



**THE DATASHEET OF
BYG20J-E3/TR3**





Ultrafast Avalanche SMD Rectifier



SMA (DO-214AC)



ADDITIONAL RESOURCES



FEATURES

- Low profile package
Ideal for automated placement
Glass passivated pellet chip junction
Low reverse current
Soft recovery characteristics
Ultrafast reverse recovery time
Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
AEC-Q101 qualified available
Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



TYPICAL APPLICATIONS

For use in high frequency rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

MECHANICAL DATA

Case: SMA (DO-214AC)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade
Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified
Base P/NHM3_X - halogen-free, RoHS-compliant and AEC-Q101 qualified
Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
Polarity: color band denotes the cathode end

Table with 2 columns: Parameter and Value. Includes primary characteristics like IF(AV), VRRM, IFSM, IR, VF at IF, trr, ER, TJ max., Package, and Circuit configuration.

Table with 6 columns: Parameter, Symbol, BYG20D, BYG20G, BYG20J, Unit. Contains maximum ratings for various parameters under TA = 25 °C.



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	BYG20D	BYG20G	BYG20J	UNIT
Maximum instantaneous forward voltage	$I_F = 1\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	1.3			V
	$I_F = 1.5\text{ A}$			1.4			
Maximum DC reverse current	$V_R = V_{RRM}$	$T_J = 25\text{ }^\circ\text{C}$	I_R	1			μA
		$T_J = 100\text{ }^\circ\text{C}$		10			
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	BYG20D	BYG20G	BYG20J	UNIT	
Typical thermal resistance, junction to lead, $T_L = \text{const.}$	$R_{\theta JL}$	25			$^\circ\text{C/W}$	
Typical thermal resistance, junction to ambient	$R_{\theta JA}^{(1)}$	150			$^\circ\text{C/W}$	
	$R_{\theta JA}^{(2)}$	125				
	$R_{\theta JA}^{(3)}$	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 (Al_2O_3), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BYG20J-E3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYG20J-E3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel
BYG20JHE3_A/H ⁽¹⁾	0.064	H	1800	7" diameter plastic tape and reel
BYG20JHE3_A/I ⁽¹⁾	0.064	I	7500	13" diameter plastic tape and reel
BYG20J-M3/TR	0.064	TR	1800	7" diameter plastic tape and reel
BYG20J-M3/TR3	0.064	TR3	7500	13" diameter plastic tape and reel
BYG20JHM3_A/H ⁽¹⁾	0.064	H	1800	7" diameter plastic tape and reel
BYG20JHM3_A/I ⁽¹⁾	0.064	I	7500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified



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

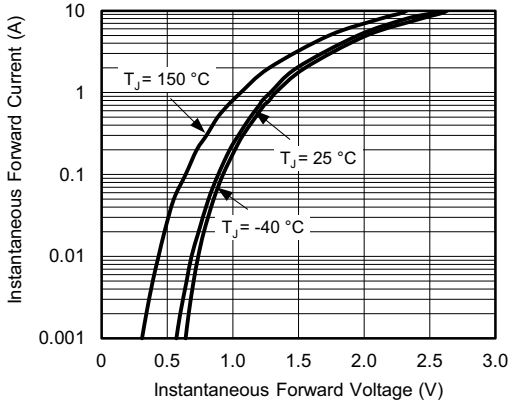


Fig. 1 - Forward Current vs. Forward Voltage

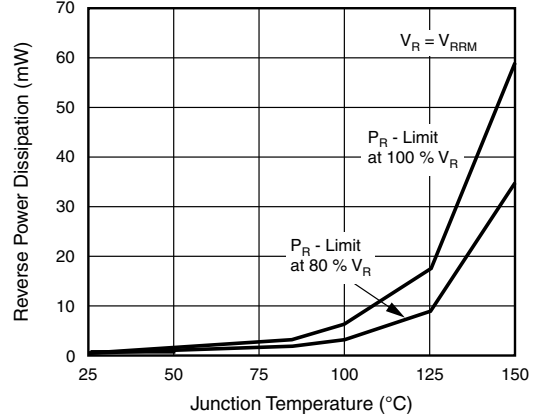


Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature

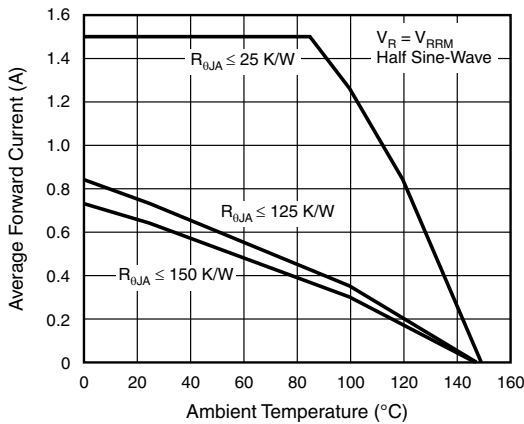


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

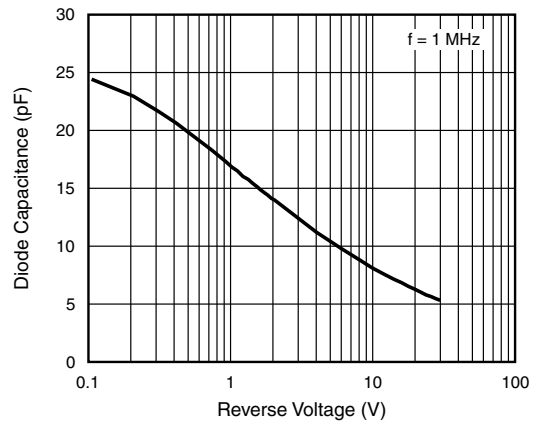


Fig. 5 - Diode Capacitance vs. Reverse Voltage

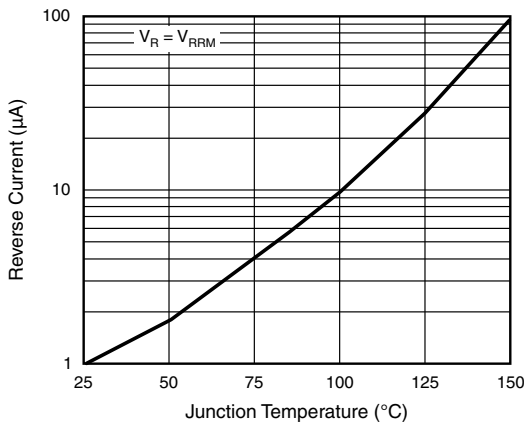


Fig. 3 - Reverse Current vs. Junction Temperature

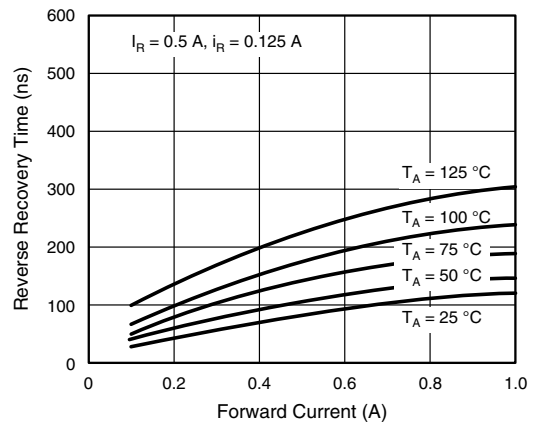


Fig. 6 - Reverse Recovery Time vs. Forward Current

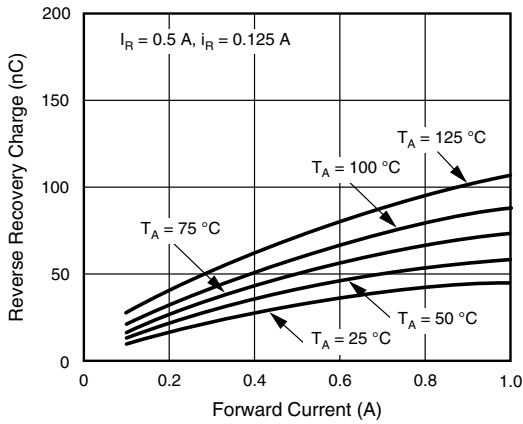


Fig. 7 - Reverse Recovery Charge vs. Forward Current

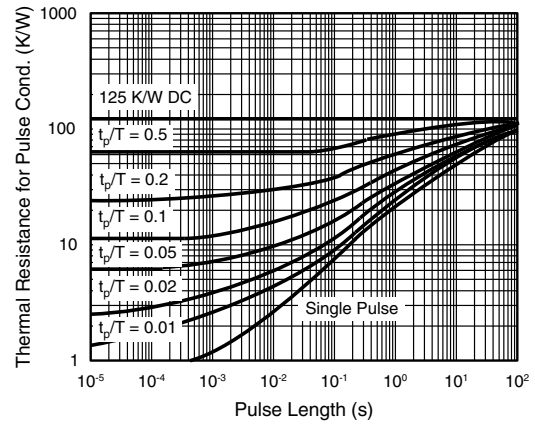
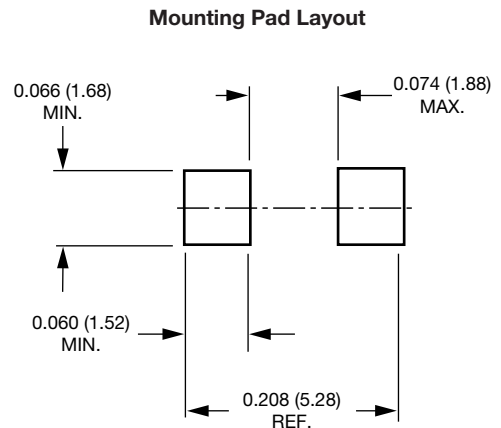
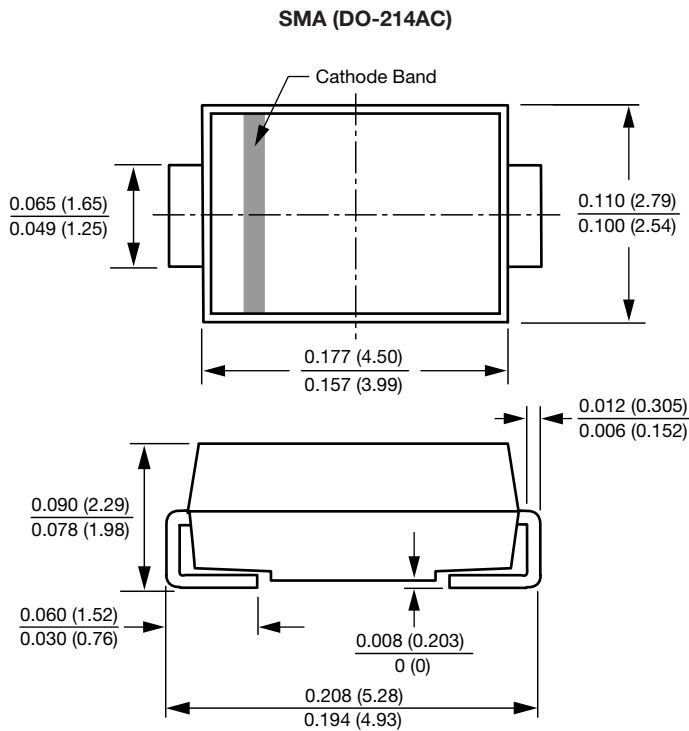


Fig. 8 - Thermal Response

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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