

## 1.5A, 1000V Fast Avalanche Surface Mount Rectifier

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Fast switching for high efficiency
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- The superior avalanche capability of BYG21M is specially suited for free-wheeling, clamping, snubber, demagnetization in power supplies and other power switching applications.

### MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.064g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	1.5	A
$V_{RRM}$	1000	V
$I_{FSM}$	50	A
$T_{JMAX}$	150	°C
Package	DO-214AC (SMA)	
Configuration	Single die	



DO-214AC (SMA)



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BYG21M	UNIT
Marking code on the device		BYG21M	
Repetitive peak reverse voltage	$V_{RRM}$	1000	V
Reverse voltage, total rms value	$V_{R(RMS)}$	700	V
Forward current	$I_F$	1.5	A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	50	A
Pulse energy in avalanche mode, non-repetitive (Inductive load switch off), $I_{(BR)R} = 1.23\text{A}$	$E_{RSM}$	30	mJ
Junction temperature	$T_J$	- 55 to +150	°C
Storage temperature	$T_{STG}$	- 55 to +150	°C

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	20	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	70	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage <sup>(1)</sup>	$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.5	V
	$I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$		-	1.6	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	1	$\mu\text{A}$
	$T_J = 100^\circ\text{C}$		-	10	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	50	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 4.0\text{V}$	$C_J$	13	-	pF
Reverse recovery time	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{tr} = 0.25\text{A}$	$t_{rr}$	-	120	ns

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

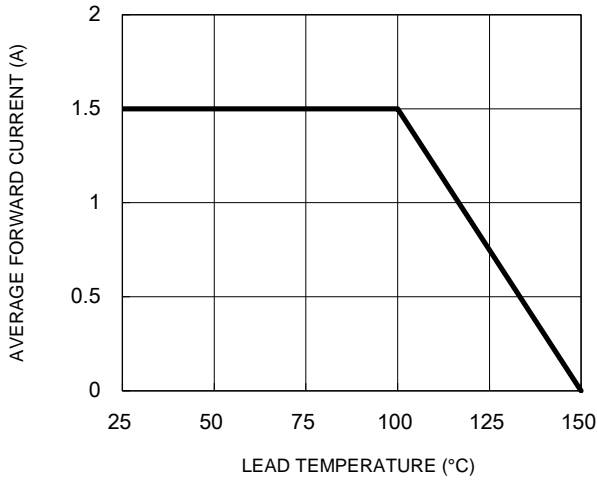
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
BYG21M	DO-214AC (SMA)	7,500 / Tape & Reel

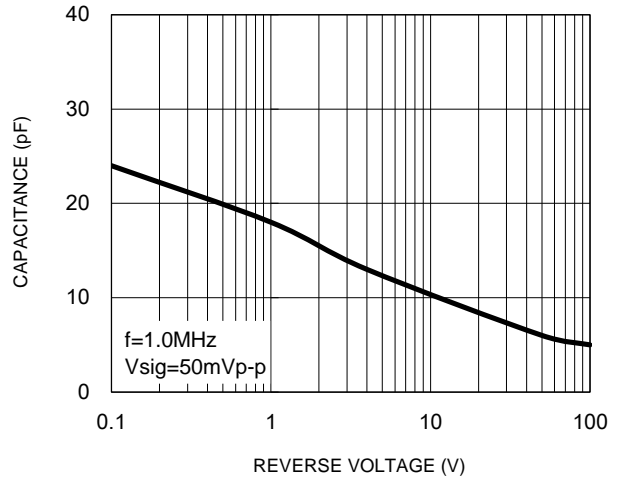
**CHARACTERISTICS CURVES**

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

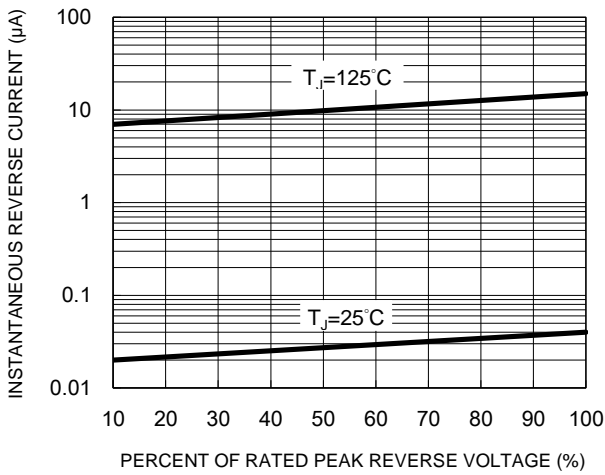
**Fig.1 Forward Current Derating Curve**



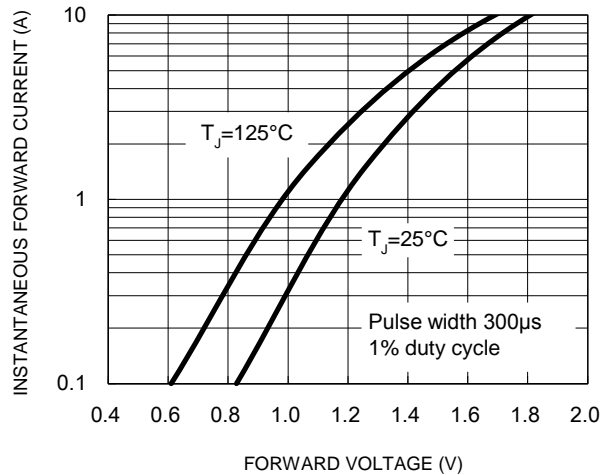
**Fig.2 Typical Junction Capacitance**



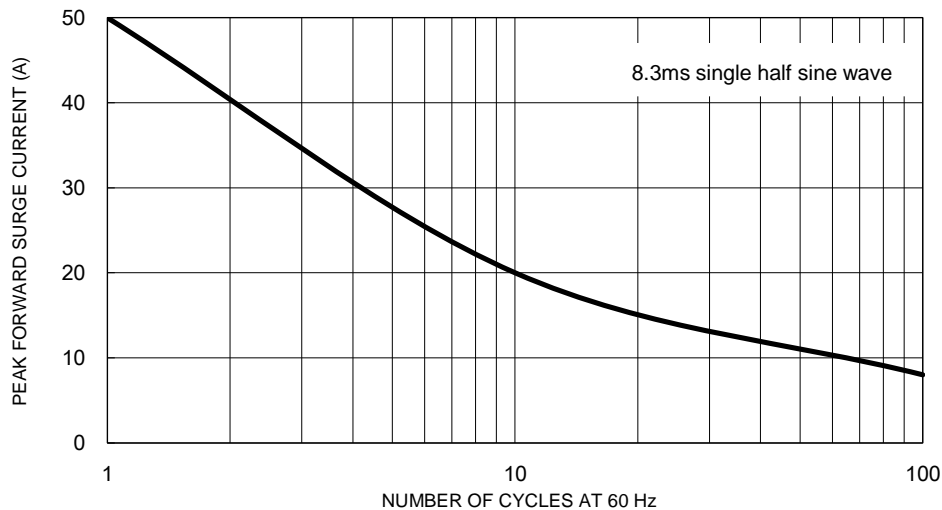
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**

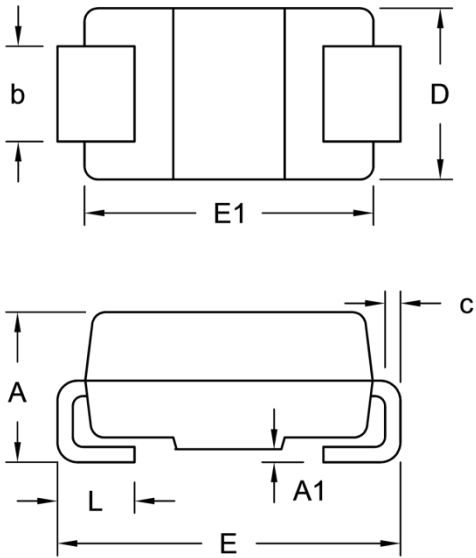


**Fig.5 Maximum Non-Repetitive Forward Surge Current**



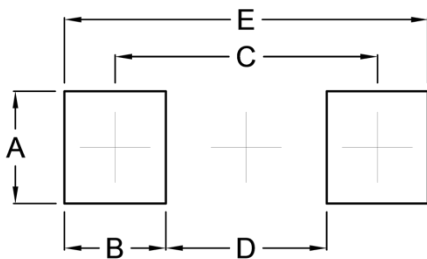
**PACKAGE OUTLINE DIMENSIONS**

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.10	0.20	0.004	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

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