

## 2A, 200V-1000V High Efficient Recovery Surface Mount Rectifier

### FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Low reverse leakage
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switch Mode Power Supply
- Inverters and Converters
- Free Wheeling diodes

### 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: 0.06 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	2	A
$V_{RRM}$	200-1000	V
$I_{FSM}$	50	A
$T_{JMAX}$	150	°C
Package	DO-214AC (SMA)	



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	
DC blocking voltage	$V_{DC}$	200	400	600	800	1000	V	
Forward current	$I_F$	2					A	
Surge peak forward current single half sine-wave superimposed on rated load per diode	8.3 ms at $T_A = 25^\circ\text{C}$	$I_{FSM}$					50	A
	1.0 ms at $T_A = 25^\circ\text{C}$						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 per diode	$R_{\theta JL}$	14	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	86	°C/W
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	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 per diode <sup>(1)</sup>	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	1.0	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	1.4	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 to 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	1.7	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 $V_R$ per diode <sup>(2)</sup>		$T_J = 25^\circ\text{C}$	$I_R$	-	5	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$		-	100	$\mu\text{A}$
Reverse recovery time	HS2DA-T to HS2GA-T	$I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$	$t_{rr}$	-	50	ns
	HS2JA-T to HS2MA-T			-	75	ns
Junction capacitance per diode	HS2DA-T	1 MHz, $V_R=4.0\text{V}$	$C_J$	12	-	pF
	HS2GA-T			20	-	pF
	HS2JA-T to HS2MA-T			26	-	pF

**Notes:**

- (1) Pulse test with  $PW=0.3\text{ ms}$
- (2) Pulse test with  $PW=30\text{ ms}$

ORDERING INFORMATION		
ORDERING CODE	PACKAGE	PACKING
HS2XA-T R3G <sup>(1)</sup>	SMA	1,800 / 7" Plastic reel
HS2XA-T M2G <sup>(1)</sup>	SMA	7,500 / 13" Plastic reel
HS2XA-T R2G <sup>(1)</sup>	SMA	7,500 / 13" Paper reel

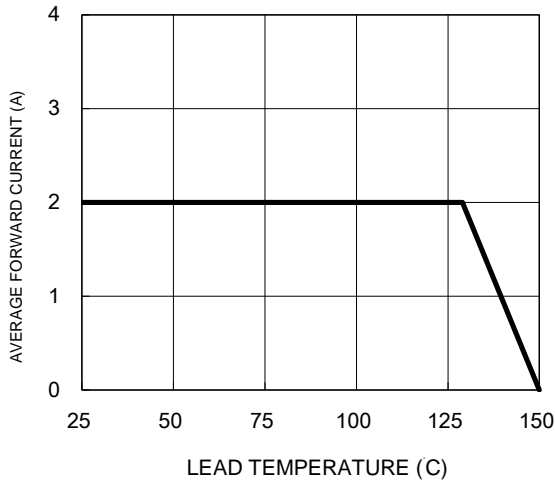
**Notes:**

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

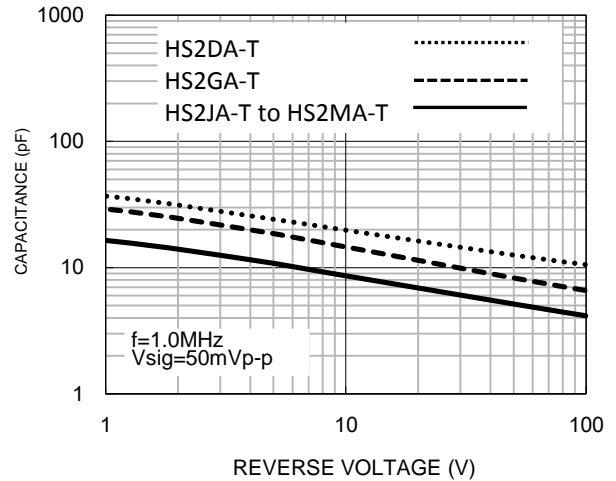
**CHARACTERISTICS CURVES**

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

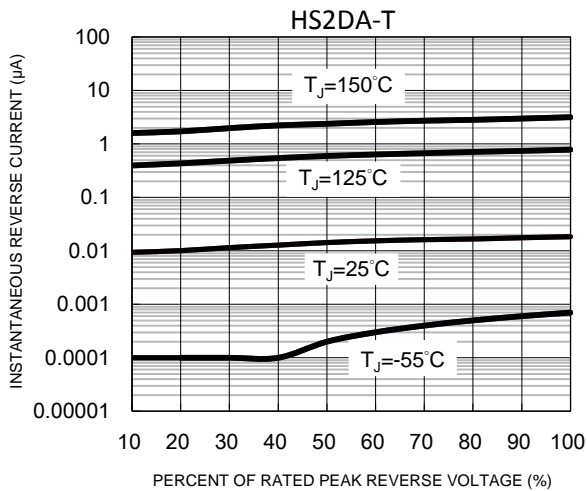
**Fig.1 Forward Current Derating Curve**



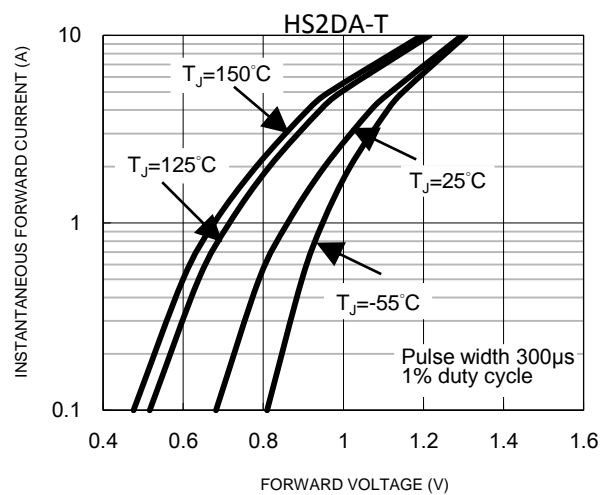
**Fig.2 Typical Junction Capacitance**



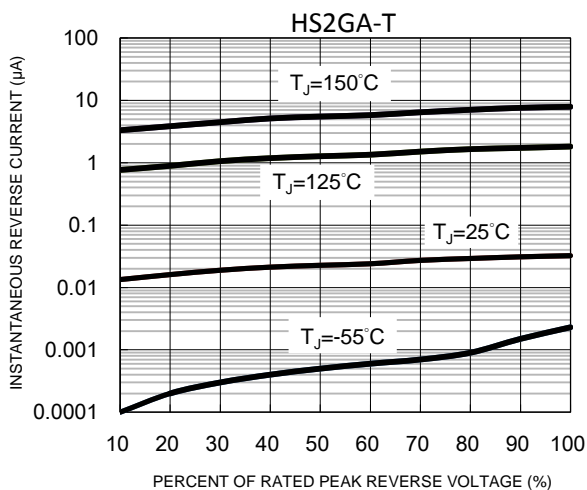
**Fig.3 Typical Reverse Characteristics**



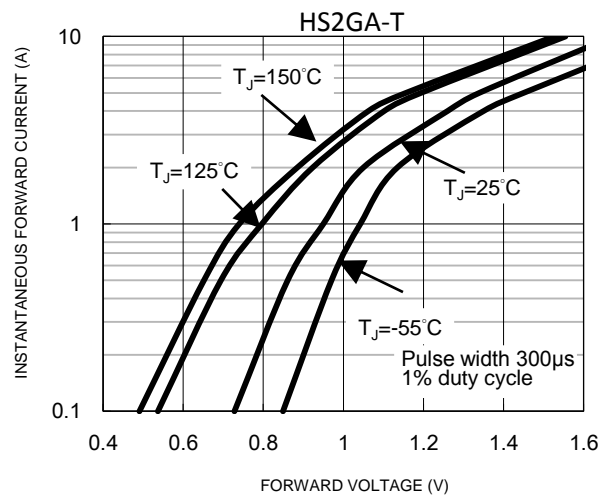
**Fig.4 Typical Forward Characteristics**



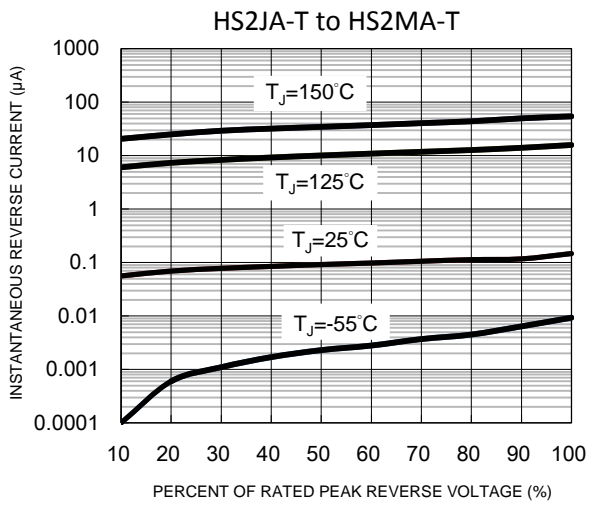
**Fig.5 Typical Reverse Characteristics**



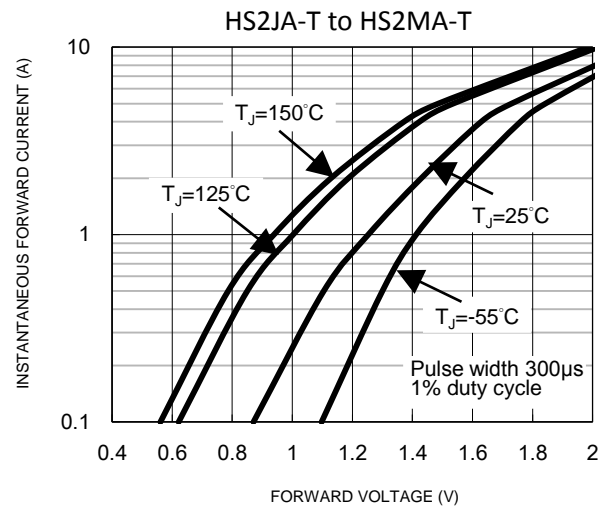
**Fig.6 Typical Forward Characteristics**



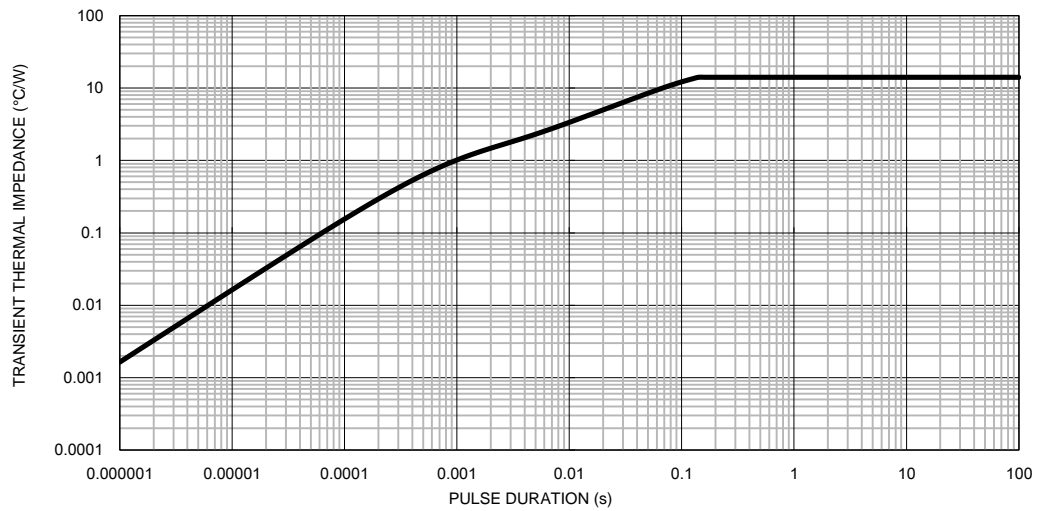
**Fig.7 Typical Reverse Characteristics**



**Fig.8 Typical Forward Characteristics**

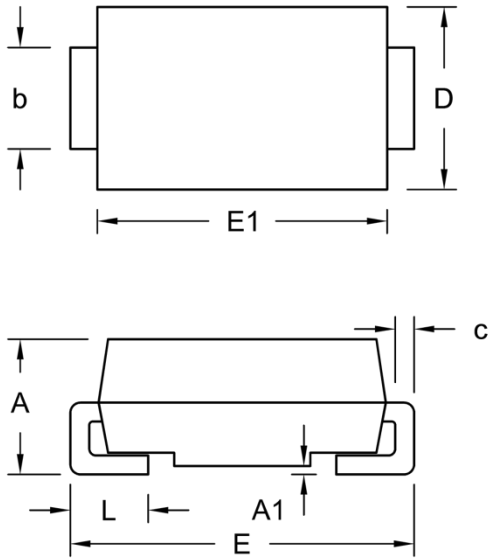


**Fig.9 Typical Transient Thermal Impedance**



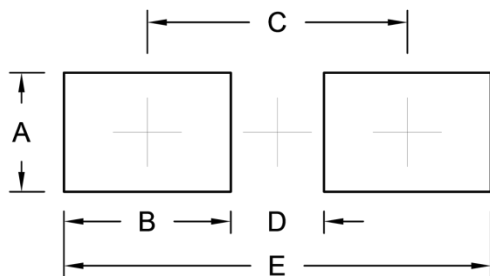
**PACKAGE OUTLINE DIMENSIONS**

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.70	2.30	0.067	0.091
A1	0.05	0.20	0.002	0.008
b	1.20	1.80	0.047	0.071
c	0.15	0.41	0.006	0.016
D	2.40	3.00	0.094	0.118
E	4.80	5.40	0.189	0.213
E1	4.00	4.60	0.157	0.181
L	0.75	1.60	0.030	0.063

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	1.82	0.072
B	2.56	0.101
C	3.99	0.157
D	1.43	0.056
E	6.55	0.258

**MARKING DIAGRAM**



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

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