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Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

Ultrafast Avalanche SMD Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM}	50 V, 100 V, 200 V				
I _{FSM}	35 A				
I _R	1.0 µA				
V _F	1.1 V				
t _{rr}	25 ns				
E _R	20 mJ				
T _J max.	150 °C				
Package	DO-214AC (SMA)				
Diode variations	Single die				

FEATURES

- Low profile package
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Low reverse current
- Low forward voltage
- · Soft recovery characteristic
- · Ultra fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- 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 converters and inverters for consumer, computer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-214AC (SMA)

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

commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	BYG22A	BYG22B	BYG22D	UNIT
Device marking code		BYG22A	BYG22B	BYG22D	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	V
Average forward current	I _{F(AV)}	2.0			Α
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	35			А
Pulse energy in avalanche mode, non repetitive (inductive load switch off) I _{(BR)R} = 1 A, T _J = 25 °C	E _R	20			mJ
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	BYG22A	BYG22B	BYG22D	UNIT
Maximum instantaneous	I _F = 1.0 A	T _{.1} = 25 °C V _F ⁽¹⁾	1.0			V	
forward voltage	I _F = 2.0 A	T _J = 25 °C	V F (1)	1.1			'
Maximum reverse current	V - V	T _J = 25 °C			1		
	$V_R = V_{RRM}$ $T_J = 100 ^{\circ}C$	T _J = 100 °C	I _R	10			μΑ
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	25		ns	

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	BYG22A BYG22B BYG22D			UNIT
Maximum thermal resistance, junction to lead, T_L = const.	$R_{ heta JL}$	25			°C/W
Maximum thermal resistance, junction to ambient	R _{0JA} ⁽¹⁾	150			
	R _{0JA} (2)	125			°C/W
	R _{0JA} (3)		100		

Notes

- (1) Mounted on epoxy-glass hard tissue
- (2) Mounted on epoxy-glass hard tissue, 50 mm² 35 μm Cu
- (3) Mounted on Al-oxide-ceramic (Al₂O₃), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
BYG22A-M3/TR	0.064	TR	1800	7" diameter plastic tape and reel		
BYG22A-M3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel		
BYG22AHM3/TR (1)	0.064	TR	1800	7" diameter plastic tape and reel		
BYG22AHM3/TR3 (1)	0.064	TR3	7500	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)

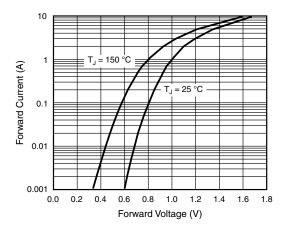


Fig. 1 - Forward Current vs. Forward Voltage

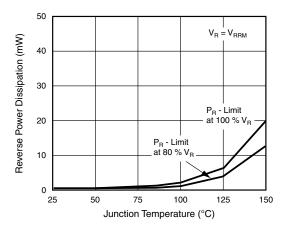


Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature

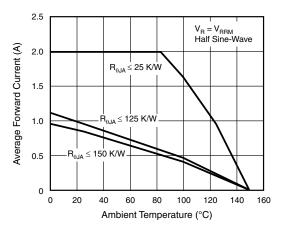


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

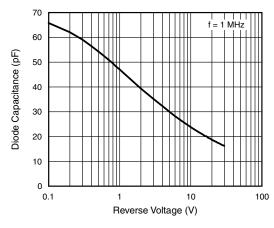


Fig. 5 - Diode Capacitance vs. Reverse Voltage

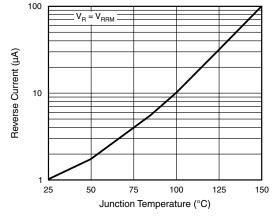


Fig. 3 - Reverse Current vs. Junction Temperature

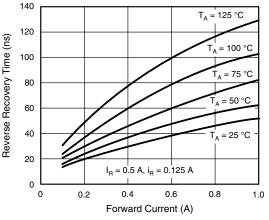
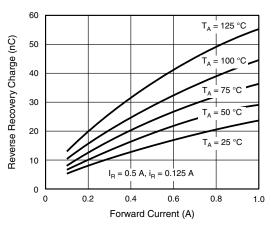


Fig. 6 - Max. Reverse Recovery Time vs. Forward Current



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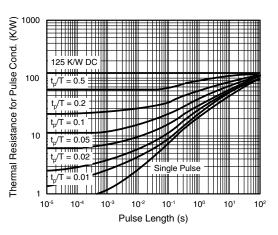
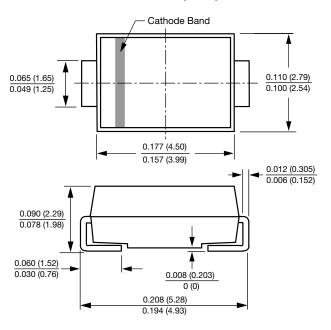


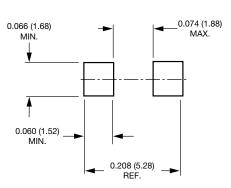
Fig. 8 - Thermal Response

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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