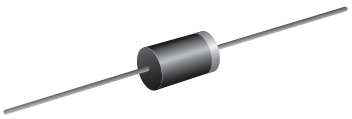
BYD33DGP thru BYD33MGP

Vishay General Semiconductor

Avalanche Glass Passivated Junction Fast Switching Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

FEATURES

- Superectifier 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

Pb e3 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)

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

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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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 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYD33DGP	BYD33GGP	BYD33JGP	BYD33KGP	BYD33MGP	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	55					°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 °C unless otherwise noted)

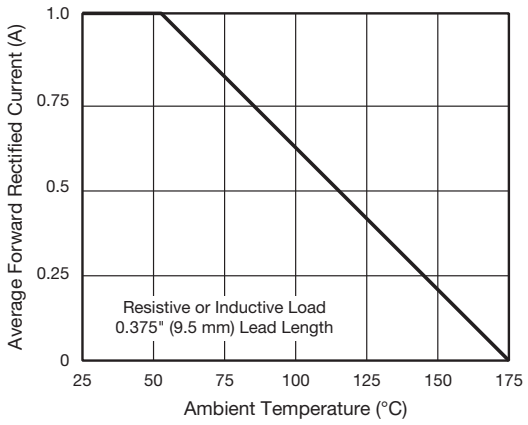

Fig. 1 - Forward Current Derating Curve

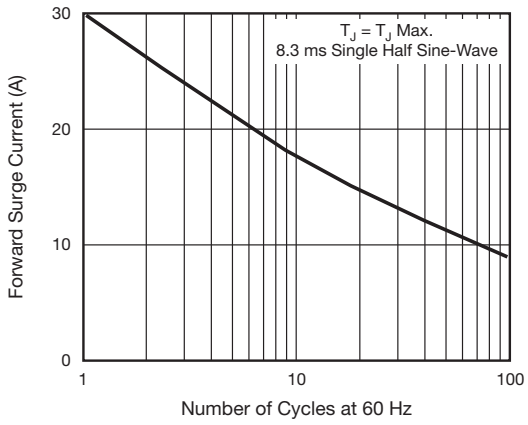

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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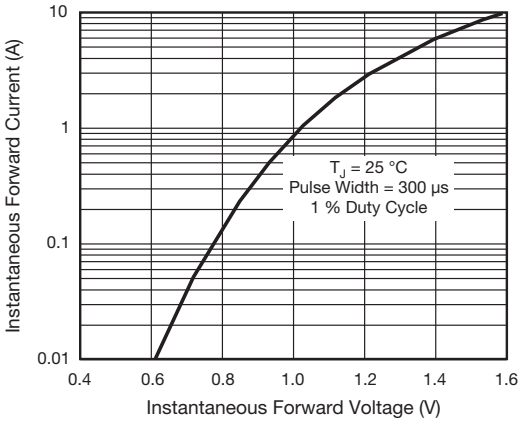


Fig. 3 - Typical Instantaneous Forward Characteristics

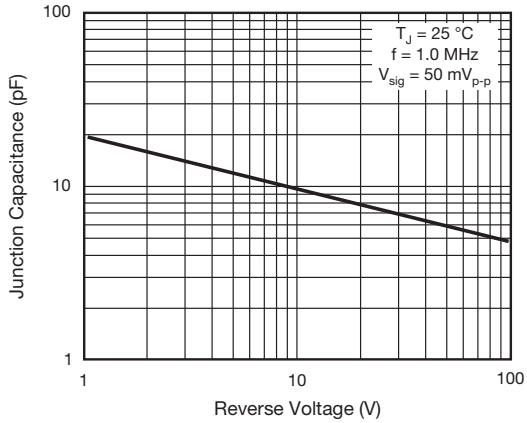


Fig. 5 - Typical Junction Capacitance

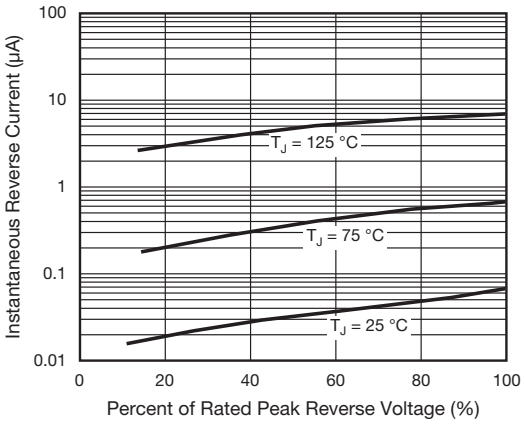


Fig. 4 - Typical Reverse Characteristics

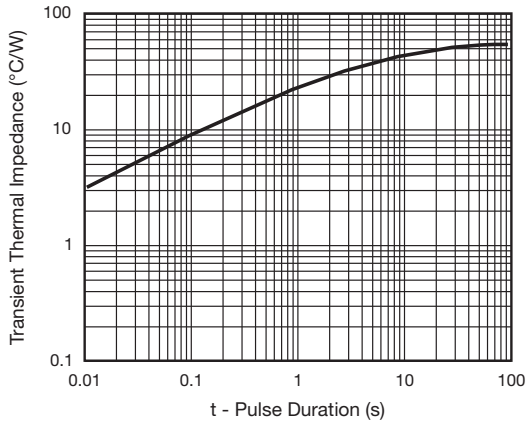
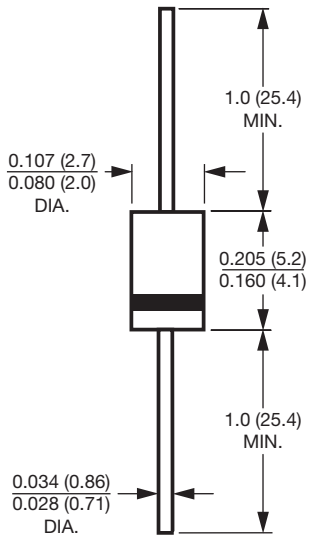


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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