Ultrafast Avalanche SMD Rectifier

DO-214AC (SMA)

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated pallet chip junction
- Low reverse current
- High reverse voltage
- 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

RoHS COMPLIANT
HALOGEN FREE

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
V_{RRM}	1000 V
I_{FSM}	30 A
I_R	5.0 µA
t_{rr}	75 ns
V_F	1.7 V
E_R	20 mJ
T_J max.	150 °C
Package	DO-214AC (SMA)
Diode variations	Single die

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	BYG23M	UNIT
Device marking code		BYG23M	
Maximum repetitive peak reverse voltage	V_{RRM}	1000	V
Average forward current at T_A = 65 °C	$I_{F(AV)}$	1.5	A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	30	A
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

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**BYG23M**	**UNIT**
Minimum breakdown voltage	I_R = 100 µA		V_{BR}	1000	V
Maximum instantaneous voltage	I_F = 1.0 A	T_J = 25 °C	V_F (1)	1.7	V
		T_J = 150 °C		1.35	
Maximum reverse current	$V_R = V_{RRM}$	T_J = 25 °C	I_R	5	µA
		T_J = 125 °C		50	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	75	ns

Note

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**BYG23M**	**UNIT**
Typical thermal resistance, junction to case	$R_{\theta JC}$	25	°C/W
Typical thermal resistance, junction to ambient	$R_{\theta JA}$ (1)	150	°C/W
	$R_{\theta JA}$ (2)	125	
	$R_{\theta JA}$ (3)	100	

Notes

(1) Mounted on epoxy-glass hard tissue, 17 mm^2 35 µm Cu
(2) Mounted on epoxy-glass hard tissue, 50 mm^2 35 µm Cu
(3) Mounted on Al-oxide-ceramic (Al_2O_3), 50 mm^2 35 µm Cu

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QANTITY**	**DELIVERY MODE**
BYG23M-M3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYG23M-M3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel
BYG23MHM3/TR (1)	0.064	TR	1800	7" diameter plastic tape and reel
BYG23MHM3/TR3 (1)	0.064	TR3	7500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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

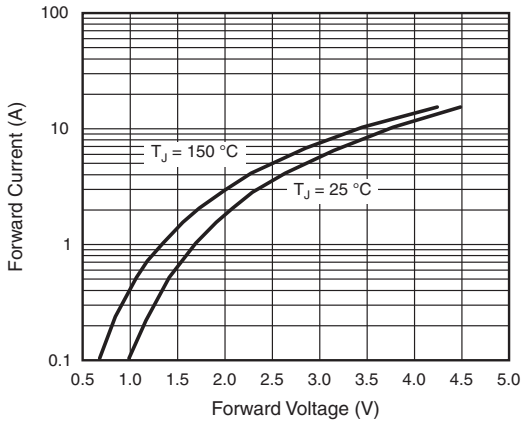


Fig. 1 - Max. Forward Current vs. Forward Voltage

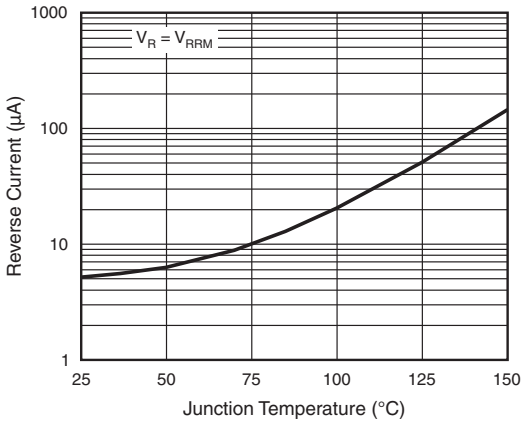


Fig. 4 - Reverse Current vs. Junction Temperature

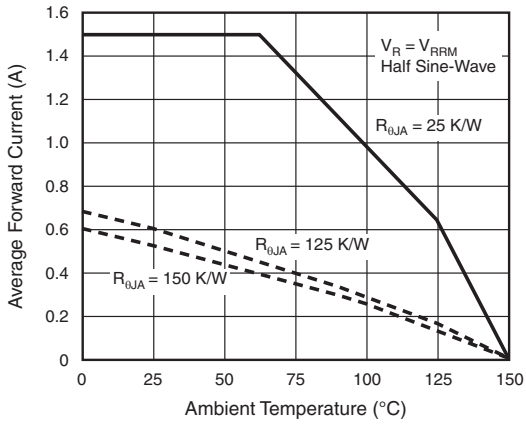


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

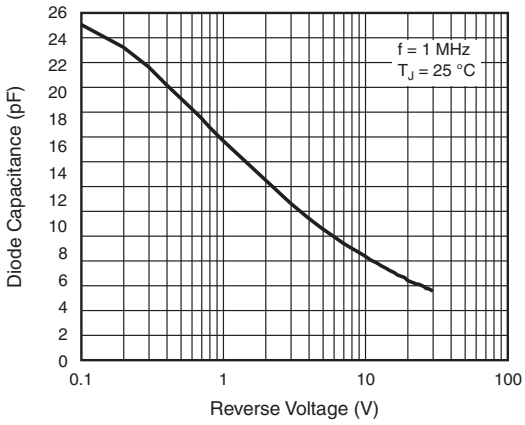


Fig. 5 - Diode Capacitance vs. Reverse Voltage

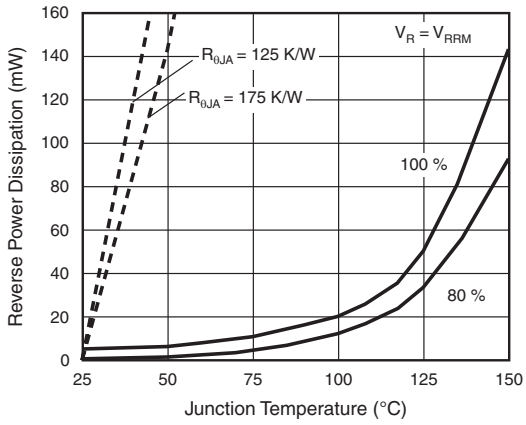
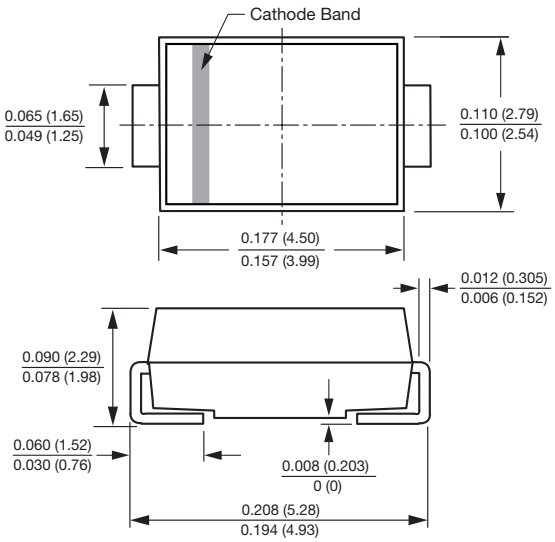


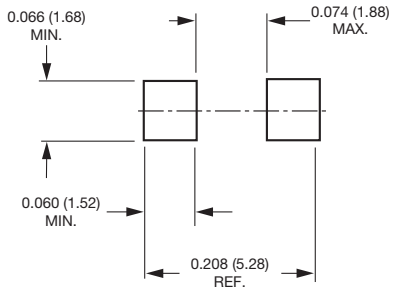
Fig. 3 - Max. Reverse Power Dissipation vs. Junction Temperature

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

AMEYA360
Components Supply Platform

Authorized Distribution Brand :

Website :

Welcome to visit www.ameya360.com

Contact Us :

- ### Address :

  401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
  Minhang District, Shanghai , China

- ### Sales :

  Direct +86 (21) 6401-6692

  Email amall@ameya360.com

  QQ 800077892

  Skype ameyasales1 ameyasales2

- ### Customer Service :

  Email service@ameya360.com

- ### Partnership :

  Tel +86 (21) 64016692-8333

  Email mkt@ameya360.com