

Avalanche Glass Passivated Junction Rectifier



FEATURES

- Cavity-free glass-passivated junction
- Avalanche surge capability guaranteed
- Low forward voltage drop
- Low leakage current, typical I_R less than 0.1 μA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in general purpose rectification of power supply, inverters, converters and freewheeling applications for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-204AL, molded epoxy over glass body
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 cathode end

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	200 V to 1000 V
I_{FSM}	30 A
E_{RSM}	7 mJ
V_F	1.1 V, 1.2 V
I_R	5.0 μA
T_j max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	BYD13DGP	BYD13GGP	BYD13JGP	BYD13KGP	BYD13MGP	UNIT
Device marking code		13DGP	13GGP	13JGP	13KGP	13MGP	
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 (see Fig. 1)	$I_{F(AV)}$	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30					
Non-repetitive peak reverse avalanche energy at $L = 120$ mH, $T_j = T_j$ max. prior to surge	E_{RSM}	7					mJ
Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead lengths at $T_A = 75$ °C	$I_{R(AV)}$	30					μA
Operating junction and storage temperature range	T_j, T_{STG}	- 65 to + 175					°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS	SYMBOL	BYD13DGP	BYD13GGP	BYD13JGP	BYD13KGP	BYD13MGP	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	at 1.0 A	V_F	1.1			1.2		V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^{\circ}\text{C}$ $T_A = 125\text{ }^{\circ}\text{C}$	I_R	5.0 50					μA
Typical reverse recovery time	at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$	t_{rr}	3.0					μs
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	8.0			7.0		pF

Note:

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYD13DGP	BYD13GGP	BYD13JGP	BYD13KGP	BYD13MGP	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	55					°C/W

Note:

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

ORDERING INFORMATION				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BYD13JGP-E3/54	0.335	54	5500	13" Diameter Paper Tape & Reel
BYD13JGP-E3/73	0.335	73	3000	Ammo Pack Packaging

RATINGS AND CHARACTERISTICS CURVES

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

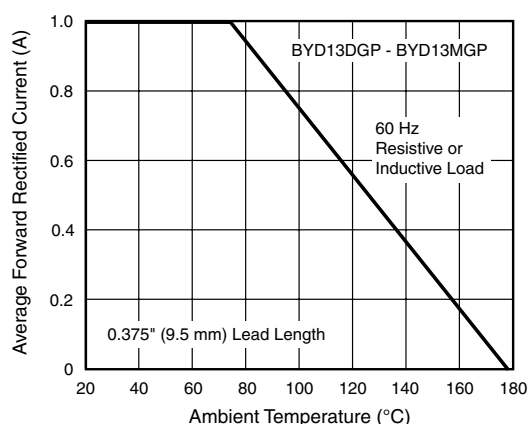


Figure 1. Forward Current Derating Curve

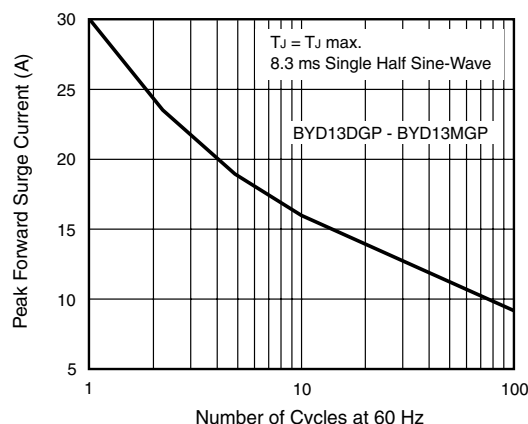


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

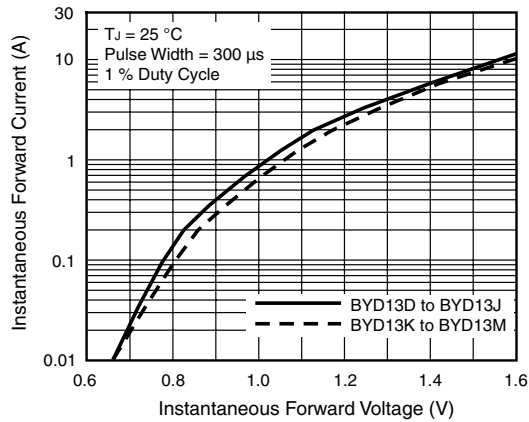


Figure 3. Typical Instantaneous Forward Characteristics

BYD13DGP.....200 V
 BYD13GGP.....400 V
 BYD13JGP.....600 V
 BYD13KGP.....800 V
 BYD13MGP.....1000 V

Figure 5. Maximum Repetitive Peak Reverse Voltage, V_{RRM}

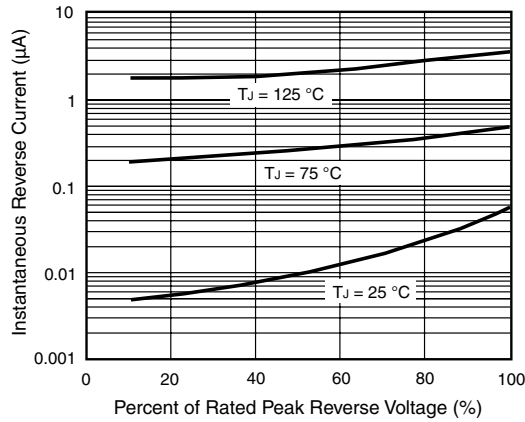


Figure 4. Typical Reverse Characteristics

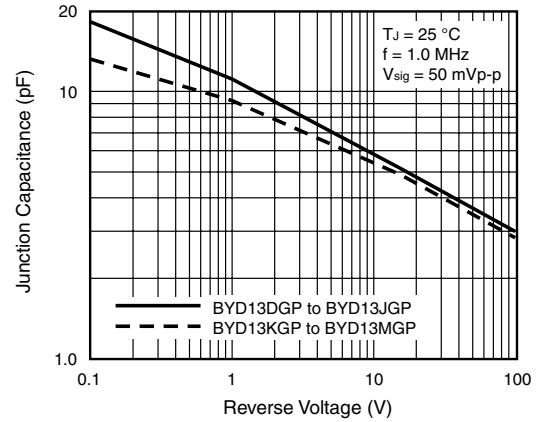
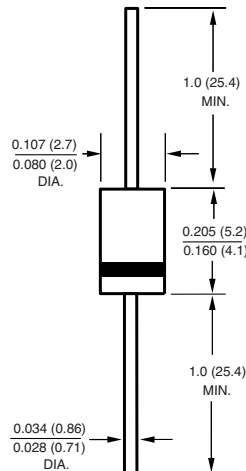


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



NOTE: Lead diameter is 0.026 (0.66) inches (0.66 mm) for suffix "E" part numbers
 0.023 (0.58) inches (0.58 mm)



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