ESH2B-M3, ESH2C-M3, ESH2D-M3

Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

Surface-Mount Ultrafast Plastic Rectifier



SMB (DO-214AA)

Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM} 100 V, 150 V, 200 V					
t _{rr}	25 ns				
V _F	0.93 V				
T _J max.	175 °C				
Package	SMB (DO-214AA)				
Circuit configuration	Single				

FEATURES

- Glass passivated pellet chip junction
- · Ideal for automated placement
- · Ultrafast recovery times for high efficiency
- Low forward voltage, low power loss
- · High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converter and inverter for both consumer.

MECHANICAL DATA

Case: SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix 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	V
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



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT	
Maximum instantaneous forward voltage	I _F = 2 A		V _F ⁽¹⁾	0.93	V	
Maximum DC reverse current		T _A = 25 °C	I_	2.0	μΑ	
at rated DC blocking voltage		T _A = 125 °C	I _R	50		
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	25	ns	
Typical reverse recovery time	$I_F = 2 A, V_R = 30 V,$	T _J = 25 °C	- t _{rr}	35	ns	
	dl/dt = 50 A/μs, I _{rr} = 10 % I _{RM}	T _J = 100 °C		55		
Typical stored charge	$I_F = 2 A, V_R = 30 V,$	T _J = 25 °C	Q _{rr}	20	nC	
	$dI/dt = 50 A/\mu s, I_{rr} = 10 \% I_{RM}$	T _J = 100 °C		35		
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 thormal registance	R _{0JA} (1)	65			°C/W	
Typical thermal resistance	R _{θJL} ⁽¹⁾		20	_	C/VV	

Note

(1) Units mounted on PCB with 8.0 mm x 8.0 mm land areas

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
ESH2D-M3/52T	0.096	52T	750	7" diameter plastic tape and reel		
ESH2D-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		



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

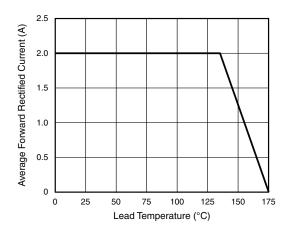


Fig. 1 - Maximum Forward Current Derating Curve

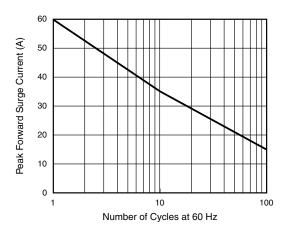


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

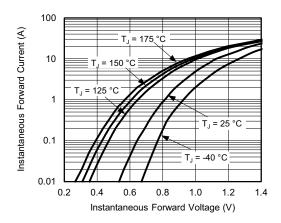


Fig. 3 - Typical Instantaneous Forward Characteristics

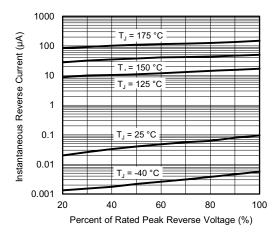


Fig. 4 - Typical Reverse Leakage Characteristics

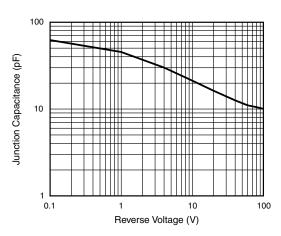


Fig. 5 - Typical Junction Capacitance

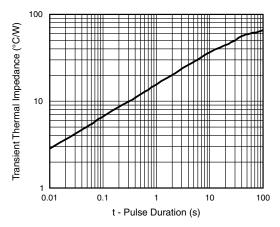


Fig. 6 - Typical Transient Thermal Impedance

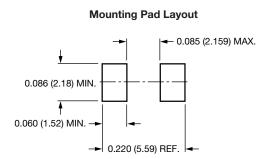
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

0.086 (2.20) 0.077 (1.95) 0.180 (4.57) 0.160 (4.06) 0.096 (2.44) 0.084 (2.13) 0.096 (2.44) 0.084 (2.13) 0.096 (0.152) 0.096 (0.152)

0.205 (5.21)





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