AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN **FREE**



Vishay General Semiconductor

Standard Avalanche Surface-Mount Rectifiers







ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	3.0 A				
V _{RRM}	200 V, 400 V, 600 V				
I _{FSM}	90 A				
E _{AS}	20 mJ				
V_F at $I_F = 3.0$ A $(T_A = 125 ^{\circ}\text{C})$	0.86 V				
T _J max.	175 °C				
Package	SMB (DO-214AA)				
Circuit configuration	Single				

FEATURES

- Low profile package
- · Ideal for automated placement
- · Glass passivated chip junction
- · Controlled avalanche characteristics
- Low leakage current
- · High forward surge capability
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHM3
- 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 general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

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

Base P/NHM3_X - halogen-free, RoHS-compliant and 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

M3 sand HM3 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	AS3BD	AS3BG	AS3BJ	UNIT
Device marking code			A3D	A3G	A3J	
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	600	V
Maximum DC forward current (fig. 1)		I _F ⁽¹⁾	3.0			А
		I _F ⁽²⁾	2.0			
Peak forward surge current 10 ms single half sine-wave, non-repetitive, cool junction		I _{FSM}	90			А
Non-repetitive avalanche energy at T _J = 25 °C	I _{AS} = 2.0 A max.	_	20 30		- mJ	
	$I_{AS} = 1.0 A \text{ typ.}$	- E _{AS}				
Operating junction and storage temperature range		T _J , T _{STG}	-55 to +175			°C

Notes

⁽¹⁾ Mounted on 14 mm x 14 mm x 2 areas, 1 oz. FR4 PCB

⁽²⁾ Free air, mounted on recommended 1.52 mm x 2.18 mm x 2 pad areas



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	I _F = 1.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.90	-	V	
	I _F = 3.0 A			0.98	1.05		
	I _F = 1.5 A	T _A = 125 °C		0.78	-		
	I _F = 3.0 A			0.86	0.95		
Reverse current	V 600 V	T _A = 25 °C	I _R ⁽²⁾	0.5	20	μА	
	V _R = 600 V	T _A = 125 °C		40	150		
Typical junction capacitance per diode	Rated V _R = 4.0 V, 1 MHz		CJ	40	ı	pF	

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL AS3BJ		UNIT		
Typical thormal registance	R _{eJA} (1)	100	°C/W		
Typical thermal resistance	R _{0JM} (2)	14	- C/W		

Notes

- $^{(1)}$ Free air, mounted on recommended PCB 1 oz. pad area; thermal resistance $R_{\theta JA}$ junction to ambient
- (2) Units mounted on PCB with 14 mm x 14 mm x 2 areas, 1 oz. copper pad areas; R_{B,IM} junction to mount

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
AS3BJ-M3/52T	0.096	52T	750	7" diameter plastic tape and reel		
AS3BJ-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
AS3BJHM3_A/H (1)	0.096	Н	750	7" diameter plastic tape and reel		
AS3BJHM3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified

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

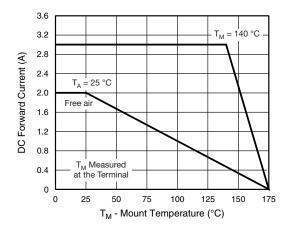


Fig. 1 - Maximum Forward Current Derating Curve

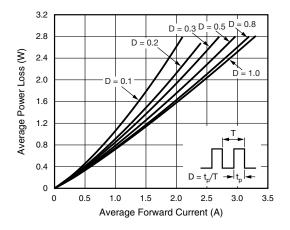


Fig. 2 - Forward Power Loss Characteristics



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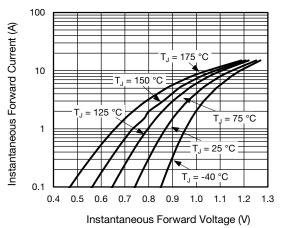


Fig. 3 - Typical Instantaneous Forward Characteristics

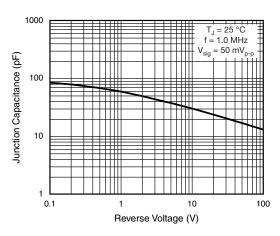


Fig. 5 - Typical Junction Capacitance

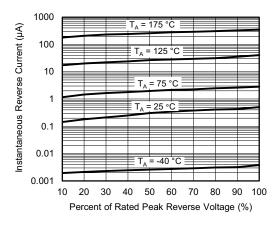


Fig. 4 - Typical Reverse Characteristics

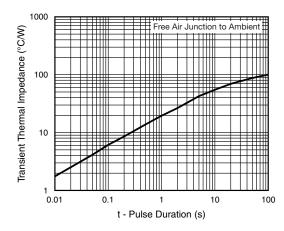
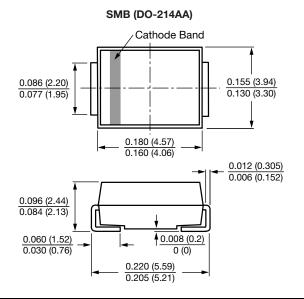
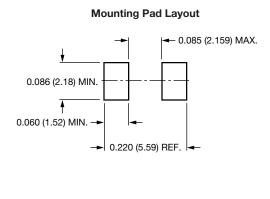


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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