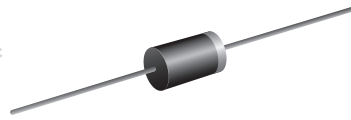


## Glass Passivated Junction Rectifier



DO-204AL (DO-41)

Patented\*

\* Glass encapsulation technique is covered by Patent No. 3,996,602, brazed-lead assembly to Patent No. 3,930,306

### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical  $I_R$  less than  $0.1 \mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip  $275^\circ C$  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

### 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  
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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	30 A
$I_R$	$5.0 \mu A$
$V_F$	1.1 V
$T_J$ max.	$175^\circ C$

MAXIMUM RATINGS ( $T_A = 25^\circ C$ 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	$V_{RMS}^{(1)}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}^{(1)}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 75^\circ C$	$I_{F(AV)}^{(1)}$	1.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}^{(1)}$	30							A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 75^\circ C$	$I_{R(AV)}^{(1)}$	30							$\mu A$
Operating junction and storage temperature range	$T_J, T_{STG}^{(1)}$	- 65 to + 175							$^\circ C$

#### Note

(1) JEDEC registered values

# 1N4001GP thru 1N4007GP

Vishay General Semiconductor



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	1.0 A	$V_F$				1.1				V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(1)}$				5.0				$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$					50				
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$				2.0				$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$				8.0				pF

**Note**

(1) JEDEC registered values

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT	
Typical thermal resistance	$R_{\theta JA}^{(1)}$				55				$^\circ\text{C/W}$	
	$R_{\theta JL}^{(1)}$				25					

**Note**

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

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
1N4004GP-E3/54	0.335	54	5500	13" diameter paper tape and reel	
1N4004GP-E3/73	0.335	73	3000	Ammo pack packaging	
1N4004GPHE3/54 (1)	0.335	54	5500	13" diameter paper tape and reel	
1N4004GPHE3/73 (1)	0.335	73	3000	Ammo pack packaging	

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

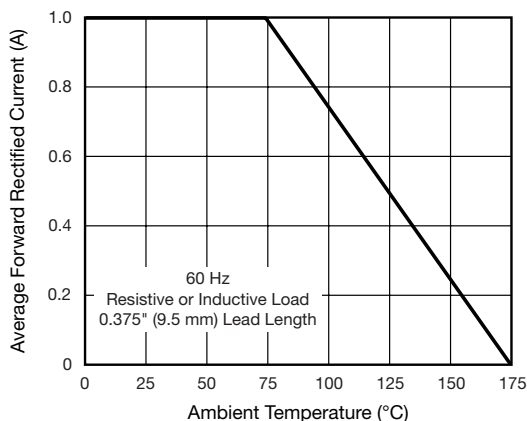


Fig. 1 - Forward Current Derating Curve

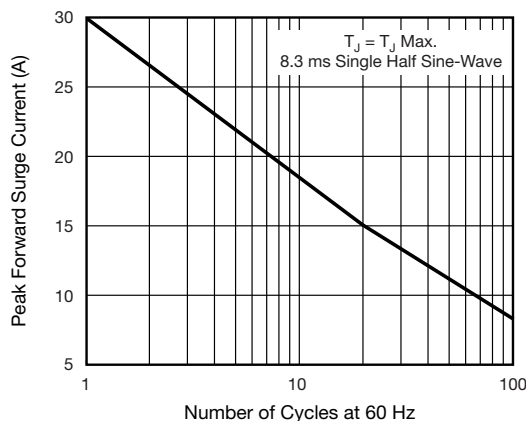


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

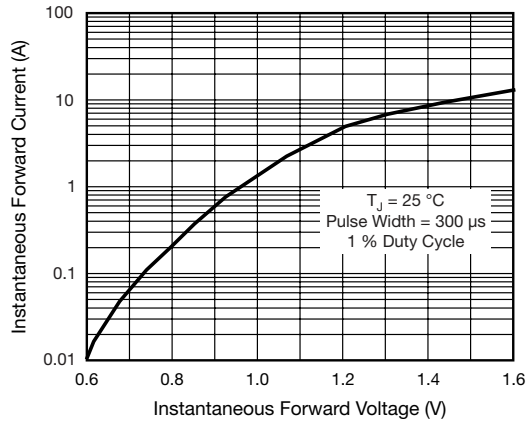


Fig. 3 - Typical Instantaneous Forward Characteristics

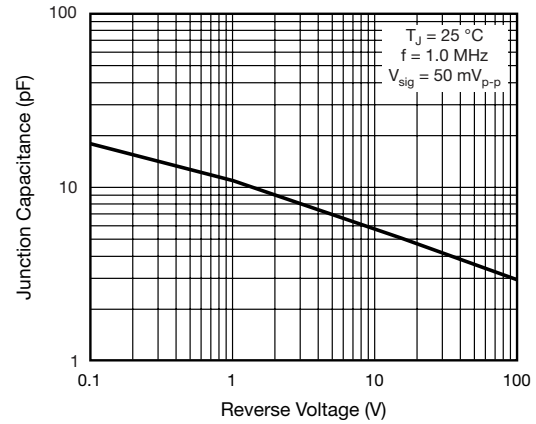


Fig. 5 - Typical Junction Capacitance

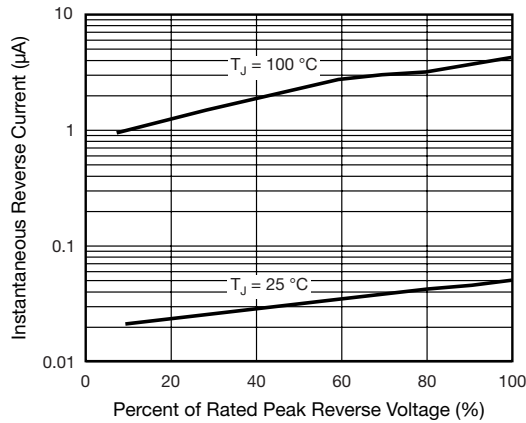


Fig. 4 - Typical Reverse Characteristics

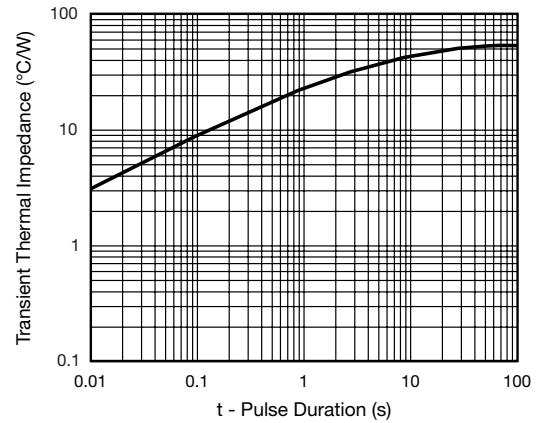
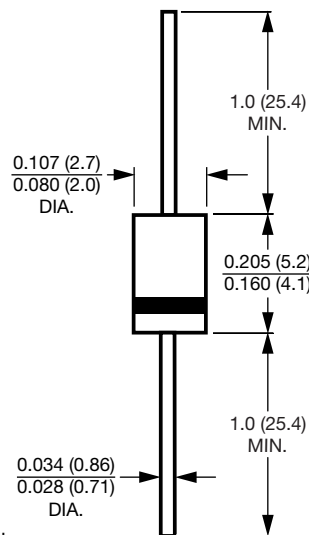


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AL (DO-41)



**Note**

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



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