

5A, 50V - 1000V High Efficient Surface Mount Rectifier

FEATURES

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

APPLICATIONS

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

MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.210g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	5	A
V_{RRM}	50 - 1000	V
I_{FSM}	150	A
T_{JMAX}	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	



DO-214AB (SMC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	HS5A	HS5B	HS5D	HS5F	HS5G	HS5J	HS5K	HS5M	UNIT
Marking code on the device		HS5A	HS5B	HS5D	HS5F	HS5G	HS5J	HS5K	HS5M	
Repetitive peak reverse voltage	V_{RRM}	50	100	200	300	400	600	800	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	140	210	280	420	560	700	V
Forward current	I_F	5								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150								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-ambient thermal resistance	$R_{\theta JA}$	60	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage ⁽¹⁾	HS5A HS5B HS5D HS5F	$I_F = 3\text{A}, T_J = 25^\circ\text{C}$	V_F	-	-	V	
	HS5G			-	-	V	
	HS5J HS5K HS5M			-	1.35	V	
		HS5A HS5B HS5D HS5F	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	1.00	V
		HS5G			-	1.30	V
		HS5J HS5K HS5M			-	1.70	V
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	10	μA	
		$T_J = 125^\circ\text{C}$		-	250	μA	
Junction capacitance	HS5A HS5B HS5D HS5F HS5G	1MHz, $V_R = 4.0\text{V}$	C_J	80	-	pF	
	HS5J HS5K HS5M			50	-	pF	
Reverse recovery time	HS5A HS5B HS5D HS5F HS5G	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$	t_{rr}	-	50	ns	
	HS5J HS5K HS5M			-	75	ns	

Notes:

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

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
HS5x	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

1. "x" defines voltage from 50V(HS5A) to 1000V(HS5M)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

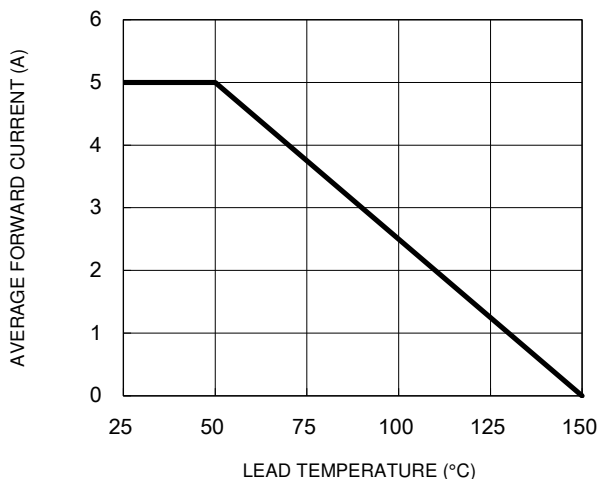


Fig.2 Typical Junction Capacitance

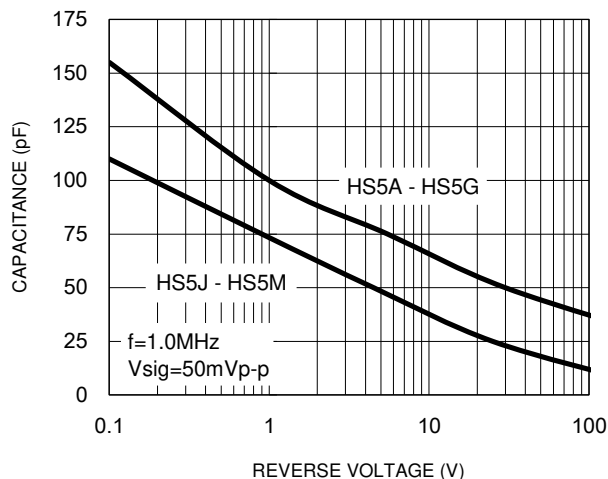


Fig.3 Typical Reverse Characteristics

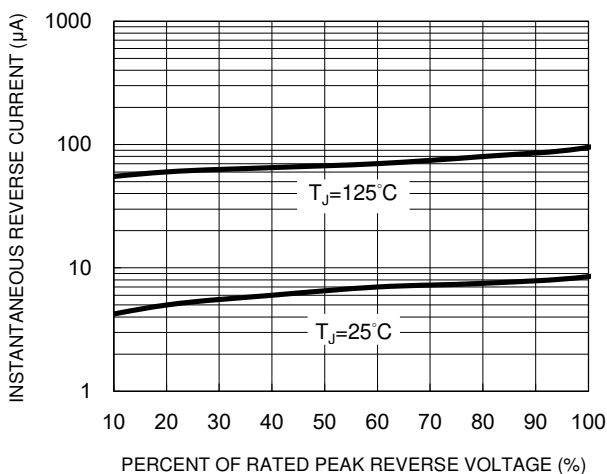


Fig.4 Typical Forward Characteristics

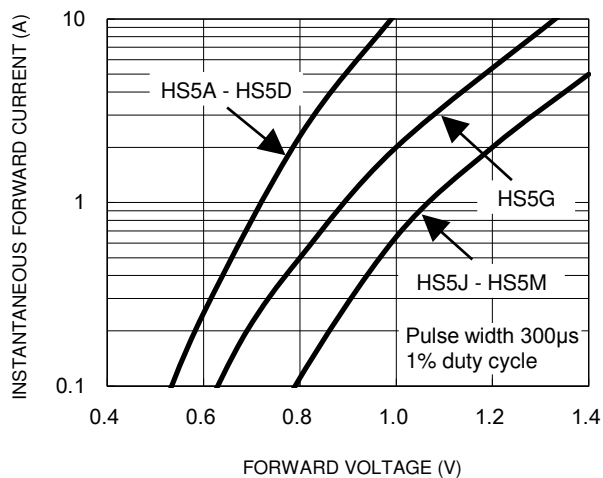
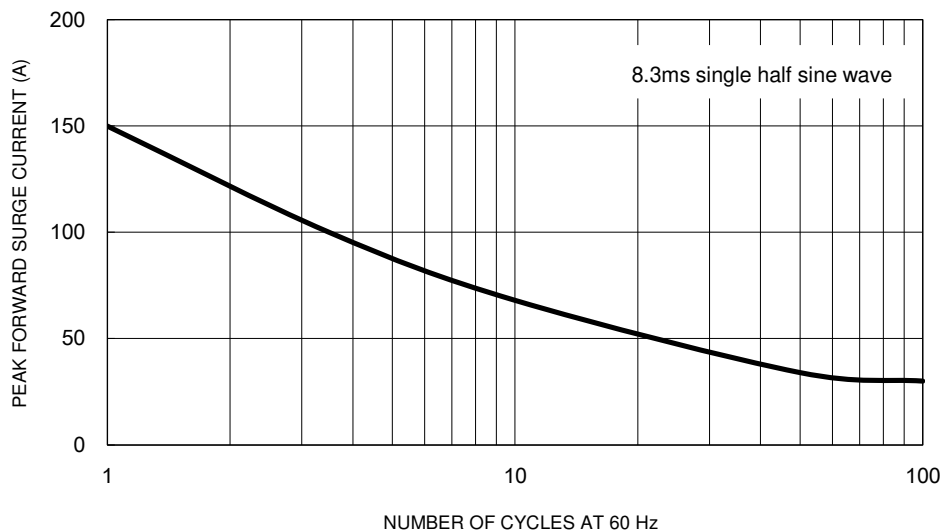


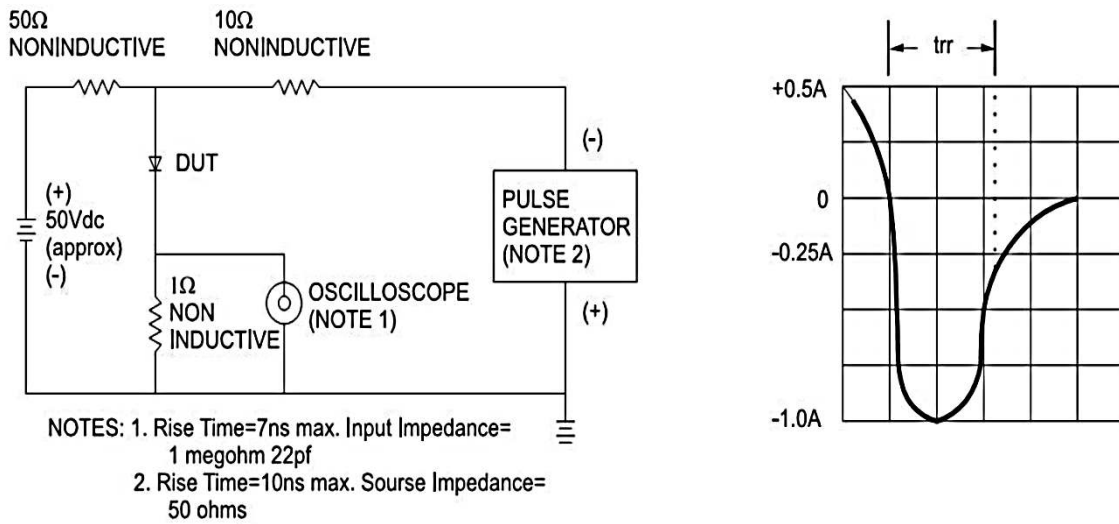
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

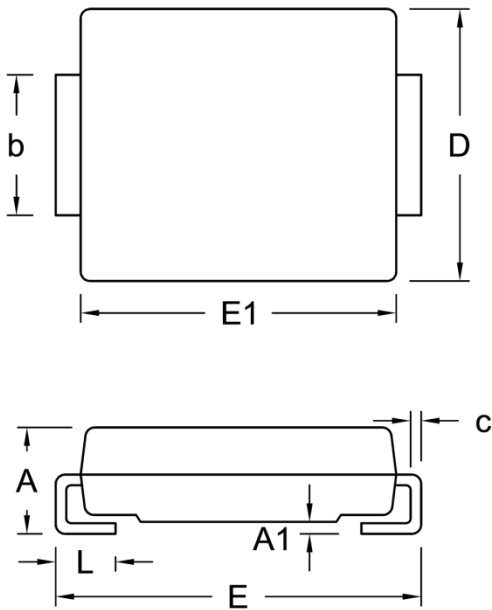
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



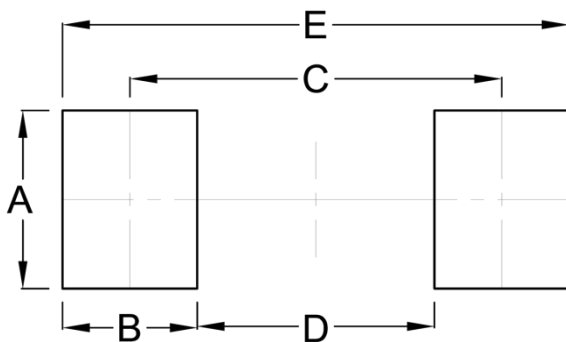
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM



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

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