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BYD33DGP thru BYD33MGP

Vishay General Semiconductor

Avalanche Glass Passivated Junction Fast Switching Rectifier



FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Avalanche surge capability guaranteed
- Fast reverse recovery time
- Low switching losses, high efficiency
- Low leakage current, typical I_R less than 0.1 μA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
V_{RRM}	200 V to 1000 V
I_{FSM}	30 A
E_{RSM}	10 mJ, 7 mJ
t_{rr}	150 ns, 250 ns, 300 ns
I_R	5.0 μA
T_J max.	175 °C

TYPICAL APPLICATIONS

For use in high frequency rectification of switching power supplies, inverters, converters and freewheeling applications for consumer, automotive, and telecommunication.

MECHANICAL DATA

Case: DO-204AL, molded epoxy over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

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

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYD33DGP	BYD33GGP	BYD33JGP	BYD33KGP	BYD33MGP	UNIT
Device marking code		33DGP	33GGP	33JGP	33KGP	33MGP	V
Maximum repetitive peak reverse voltage	V _{RRM}	200	400	600	800	1000	V
Maximum DC blocking voltage	V _{DC}	200	400	600	800	1000	V
Maximum average forward rectified current 0.375 " (9.5 mm) lead length at T _A = 55 °C	I _{F(AV)}	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30					A
Non-repetitive peak reverse avalanche energy at L = 120 mH, T _J = T _J max. prior to surge	E _{RSM}	10			7		mJ
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length T _A = 55 °C	I _{R(AV)}	100					μA
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 175					°C

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	BYD33DGP	BYD33GGP	BYD33JGP	BYD33KGP	BYD33MGP	UNIT
Maximum instantaneous forward voltage	1.0 A		V _F ⁽¹⁾	1.3					V
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C	I _R	5.0					μA
		T _A = 150 °C		200					
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	150		250	300		ns
Typical junction capacitance	4.0 V, 1 MHz		C _J	15					pF

Note

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	BYD33DGP	BYD33GGP	BYD33JGP	BYD33KGP	BYD33MGP	UNIT	
Typical thermal resistance	$R_{\theta JA}^{(1)}$	55					$^\circ\text{C/W}$	

Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BYD33JGP-E3/54	0.336	54	5500	13" diameter paper tape and reel
BYD33JGP-E3/73	0.336	73	3000	Ammo pack packaging
BYD33JGPHE3/54 (1)	0.336	54	5500	13" diameter paper tape and reel
BYD33JGPHE3/73 (1)	0.336	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

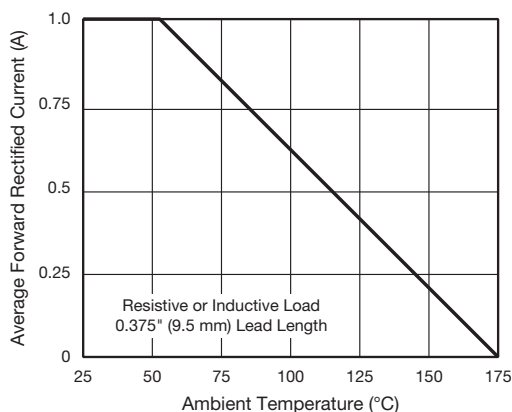


Fig. 1 - Forward Current Derating Curve

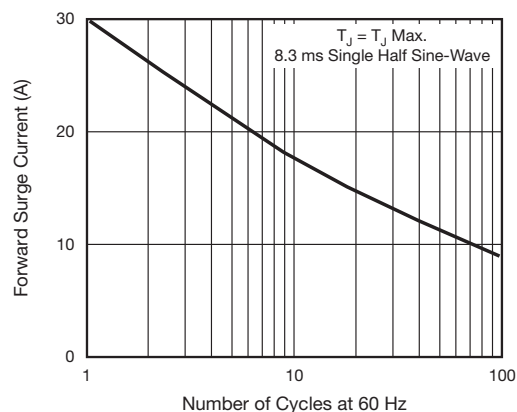


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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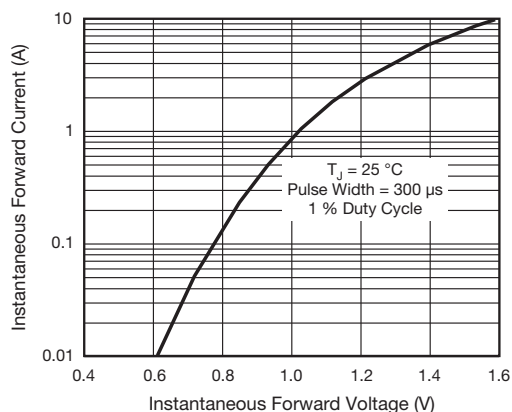


Fig. 3 - Typical Instantaneous Forward Characteristics

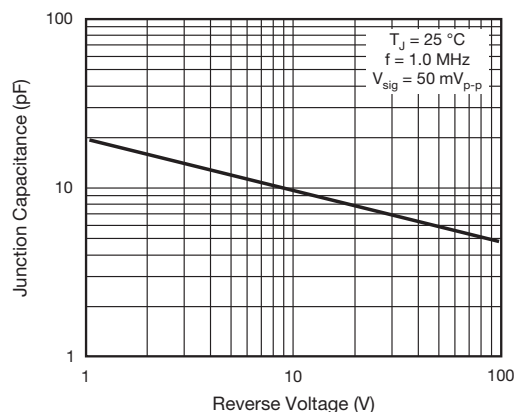


Fig. 5 - Typical Junction Capacitance

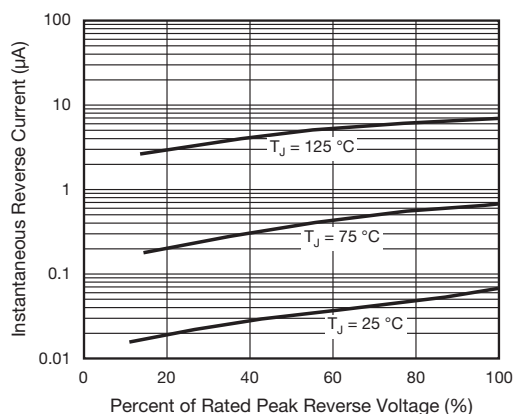


Fig. 4 - Typical Reverse Characteristics

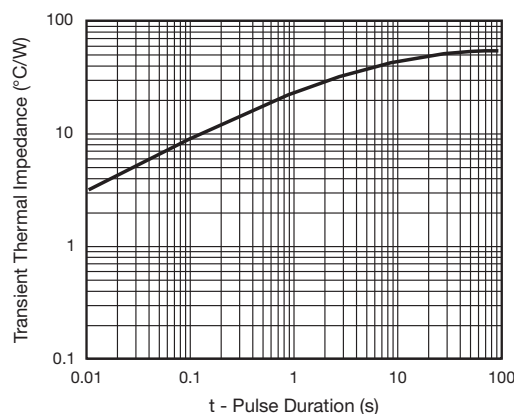
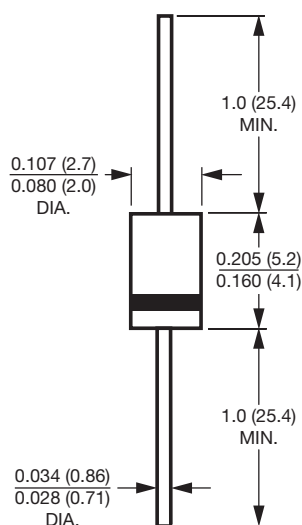


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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