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Vishay General Semiconductor

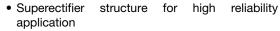
### **Glass Passivated Junction Plastic Rectifier**

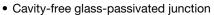


DO-204AL (DO-41)

PRIMARY CHARACTERISTICS							
I <sub>F(AV)</sub>	1.0 A						
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I <sub>FSM</sub> (8.3 ms sine-wave)	30 A						
$I_{FSM}$ (square wave $t_p = 1 \text{ ms}$ )	45 A						
I <sub>R</sub>	5.0 μA						
V <sub>F</sub>	1.1 V						
T <sub>J</sub> max.	175 °C						
Package	DO-204AL (DO-41)						
Diode variations	Single die						

#### **FEATURES**





Low forward voltage drop

Low leakage current, typical I<sub>R</sub> less than 0.1 μA

High forward surge capability

• Solder dip 275 °C max. 10 s, per JESD 22-B106

 Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer applications.

#### **MECHANICAL DATA**

**Case:** DO-204AL (DO-41), molded epoxy over glass body Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V <sub>RMS</sub> <sup>(1)</sup>	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub> (1)	50	100	200	400	600	800	1000	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T <sub>A</sub> = 75 °C		1.0							Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub> <sup>(1)</sup>	30							Α
Non-repetitive peak t <sub>p</sub> = 1 ms		45							
forward surge current $t_p = 2 \text{ ms}$	I <sub>FSM</sub> <sup>(1)</sup>	35							
$T_A = 25$ °C (fig. 3) $t_p = 5$ ms		30							
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) $I_{R(AV)}$ (1) lead length $T_A = 75$ °C		30							μΑ
Rating for fusing (t < 8.3 ms)	I <sup>2</sup> t (2)				3.7				A <sup>2</sup> s
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub> <sup>(1)</sup>	-65 to +175				°C			

#### Notes

(1) JEDEC® registered values

<sup>(2)</sup> For device using on bridge rectifier application

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	1N4001GP	1N4002GP	1N4003GP	1N4004GP	1N4005GP	1N4006GP	1N4007GP	UNIT
Maximum instantaneous forward voltage	1.0 A	V <sub>F</sub>		1.1					V	
Maximum DC reverse current	T <sub>A</sub> = 25 °C	ı (1)	5.0							
at rated DC blocking voltage	T <sub>A</sub> = 125 °C	I <sub>R</sub> <sup>(1)</sup>	50						μA	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	2.0				μs			
Typical junction capacitance	4.0 V, 1 MHz	CJ	8.0				pF			

#### Note

<sup>(3)</sup> JEDEC® registered values

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	BOL   1N4001GP   1N4002GP   1N4003GP   1N4004GP   1N4005GP   1N4006GP   1N4007GP   U							UNIT
Typical thermal resistance	R <sub>0JA</sub> (1)	55							°C/
Typical thermal resistance	R <sub>0</sub> JL (1)	25					W		

#### Note

<sup>(1)</sup> 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				
1N4004GP-E3/54	0.335	54	5500	13" diameter paper tape and reel				
1N4004GP-E3/73	0.335	73	3000	Ammo pack packaging				

### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

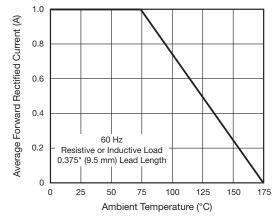


Fig. 1 - Forward Current Derating Curve

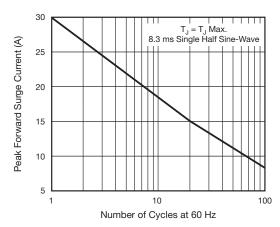


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

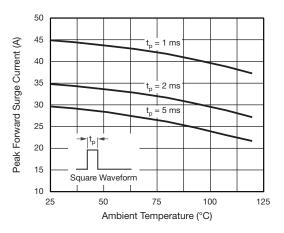


Fig. 3 - Non-Repetitive Peak Forward Surge Current

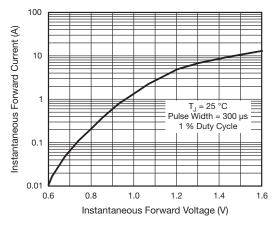


Fig. 4 - Typical Instantaneous Forward Characteristics

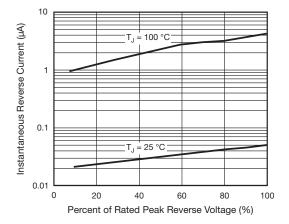


Fig. 5 - Typical Reverse Characteristics

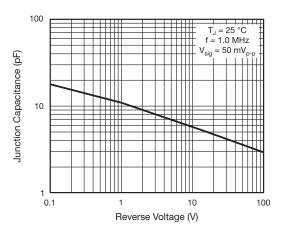


Fig. 6 - Typical Junction Capacitance

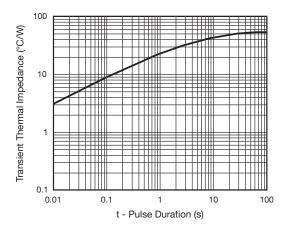
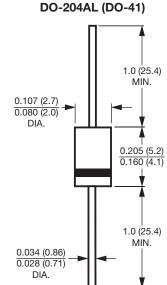


Fig. 7 - Typical Transient Thermal Impedance

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### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



Note

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



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