

2A, 200V - 600V Super Fast Surface Mount Rectifier

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- Freewheeling application

MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.060g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	2	A
V_{RRM}	200 - 600	V
I_{FSM}	50	A
T_{JMAX}	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	ES2DA-T	ES2GA-T	ES2JA-T	UNIT
Marking code on the device		ES2DA	ES2GA	ES2JA	V
Repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	140	280	420	V
Forward current	I_F	2			A
Surge peak forward current, single half sine-wave superimposed on rated load	$t = 8.3\text{ms}$	50			A
	$t = 1.0\text{ms}$	124			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	$R_{\theta JL}$	14	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	86	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	23	°C/W

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	ES2DA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	0.83	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		0.91	0.95	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.69	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		0.78	0.91	V
	ES2GA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$		0.97	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		1.09	1.25	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.78	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		0.92	1.05	V
	ES2JA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$		1.23	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		1.44	1.70	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.92	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		1.12	1.26	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	5	μA
		$T_J = 125^\circ\text{C}$		-	100	μA
Reverse recovery time		$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	t_{rr}	-	35	ns
Junction capacitance	ES2DA-T	1MHz, $V_R = 4.0\text{V}$	C_J	26	-	pF
	ES2GA-T			19	-	pF
	ES2JA-T			11	-	pF

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
ES2xA-T	DO-214AC (SMA)	7,500 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(ES2DA-T) to 600V(ES2JA-T)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

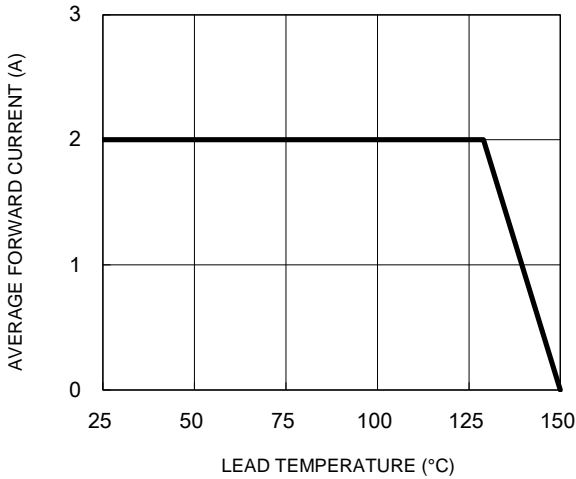


Fig.2 Typical Junction Capacitance

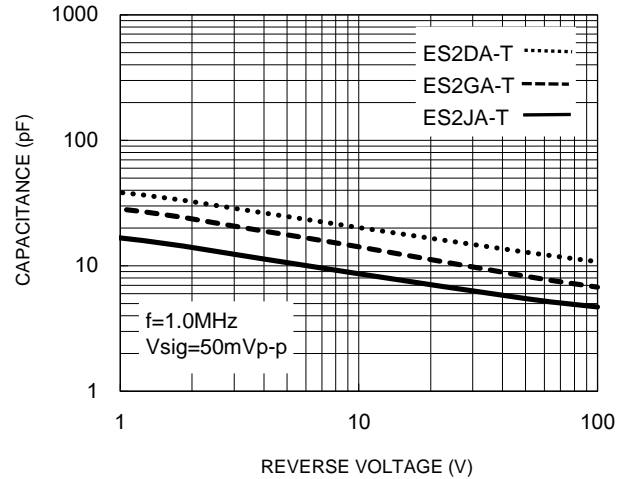


Fig.3 Typical Reverse Characteristics

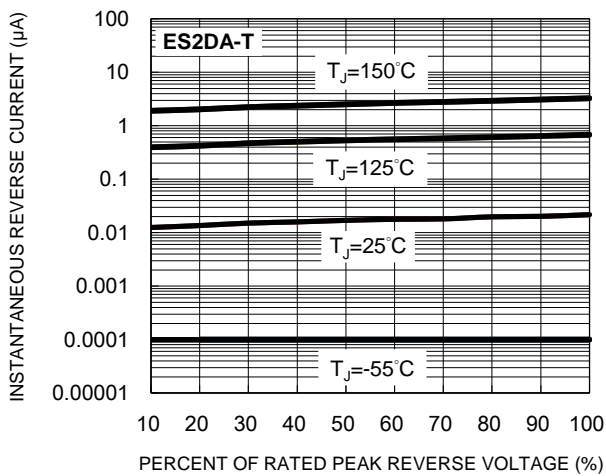


Fig.4 Typical Forward Characteristics

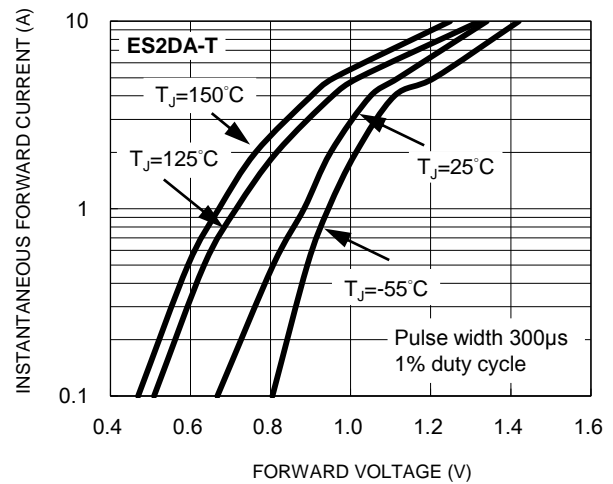


Fig.5 Typical Reverse Characteristics

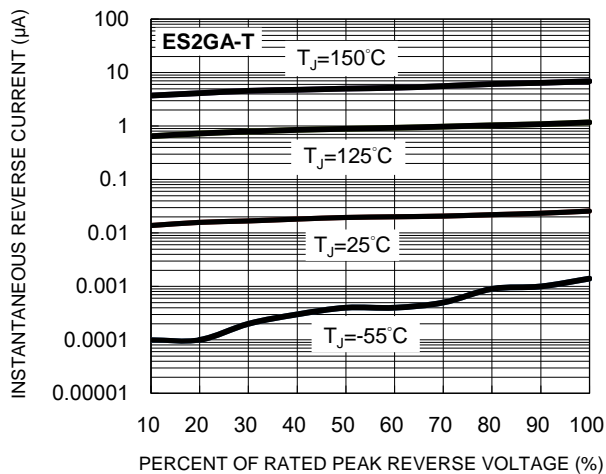
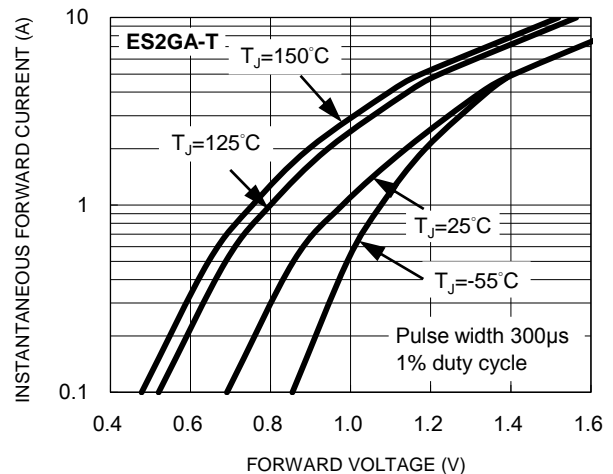


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

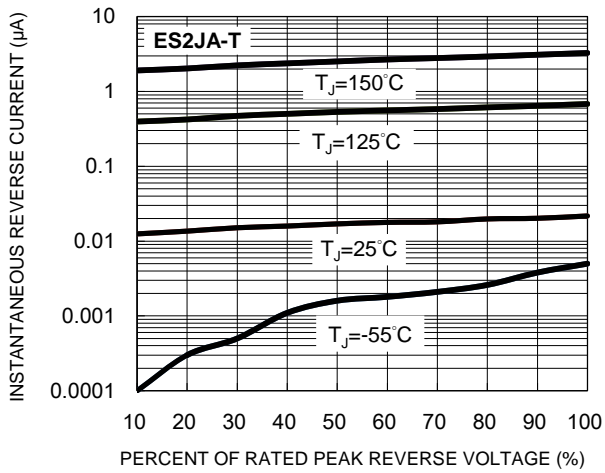


Fig.8 Typical Forward Characteristics

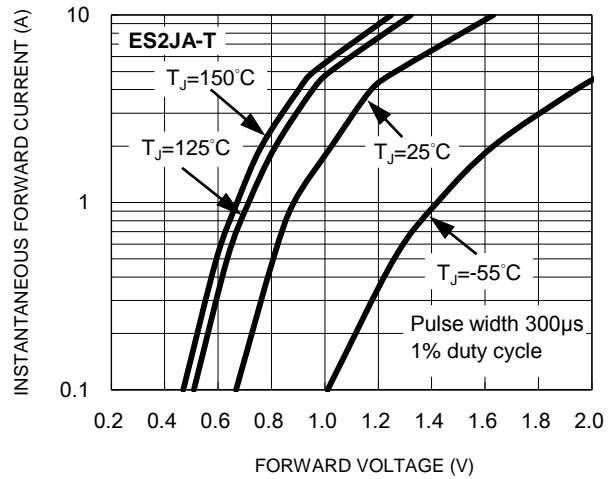
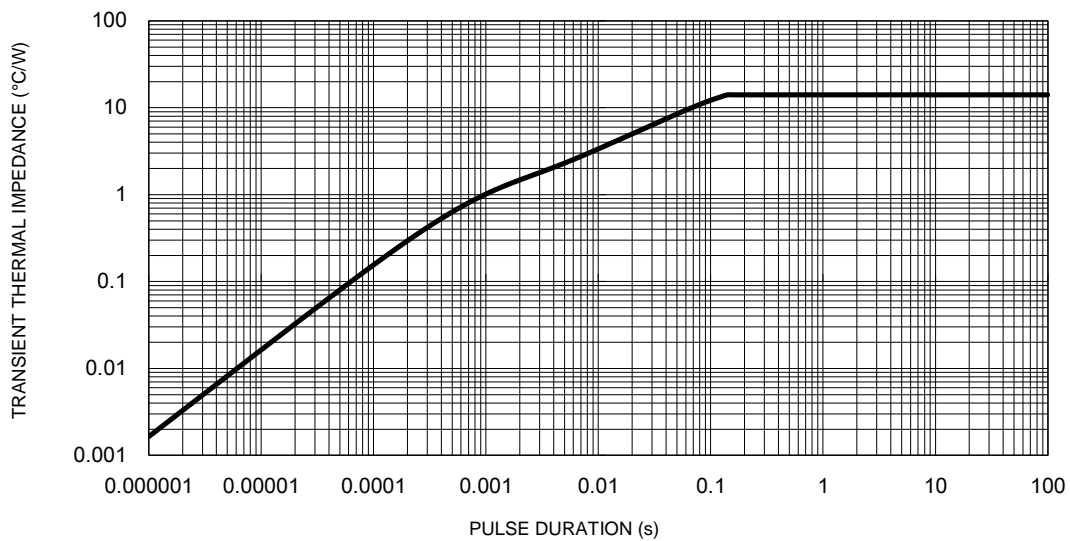
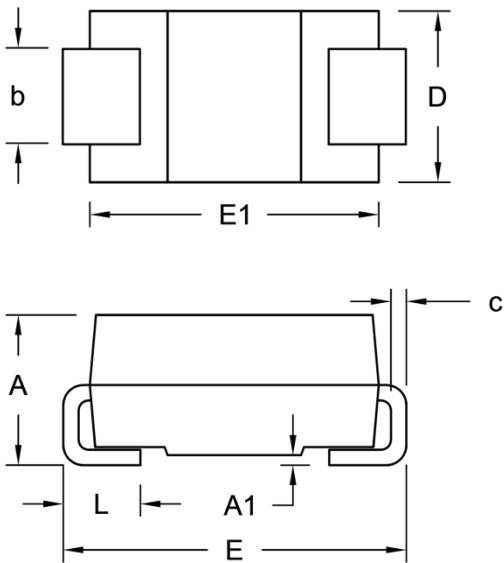


Fig.9 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.05	0.20	0.002	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

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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