

## 1A, 200V - 600V Surface Mount Super Fast Rectifier

### FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Super fast recovery time 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 - 600	V
$I_{FSM}$	30	A
$T_{J\ MAX}$	150	°C
Package	DO-214AC (SMA)	
Configuration	Single Die	



DO-214AC (SMA)

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	ES1D-T	ES1G-T	ES1J-T	UNIT
Marking code on the device		ES1D	ES1G	ES1J	
Repetitive peak reverse voltage	$V_{RRM}$	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Maximum DC blocking voltage	$V_{DC}$	200	400	600	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

<b>THERMAL PERFORMANCE</b>			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	85	$^{\circ}C/W$
Junction-to-lead thermal resistance	$R_{\theta JL}$	35	$^{\circ}C/W$

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	ES1D-T	$I_F = 1A, T_J = 25^{\circ}C$	$V_F$	-	0.95	V
	ES1G-T			-	1.30	V
	ES1J-T			-	1.70	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>		$T_J = 25^{\circ}C$	$I_R$	-	5	$\mu A$
		$T_J = 125^{\circ}C$		-	100	$\mu A$
Junction capacitance	ES1D-T	1 MHz, $V_R = 4.0V$	$C_J$	16	-	pF
	ES1G-T			18	-	pF
	ES1J-T					
Reverse recovery time		$I_F = 0.5A, I_R = 1.0A$ $I_{RR} = 0.25A$	$t_{rr}$	-	35	ns

**Notes:**

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

<b>ORDERING INFORMATION</b>				
PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
ES1x-T (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

**Notes:**

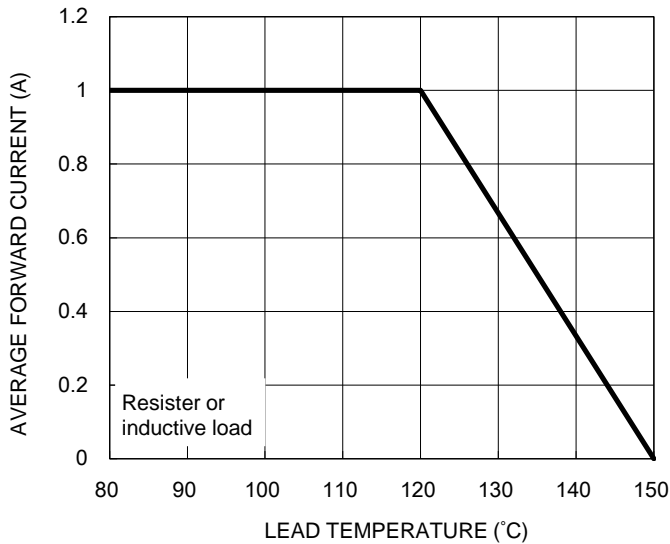
1. "x" defines voltage from 200V (ES1D-T) to 600V (ES1J-T)
2. Whole series with green compound (halogen-free)

<b>EXAMPLE P/N</b>				
EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
ES1J-T R3G	ES1J-T	R3	G	Green compound

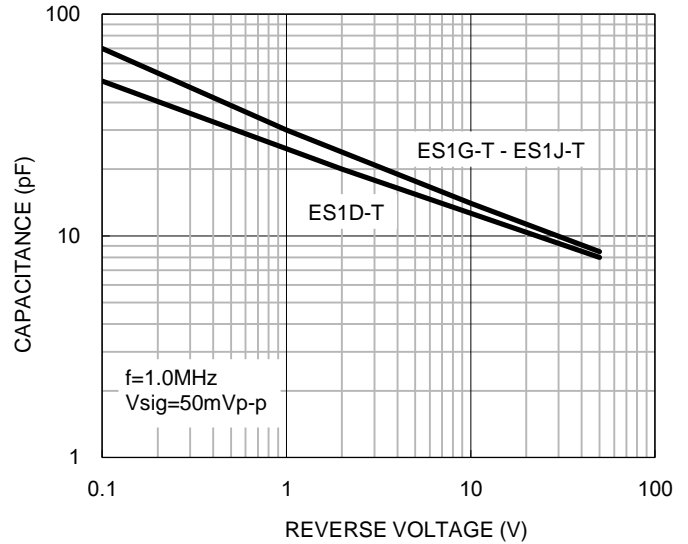
**CHARACTERISTICS CURVES**

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

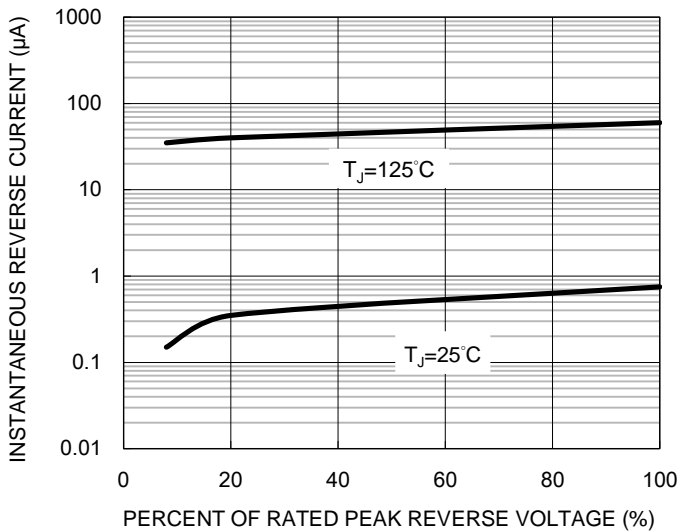
**Fig1. Forward Current Derating Curve**



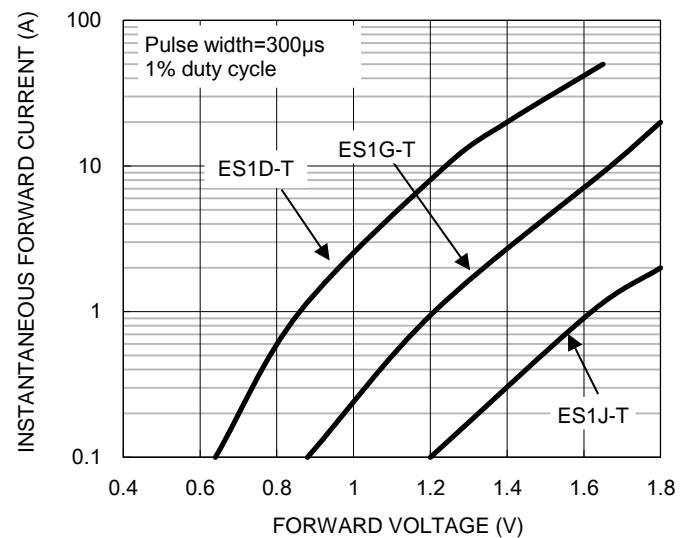
**Fig2. Typical Junction Capacitance**



**Fig3. Typical Reverse Characteristics**



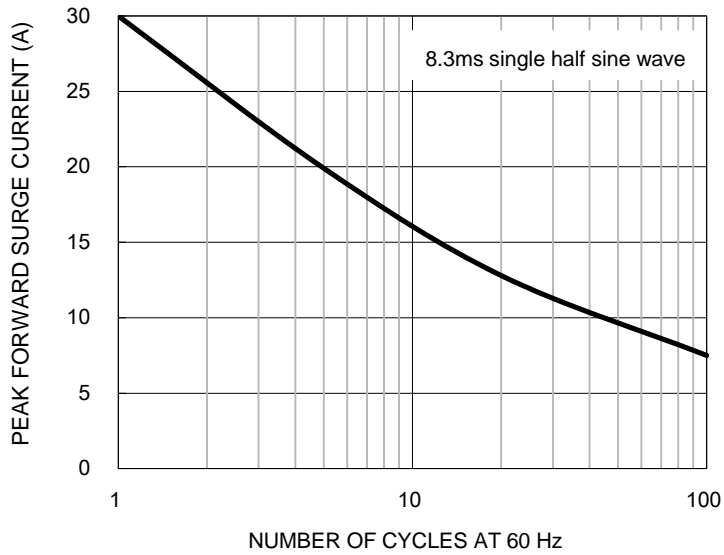
**Fig4. Typical Forward Characteristics**



**CHARACTERISTICS CURVES**

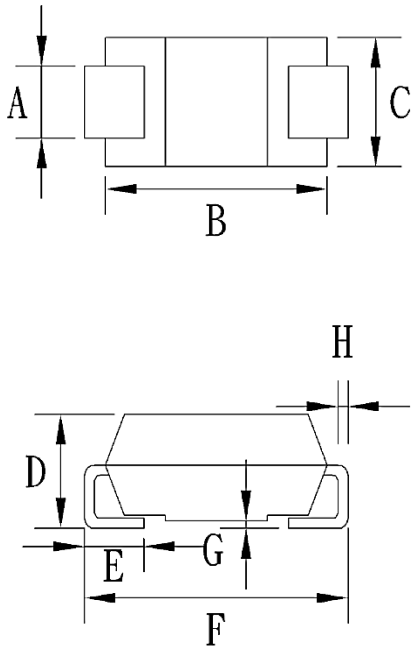
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig5. Maximum Non-repetitive Forward Surge Current**



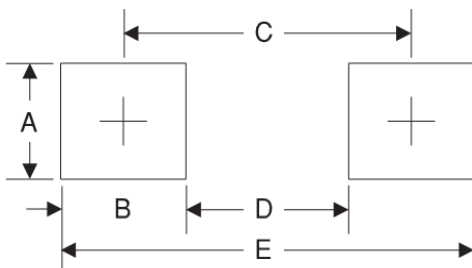
**PACKAGE OUTLINE DIMENSIONS**

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

## Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Rectifiers](#) category:*

*Click to view products by [Taiwan Semiconductor](#) manufacturer:*

Other Similar products are found below :

[D91A](#) [DA24F4100L](#) [DD89N1600K-A](#) [DD89N16K-K](#) [RL252-TP](#) [DLA11C-TR-E](#) [DSA17G](#) [1N4005-TR](#) [BAV199-TP](#) [UFS120Je3/TR13](#)  
[JANS1N6640US](#) [VS-80-1293](#) [DD89N16K](#) [DD89N16K-A](#) [481235F](#) [DSP10G-TR-E](#) [067907F](#) [MS306](#) [ND104N08K](#) [SPA2003-B-D-A01](#) [VS-](#)  
[80-6193](#) [VS-66-9903](#) [VGF0136AB](#) [US2JFL-TP](#) [UFS105Je3/TR13](#) [A1N5404G-G](#) [ACGRA4007-HF](#) [ACGRB207-HF](#) [RF301B2STL](#)  
[RF501B2STL](#) [UES1306](#) [UES1302](#) [BAV199E6433HTMA1](#) [ACGRC307-HF](#) [ACEFC304-HF](#) [JANTXV1N5660A](#) [UES1106](#) [GS2K-LTP](#)  
[D126A45C](#) [D251N08B](#) [SCHJ22.5K](#) [SM100](#) [SCPA2](#) [SCH10000](#) [SDHD5K](#) [STTH20P035FP](#) [VS-8EWS12S-M3](#) [VS-12FL100S10](#)  
[ACGRA4001-HF](#) [MUR420GP-TP](#)