

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}	1.1 V			
T _J max.	150 °C			

FEATURES





Ideal for automated placementUltrafast reverse recovery time



Low switching losses, high efficiency

ROHS

High forward surge capability

 Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

• Solder dip 260 °C, 40 s

 Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °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 $T_L = 110$ °C	I _{F(AV)}	2.0		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50		А	
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 150		°C	

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	ES2F	ES2G	UNIT
Maximum instantaneous forward voltage (1)	2.0 A		V _F	1.1		V
Maximum reverse current at V _{RRM}		T _A = 25 °C T _A = 100 °C	I _R	10 200		μΑ
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	35		ns
Maximum reverse recovery time	$I_F = 1.0 \text{ A}, \text{ dI/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}, $ $V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		I _{RM}	3.0		Α
Maximum stored charge	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/µs},$ $V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		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 °C unless otherwise noted)					
PARAMETER	SYMBOL	ES2F	ES2G	UNIT	
Maximum thermal resistance (1)	$R_{ hetaJA} \ R_{ hetaJL}$	7 2		°C/W	

Note:

(1) Units mounted on P.C.B. 5.0 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		

Note:

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

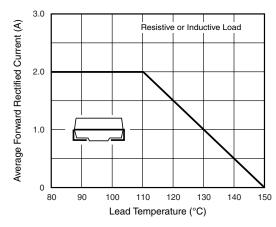


Figure 1. Maximum Forward Current Derating Curve

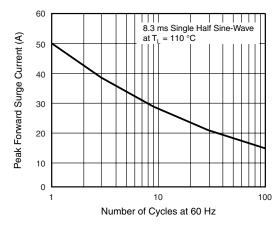


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ Automotive grade AEC Q101 qualified



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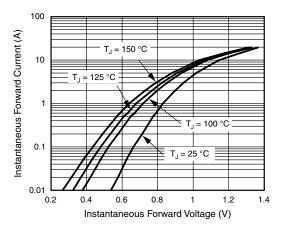


Figure 3. Typical Instantaneous Forward Characteristics

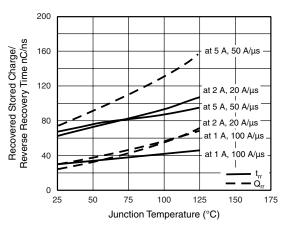


Figure 5. Reverse Switching Characteristics

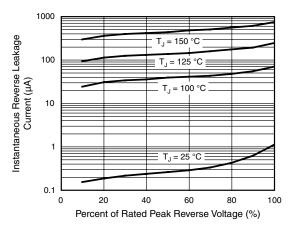


Figure 4. Typical Reverse Leakage Characteristics

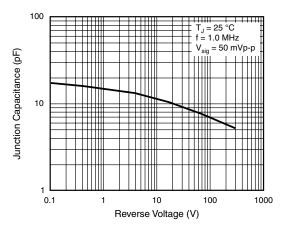
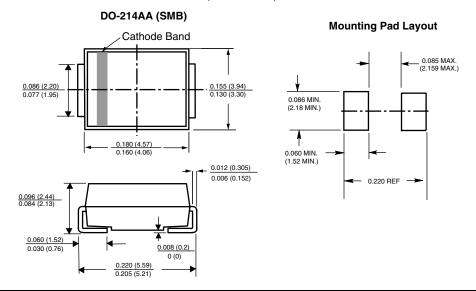


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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