

2A, 200V - 1000V High Efficient 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 - 1000	V
I_{FSM}	50	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	HS2DA-T	HS2GA-T	HS2JA-T	HS2KA-T	HS2MA-T	UNIT
Marking code on the device		HS2DA	HS2GA	HS2JA	HS2KA	HS2MA	
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
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⁾	HS2DA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$	V_F	0.84	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		0.91	1.00	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
	HS2GA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$		0.93	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		1.03	1.40	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		0.77	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		0.88	0.99	V
	HS2JA-T HS2KA-T HS2MA-T	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$		1.25	-	V
		$I_F = 2\text{A}, T_J = 25^\circ\text{C}$		1.40	1.70	V
		$I_F = 1\text{A}, T_J = 125^\circ\text{C}$		1.00	-	V
		$I_F = 2\text{A}, T_J = 125^\circ\text{C}$		1.16	1.41	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	HS2DA-T HS2GA-T	t_{rr}	$I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$	-	50	ns
	HS2JA-T HS2KA-T HS2MA-T			-	75	ns
Junction capacitance	HS2DA-T	C_J	$1\text{MHz}, V_R = 4.0\text{V}$	26	-	pF
	HS2GA-T			20	-	pF
	HS2JA-T			12	-	pF
	HS2KA-T HS2MA-T					

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
HS2xA-T	DO-214AC (SMA)	7,500 / Tape & Reel

Notes:

1. "x" defines voltage from 200V(HS2DA-T) to 1000V(HS2MA-T)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

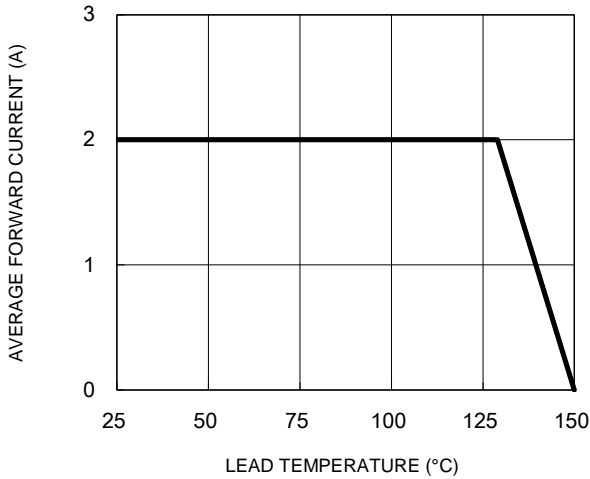


Fig.2 Typical Junction Capacitance

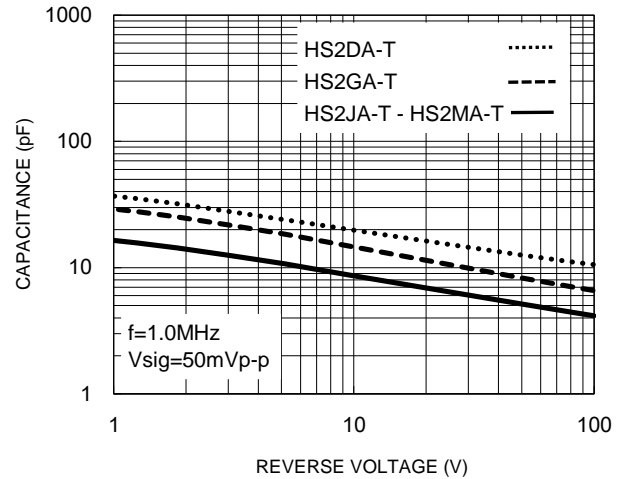


Fig.3 Typical Reverse Characteristics

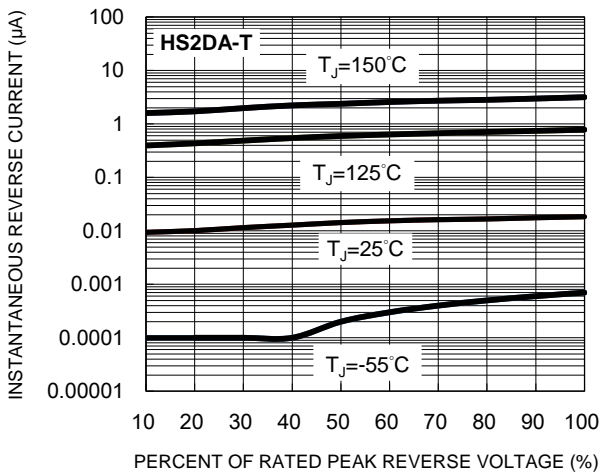


Fig.4 Typical Forward Characteristics

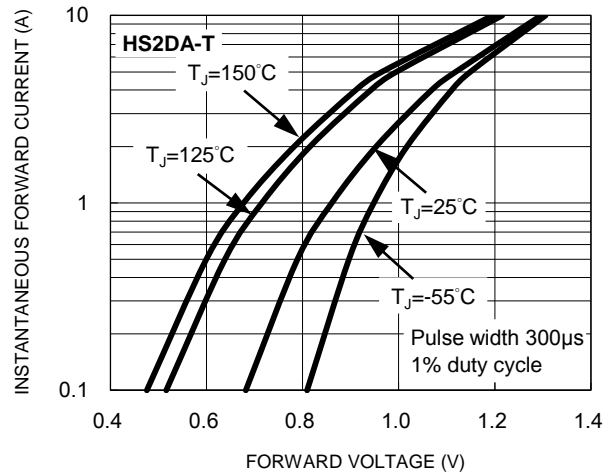


Fig.5 Typical Reverse Characteristics

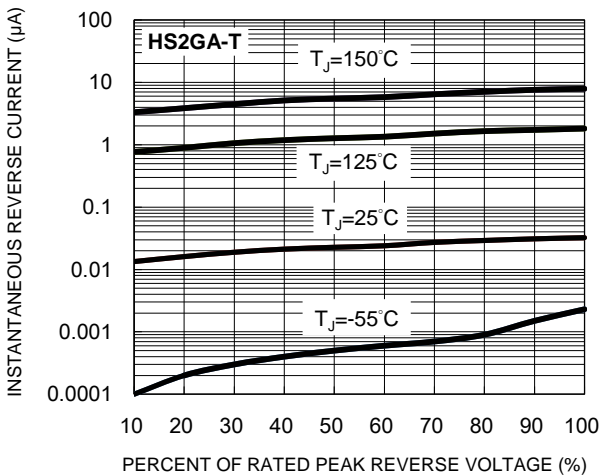
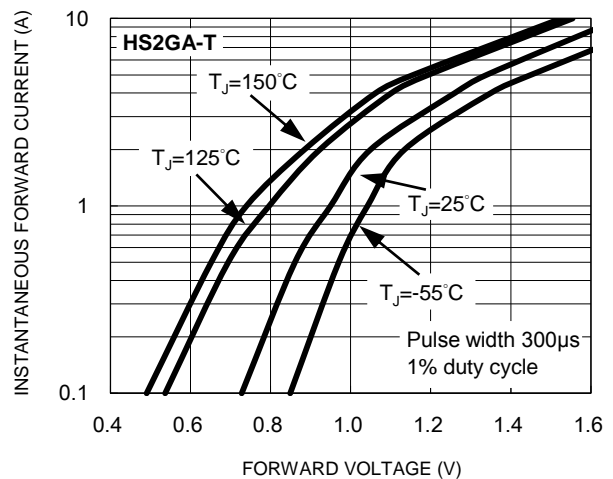


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

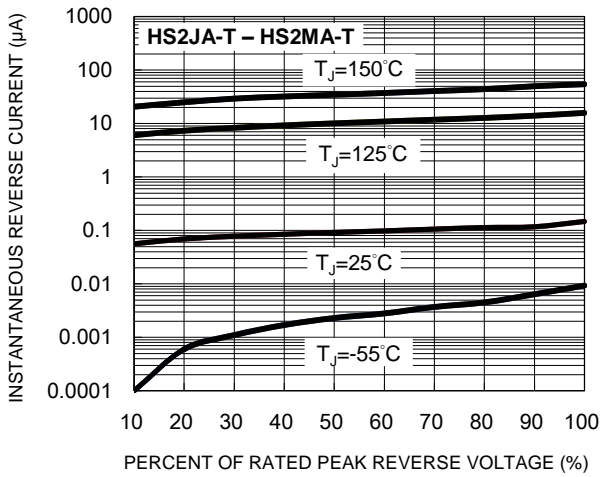


Fig.8 Typical Forward Characteristics

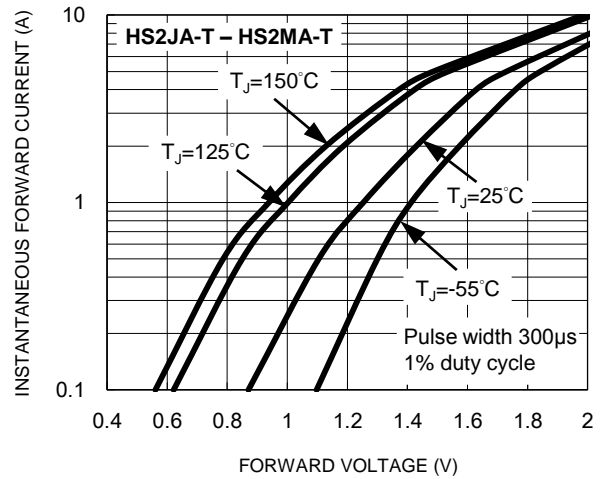
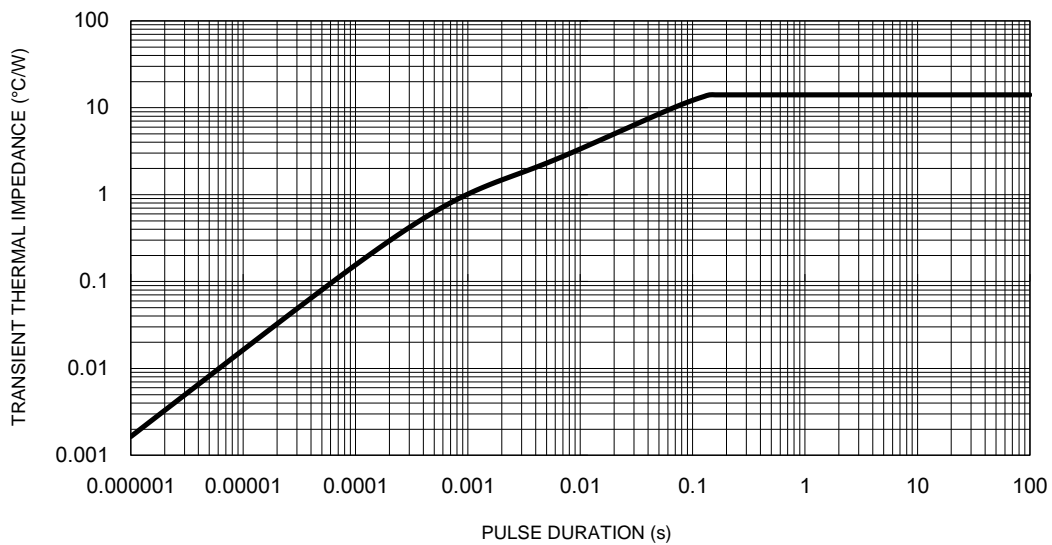
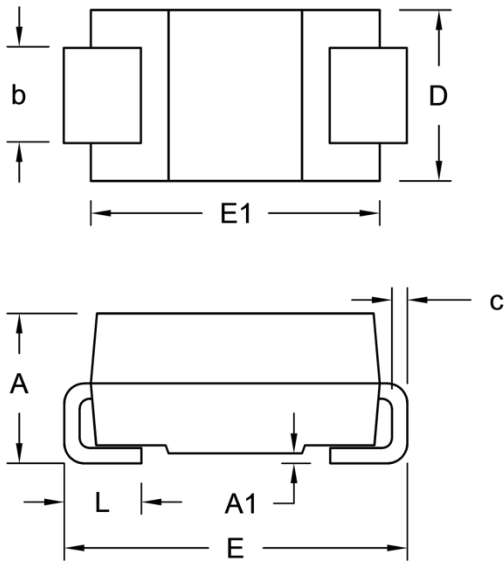


Fig.9 Typical Transient Thermal Impedance



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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