

Glass Passivated Junction Rectifier



FEATURES

- Superectifier structure for High Reliability application 
- Cavity-free glass-passivated junction
- 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 supplies, inverters, converters and freewheeling diodes for both consumer and automotive applications.

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}	50 V to 1000 V
I_{FSM}	30 A
I_R	5.0 μA
V_F	1.1 V
T_J max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)									
PARAMETER	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
* Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
* Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
* Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 75$ °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
* Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 75$ °C	$I_{R(AV)}$	30							μA
* Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175							°C

* JEDEC registered values

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT
Maximum instantaneous forward voltage	at 1.0 A	V_F	1.1							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 $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	2.0							μs
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	8.0							pF

* JEDEC registered values

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT
Typical thermal resistance ⁽¹⁾	R _{θJA}	55							°C/W
	R _{θJL}	25							

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
1N4004GP-E3/54	0.335	54	5500	13" Diameter Paper Tape & Reel
1N4004GP-E3/73	0.335	73	3000	Ammo Pack Packaging

RATINGS AND CHARACTERISTICS CURVES

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

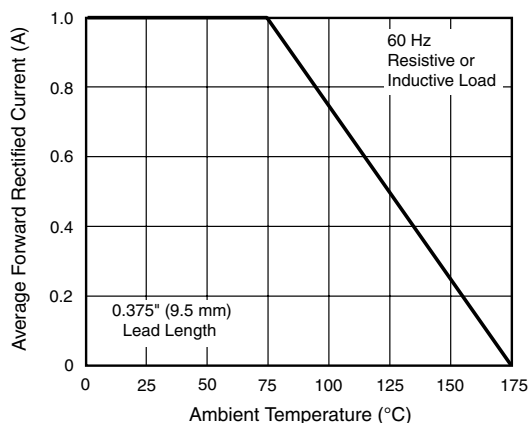


Figure 1. Forward Current Derating Curve

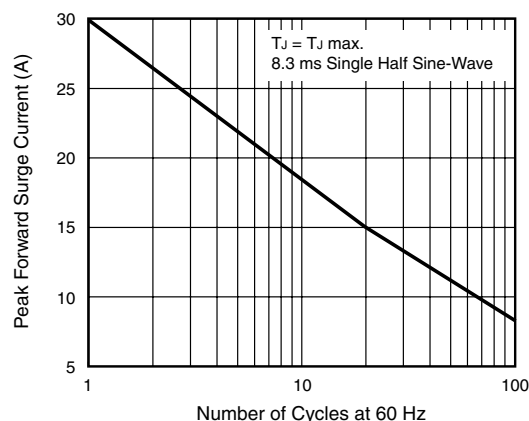


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

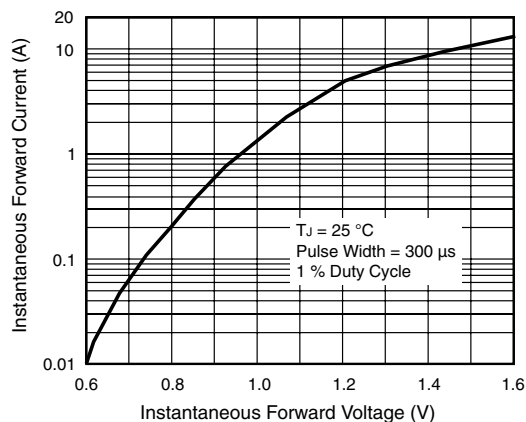


Figure 3. Typical Instantaneous Forward Characteristics

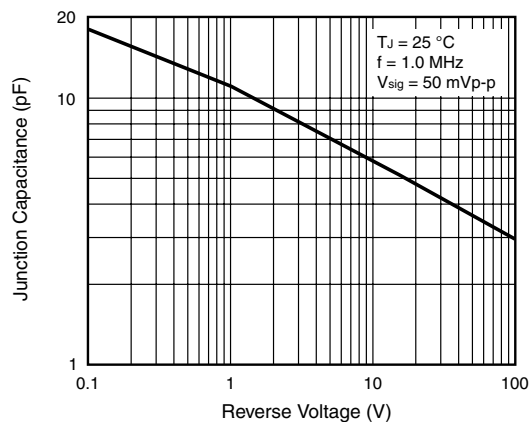


Figure 5. Typical Junction Capacitance

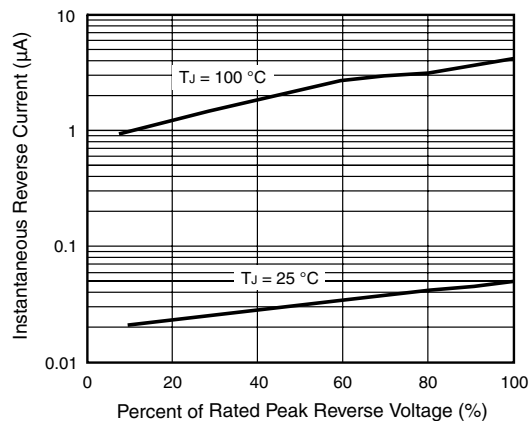


Figure 4. Typical Reverse Characteristics

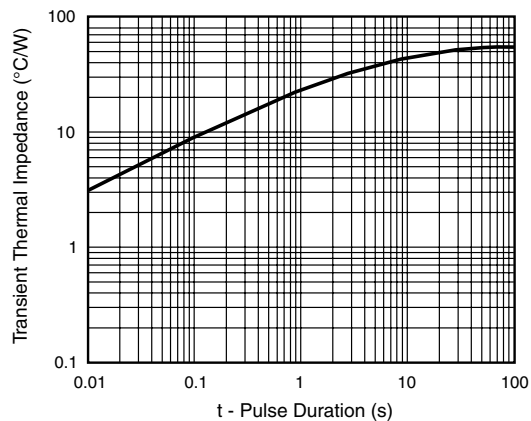
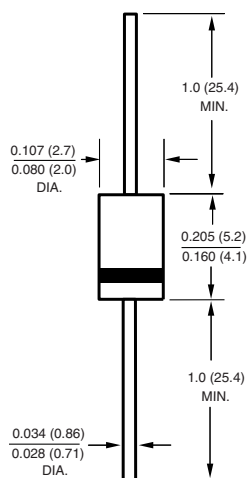


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



NOTE: Lead diameter is $\frac{0.026 (0.66)}{0.023 (0.58)}$ for suffix "E" part numbers



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