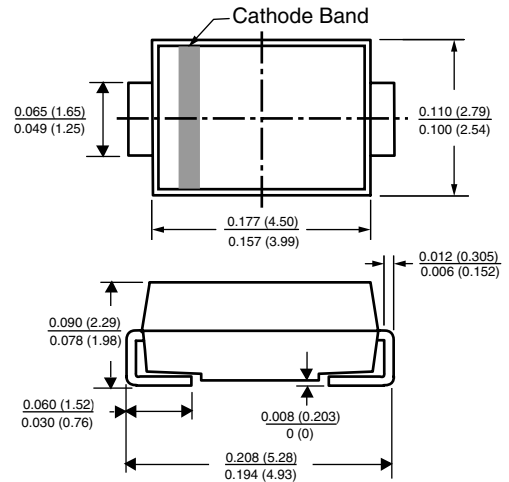




### Features

- ✧ Low profile package
- ✧ Ideal for automated placement
- ✧ Glass passivated junction
- ✧ Low reverse current
- ✧ Soft recovery characteristic
- ✧ Fast reverse recovery time
- ✧ Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- ✧ Solder Dip 260 °C, 40 seconds
- ✧ Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

DO-214AC (SMA)



Dimensions in inches and (millimeters)

### Typical Applications

For use in fast switching rectification of power supply, inverters, converters and free-wheeling diodes for consumer, 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-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes the cathode end

### MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	1.5 A
$V_{RRM}$	800 V, 1000 V
$I_{FSM}$	30 A
$I_R$	1.0 $\mu$ A
$V_F$	1.6 V
$t_{rr}$	120 ns
$E_R$	20 mJ
$T_j$ max.	150 °C

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

PARAMETER	SYMBOL	BYG21K	BYG21M	UNIT
Device marking code		BYG21K	BYG21M	
Maximum repetitive peak reverse voltage	$V_{RRM}$	800	1000	V
Average forward current	$I_{F(AV)}$	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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	BYG21K	BYG21M	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	at $I_F = 1\text{ A}$ $I_F = 1.5\text{ A}$ $T_j = 25\text{ }^\circ\text{C}$	$V_F$	1.5 1.6		V
Maximum reverse current	at $V_R = V_{RRM}$ $T_j = 25\text{ }^\circ\text{C}$ $T_j = 100\text{ }^\circ\text{C}$	$I_R$	1 10		$\mu\text{A}$
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	120		ns

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	BYG21K	BYG21M	UNIT
Typical thermal resistance - Junction lead $T_L = \text{const.}$	$R_{thJL}$	25		$^\circ\text{C/W}$
Typical thermal resistance - Junction Ambient	$R_{\theta JA}$	150 <sup>(1)</sup> 125 <sup>(2)</sup> 100 <sup>(3)</sup>		$^\circ\text{C/W}$

**Note:**

- (1) Mounted on epoxy-glass hard tissue
- (2) Mounted on epoxy-glass hard tissue, 50 mm<sup>2</sup> 35  $\mu\text{m}$  Cu
- (3) Mounted on Al-oxide-ceramic (Al<sub>2</sub>O<sub>3</sub>), 50 mm<sup>2</sup> 35  $\mu\text{m}$  Cu

<b>ORDERING INFORMATION</b>				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE Q'TY	DELIVERY MODE
BYG21K-E3/TR	0.064	TR	1800	7" Diameter Plastic Tape & Reel
BYG21K-E3/TR3	0.064	TR3	7500	13" Diameter Plastic Tape & Reel

### RATINGS AND CHARACTERISTICS CURVES

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

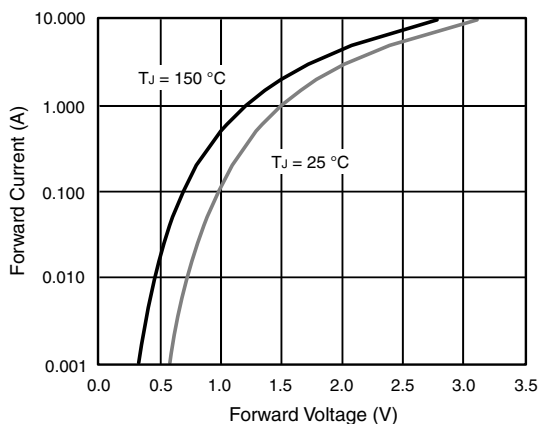


Figure 1. Forward Current vs. Forward Voltage

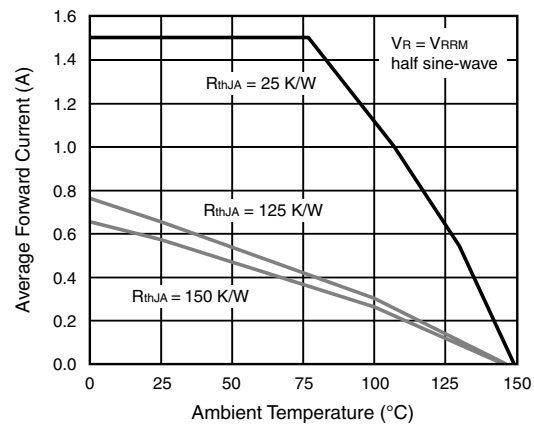


Figure 2. Max. Average Forward Current vs. Ambient Temperature

# BYG21K/BYG21M

## Fast Avalanche SMD Rectifier

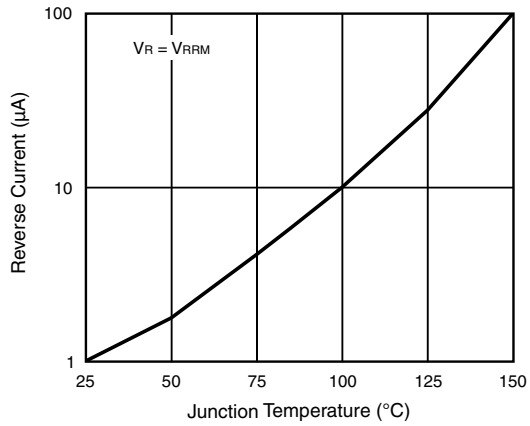


Figure 3. Reverse Current vs. Junction Temperature

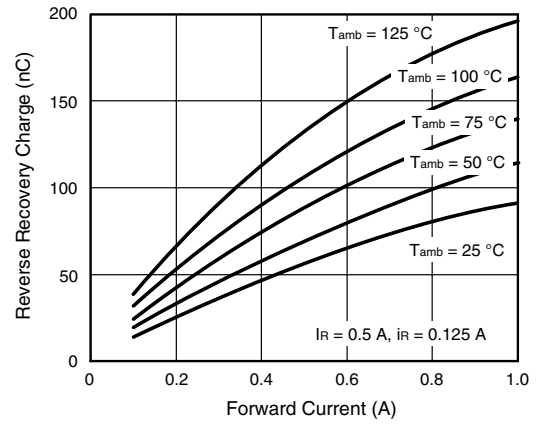


Figure 6. Max. Reverse Recovery Charge vs. Forward Current

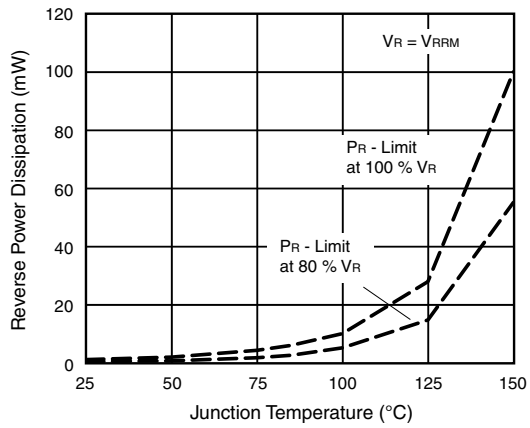


Figure 4. Max. Reverse Power Dissipation vs. Junction Temperature

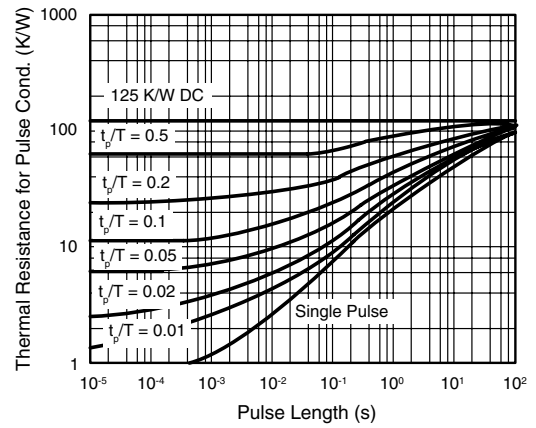


Figure 7. Thermal Response

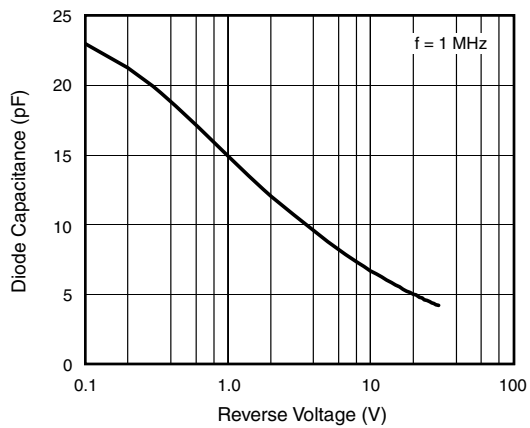


Figure 5. Diode Capacitance vs. Reverse Voltage