

Vishay General Semiconductor

Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM}	300 V, 400 V				
I _{FSM}	50 A				
t _{rr}	35 ns				
V _F at I _F	1.1 V				
T _J max.	150 °C				
Package	DO-214AA (SMB)				
Diode variations	Single die				

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

FEATURES

- Glass passivated pallet chip junction
- · Ideal for automated placement
- Ultrafast reverse recovery time
- · Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available - Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: DO-214AA (SMB)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,....)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	ES2F	ES2G	UNIT		
Device marking code		EF	EG			
Maximum repetitive peak reverse voltage	V _{RRM}	300	400	V		
Working peak reverse voltage	V _{RWM}	225	300	V		
Maximum RMS voltage	V _{RMS}	210	280	V		
Maximum average forward rectified current at T_L = 110 $^\circ\text{C}$	I _{F(AV)}	2.0		A		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50		A		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150		°C		

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ES2F, ES2G

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	ES2F	ES2G	UNIT	
Maximum instantaneous forward voltage	2.0 A		V _F ⁽¹⁾	1.1		V	
Maximum reverse current at V_{RRM}		T _A = 25 °C	10		۵		
		T _A = 100 °C	I _R	200		μΑ	
Maximum 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	
Maximum reverse recovery time	$I_F = 1.0 \text{ A}, \text{ dl/dt} = 100 \text{ A/}\mu\text{s}, V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		t _{rr}	50		ns	
Maximum reverse recovery current	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, \\ V_R = 30 \text{ V}, I_{rr} = 0.1 \text{ I}_{RM}$		I _{RM}	3.0		А	
Maximum stored charge	$ I_F = 1.0 \text{ A}, dI/dt = 100 \text{ A}/\mu\text{s}, \\ V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM} $		Q _{rr}	Q _{rr} 50		nC	
Typical junction capacitance	4.0 V, 1 MHz		CJ	15		pF	

Note

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	ES2F	ES2G	UNIT	
Maximum thermal resistance	R _{0JA} ⁽¹⁾	75		°C/W	
	R _{0JL} ⁽¹⁾	25			

Note

 $^{(1)}$ Units mounted on PCB 5.0 mm x 5.0 mm (0.013 mm thick) land areas

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ES2G-E3/52T	0.096	52T	750	7" diameter plastic tape and reel		
ES2G-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
ES2GHE3/52T (1)	0.096	52T	750	7" diameter plastic tape and reel		
ES2GHE3/5BT (1)	0.096	5BT	3200	13" diameter plastic tape and reel		
ES2GHE3_A/H ⁽¹⁾	0.096	н	750	7" diameter plastic tape and reel		
ES2GHE3_A/I (1)	0.096		3200	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified



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RATINGS AND CHARACTERISTICS CURVES ($T_A = 25$ °C unless otherwise noted)

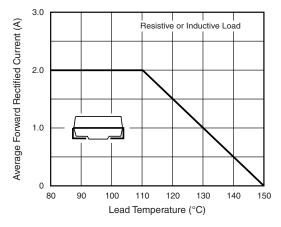


Fig. 1 - Maximum Forward Current Derating Curve

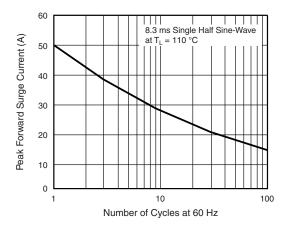


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

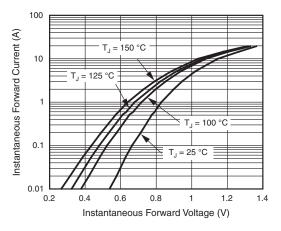


Fig. 3 - Typical Instantaneous Forward Characteristics

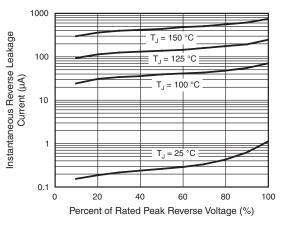


Fig. 4 - Typical Reverse Leakage Characteristics

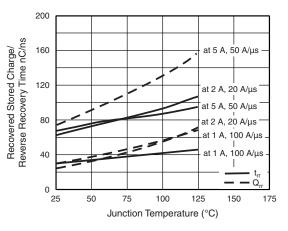


Fig. 5 - Reverse Switching Characteristics

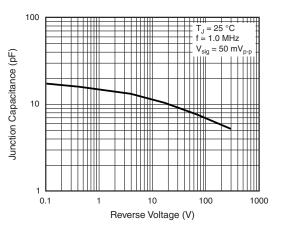


Fig. 6 - Typical Junction Capacitance

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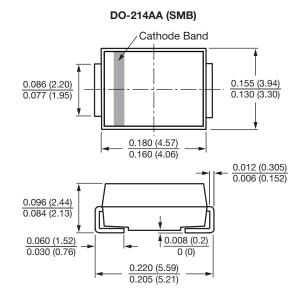
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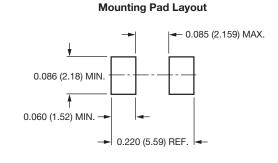
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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