



Vishay General Semiconductor

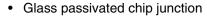
Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

PRIMARY CHARACTERISTICS				
I _{F(AV)}	2 A			
V_{RRM}	100 V, 150 V, 200 V			
t _{rr}	25 ns			
V _F	0.93 V			
T _J max.	175 °C			

FEATURES





• Ideal for automated placement

• Ultrafast recovery times for high efficiency



Low forward voltage, low power loss

RoHS COMPLIANT

· 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 converter and inverter for both consumer and automotive.

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 commercial 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	ESH2B	ESH2C	ESH2D	UNIT
Device marking code		EHB	EHC	EHD	
Maximum repetitive peak reverse voltage	V _{RRM}	100	150	200	V
Maximum RMS voltage	V _{RMS}	70	105	140	V
Maximum DC blocking voltage	V_{DC}	100	150	200	٧
Maximum average forward rectified current (Fig. 1)	I _{F(AV)}	2.0			Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	60			А
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 175			°C

ESH2B, ESH2C & ESH2D

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Maximum instantaneous forward voltage (1)	I _F = 2 A		V_{F}	0.93	V	
Maximum DC reverse current at rated DC blocking voltage	T _A = 25 °C T _A = 125 °C	I _R	2.0 50	μΑ		
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1 A, I _{rr} = 0.25 A		t _{rr}	25	ns	
Typical reverse recovery time	$I_F = 2 \text{ A}, V_R = 30 \text{ V},$ $T_J = 25 ^{\circ}\text{C}$ $\text{dI/dt} = 50 \text{A/µs}, I_{rr} = 10 ^{\circ}\text{I}_{RM}$ $T_J = 100 ^{\circ}\text{C}$		t _{rr}	35 55	ns	
Typical stored charge	$I_F = 2 \text{ A}, V_R = 30 \text{ V},$ $I_J = 25 \text{ °C}$ $I_J = 10 \text{ °C}$ $I_J = 100 \text{ °C}$		Q _{rr}	20 35	nC	
Typical junction capacitance	4.0 V, 1 MHz		CJ	30	pF	

Note:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	ESH2B	ESH2C	ESH2D	UNIT
Typical thermal resistance (1)	$R_{ hetaJA}$ $R_{ hetaJL}$		65 20		°C/W

Note:

(1) Units mounted on P.C.B. with 8.0 x 8.0 mm land areas.

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ESH2D-E3/52T	0.096	52T	750	7" diameter plastic tape and reel		
ESH2D-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
ESH2DHE3/52T (1)	0.096	52T	750	7" diameter plastic tape and reel		
ESH2DHE3/5BT (1)	0.096	5BT	3200	13" diameter plastic tape and reel		

Note:

RATINGS AND CHARACTERISTICS CURVES

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

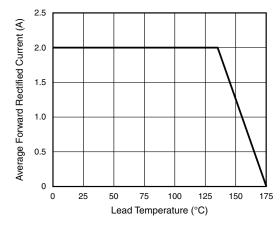


Figure 1. Maximum Forward Current Derating Curve

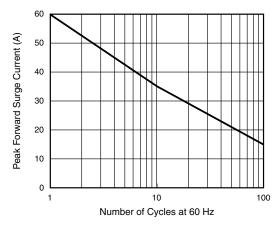


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ Automotive grade AEC Q101 qualified





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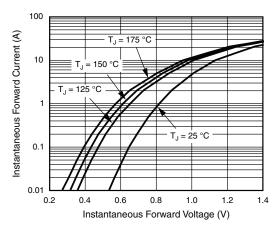


Figure 3. Typical Instantaneous Forward Characteristics

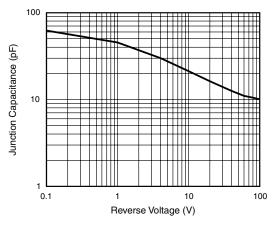


Figure 5. Typical Junction Capacitance

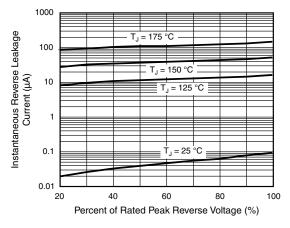


Figure 4. Typical Reverse Leakage Characteristics

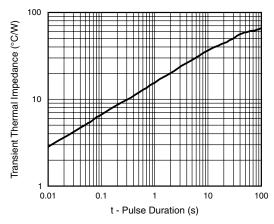
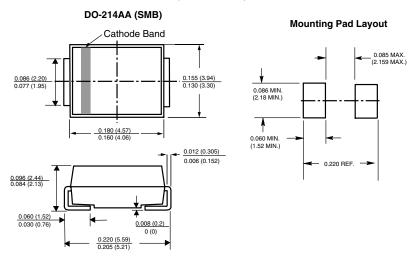


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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