2A, 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

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication.

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	2	A
V_{RRM}	200 - 600	V
I_{FSM}	50	A
$T_{J\ MAX}$	150	°C
Package	DO-214AA (SMB)	
Configuration	Single dice	

Pb-Free RoHS COMPLIANT

MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94 V-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: 0.09 g (approximately)

DO-214AA (SMB)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	ES2D-T	ES2G-T	ES2J-T	UNIT
Marking code on the device		ES2D	ES2G	ES2J	
Repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Reverse voltage, total rms value	V_{RMS}	140	280	420	V
Maximum DC blocking voltage	V_{DC}	200	400	600	V
Forward current	$I_{F(AV)}$	2			A
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	50			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	$R_{\Theta JL}$	20	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	75	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	ES2D-T	I_F = 1A, T_J = 25°C	V_F	-	0.95	V
	ES2G-T			-	1.30	V
	ES2J-T			-	1.70	V
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	10	μA
		T_J = 125°C		-	350	μA
Junction capacitance	ES2D-T	1 MHz, V_R=4V	C_J	25	-	pF
	ES2G-T			20	-	pF
	ES2J-T					pF
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

ORDERING INFORMATION

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
ES2x-T (Note 1)	R5	G	SMB	850 / 7" Plastic reel
	R4		SMB	3,000 / 13" Paper reel
	M4		SMB	3,000 / 13" Plastic reel

Note:

1. “x" defines voltage from 200V (ES2D-T) to 600V (ES2J-T)
2. Whole series with green compound

EXAMPLE

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
ES2J-T R5G	ES2J-T	R5	G	Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig1. Forward Current Derating Curve

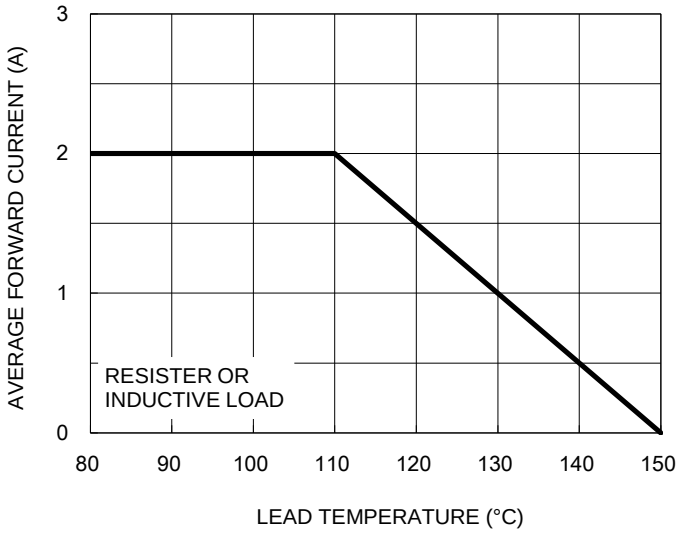


Fig2. Typical Junction Capacitance

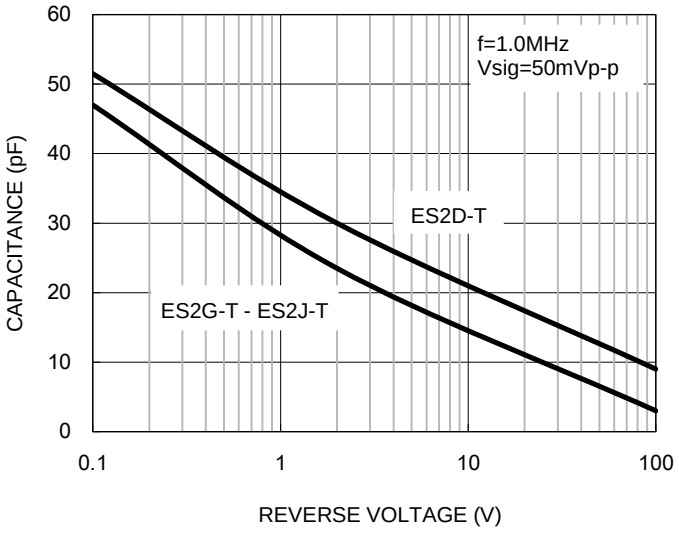


Fig3. Typical Reverse Characteristics

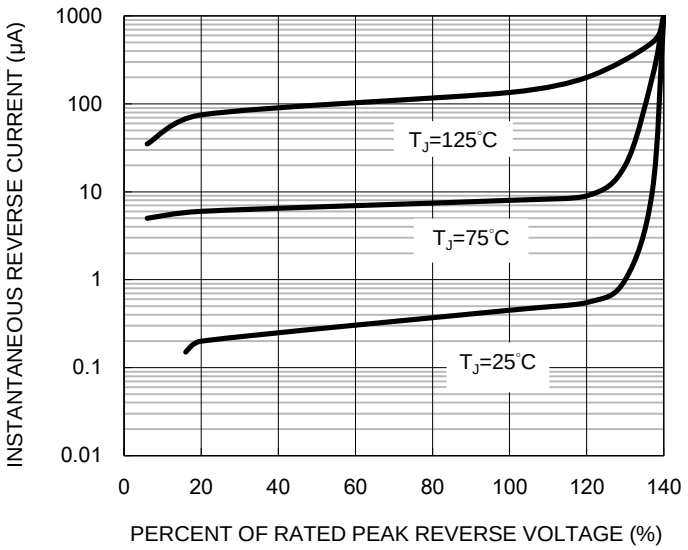


Fig4. Typical Forward Characteristics

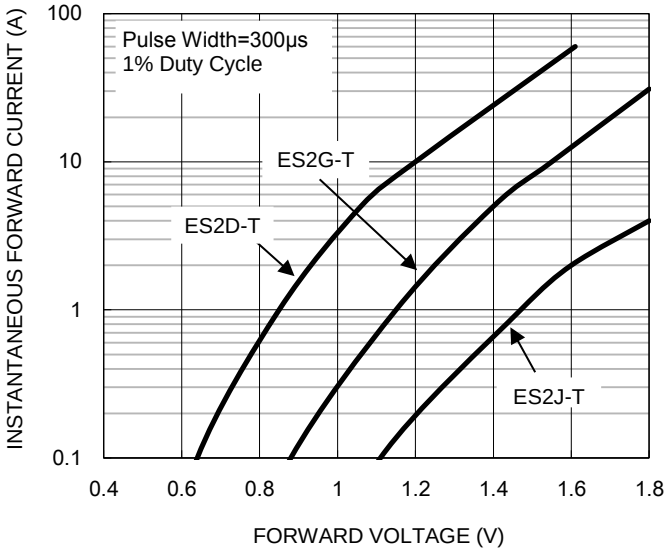


Fig5. Maximum Non-repetitive Forward Surge Current

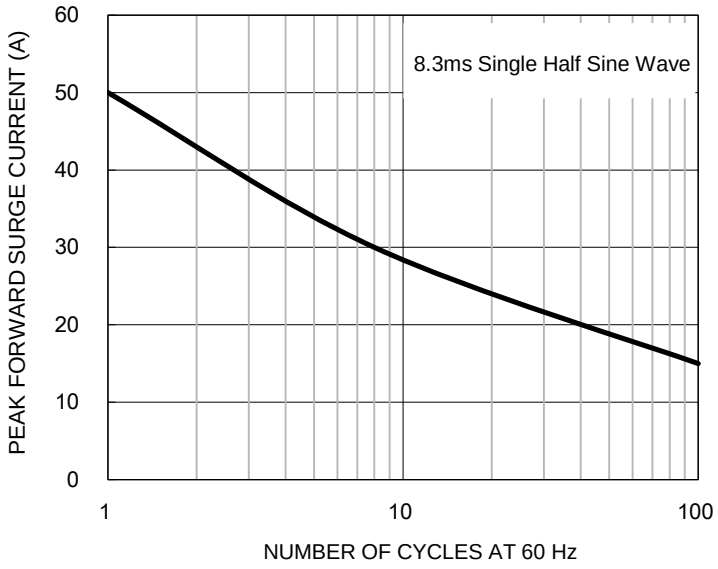
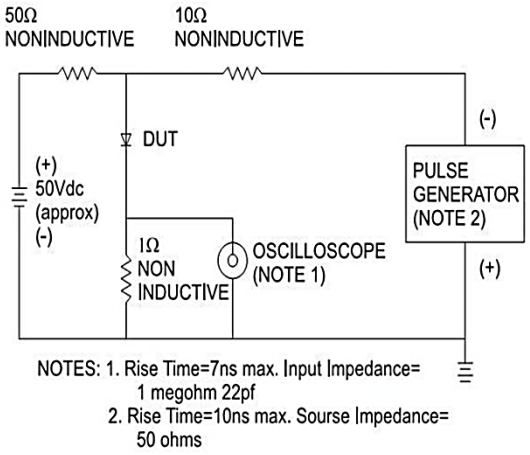
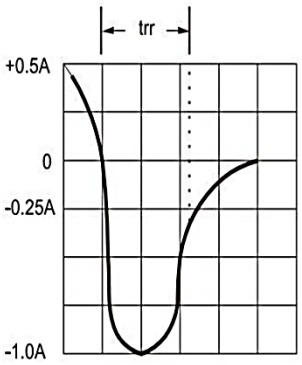


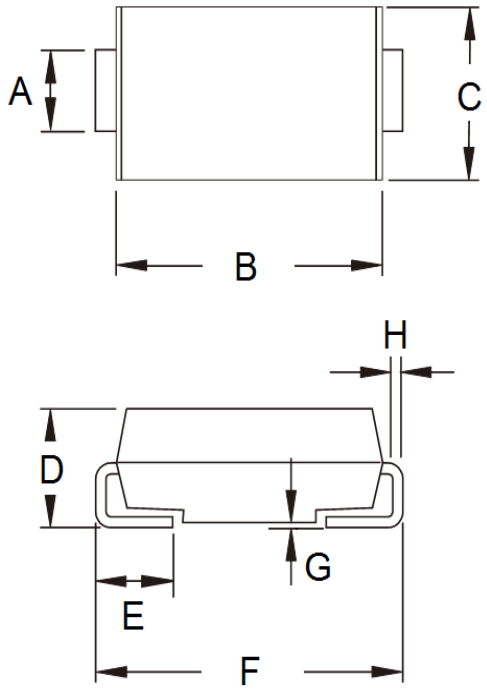
Fig6. Reverse Recovery Time Characteristic And Test Circuit Diagram





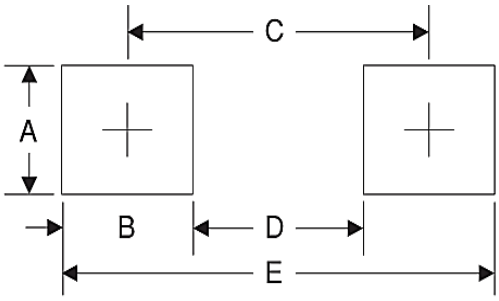
PACKAGE OUTLINE DIMENSIONS

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.10	0.077	0.083
B	4.25	4.75	0.167	0.187
C	3.48	3.73	0.137	0.147
D	1.99	2.61	0.078	0.103
E	0.90	1.41	0.035	0.056
F	5.10	5.46	0.201	0.209
G	0.05	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

MARKING DIAGRAM

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

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