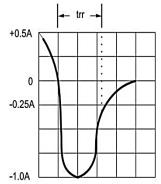


Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram

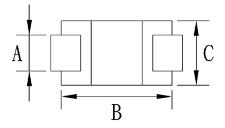


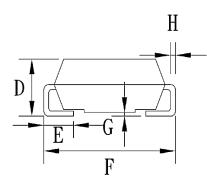




PACKAGE OUTLINE DIMENSIONS

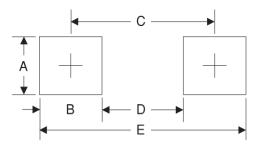
DO-214AC (SMA)





DIM	Unit (mm)		Unit	(inch)
	Min	Max	Min	Max
А	1.27	1.58	0.050	0.062
В	4.06	4.60	0.160	0.181
С	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
Н	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
А	1.68	0.066
В	1.52	0.060
С	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM

P/N	
SGYWF	

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



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