

**BYG23M**

Vishay General Semiconductor

Ultrafast Avalanche SMD Rectifier

**DO-214AC (SMA)**

FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated 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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

**RoHS**
COMPLIANT

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	1000 V
I_{FSM}	30 A
I_R	5.0 μ A
t_{rr}	75 ns
E_R	20 mJ
T_J max.	150 °C

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)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer 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 the cathode end

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 $T_A = 65$ °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) $I_{(BR)} = 1$ 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 ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	BYG23M	UNIT
Minimum breakdown voltage	$I_R = 100\text{ }\mu\text{A}$		V_{BR}	1000	V
Maximum instantaneous voltage ⁽¹⁾	$I_F = 1.0\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 150\text{ }^{\circ}\text{C}$	V_F	1.7 1.35	V
Maximum reverse current	$V_R = V_{RRM}$	$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	I_R	5 50	μA
Maximum reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	75	ns

Note:

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BYG23M	UNIT
Typical thermal resistance - Junction case	R_{thJC}	25	$^{\circ}\text{C/W}$
Typical thermal resistance - Junction Ambient	$R_{\theta JA}$	150 ⁽¹⁾ 125 ⁽²⁾ 100 ⁽³⁾	$^{\circ}\text{C/W}$

Notes:

(1) Mounted on epoxy-glass hard tissue, 17 mm² 35 μm Cu

(2) Mounted on epoxy-glass hard tissue, 50 mm² 35 μm Cu

(3) Mounted on Al-oxide-ceramic (Al_2O_3), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE Q'TY	DELIVERY MODE
BYG23M-E3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYG23M-E3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel
BYG23MHE3/TR ⁽¹⁾	0.064	TR	1800	7" diameter plastic tape and reel
BYG23MHE3/TR3 ⁽¹⁾	0.064	TR3	7500	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

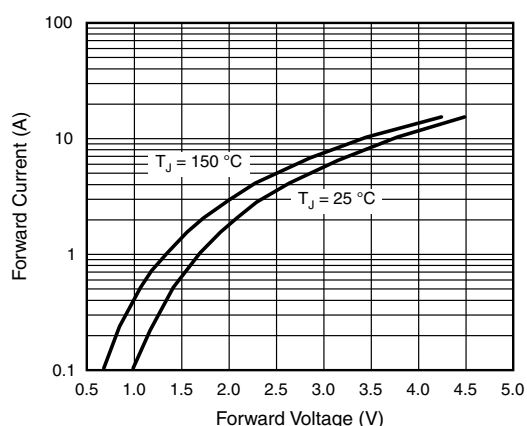


Figure 1. Max. Forward Current vs. Forward Voltage

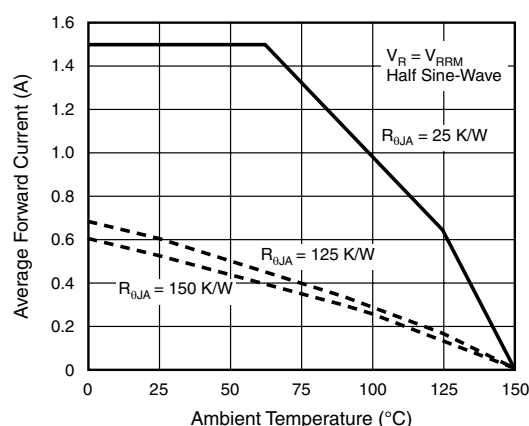


Figure 2. Max. Average Forward Current vs. Ambient Temperature

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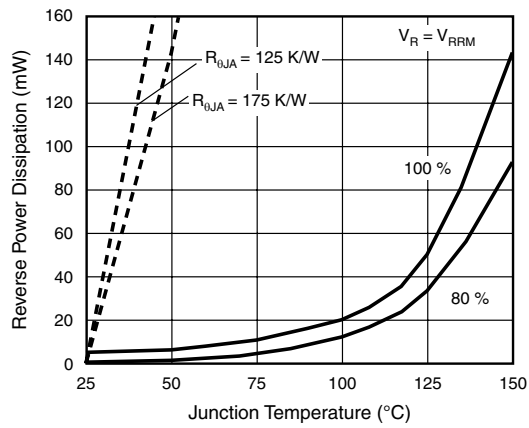


Figure 3. Max. Reverse Power Dissipation vs. Junction Temperature

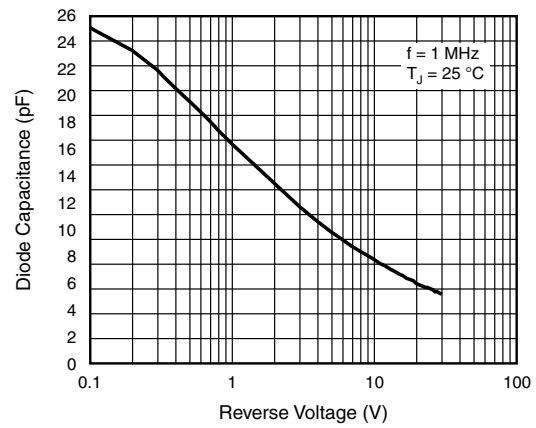


Figure 5. Diode Capacitance vs. Reverse Voltage

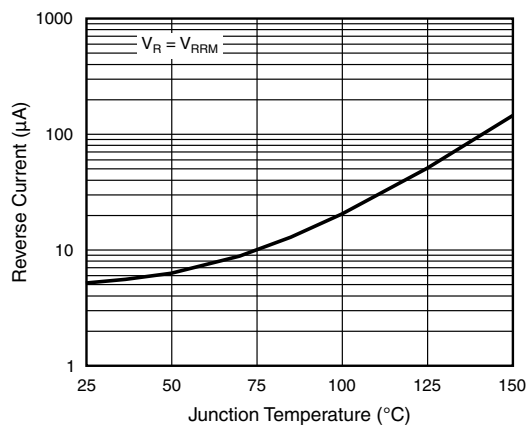
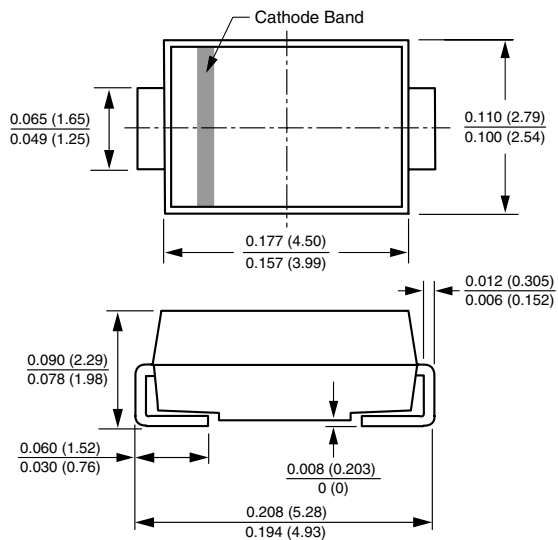
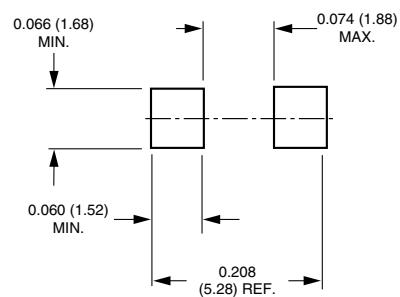


Figure 4. Reverse Current vs. Junction Temperature

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)**DO-214AC (SMA)****Mounting Pad Layout**



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