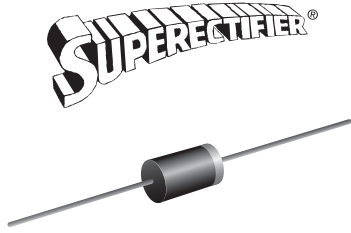


Glass Passivated Junction Rectifier



DO-204AL (DO-41)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V to 1000 V
I_{FSM} (8.3 ms sine-wave)	30 A
I_{FSM} (square wave $t_p = 1$ ms)	45 A
I_R	5.0 μ A
V_F	1.1 V
T_J max.	175 °C

TYPICAL APPLICATIONS

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

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 μ A
- 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



RoHS
COMPLIANT

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	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 $T_A = 75$ °C	$I_{F(AV)}^{(1)}$	1.0						A	
Non-repetitive peak forward surge current square waveform $T_A = 25$ °C (fig. 3)	$t_p = 1$ ms	45						A	
	$t_p = 2$ ms	35							
	$t_p = 5$ ms	30							
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_A = 75$ °C	$I_{R(AV)}^{(1)}$	30						μ A	
Rating for fusing ($t < 8.3$ ms)	$I^2t^{(2)}$	3.7						A ² s	
Operating junction and storage temperature range	$T_J, T_{STG}^{(1)}$	- 65 to + 175						°C	

Notes

(1) JEDEC registered values

(2) For device using on bridge rectifier application

1N4001GP thru 1N4007GP

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 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 _F				1.1				V
Maximum DC reverse current at rated DC blocking voltage	T _A = 25 °C	I _R ⁽¹⁾				5.0				μA
	T _A = 125 °C					50				
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	t _{rr}				2.0				μs
Typical junction capacitance	4.0 V, 1 MHz	C _J				8.0				pF

Note

(1) 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	R _{θJA} ⁽¹⁾				55				°C/W	
	R _{θJL} ⁽¹⁾				25					

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	
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 °C unless otherwise noted)

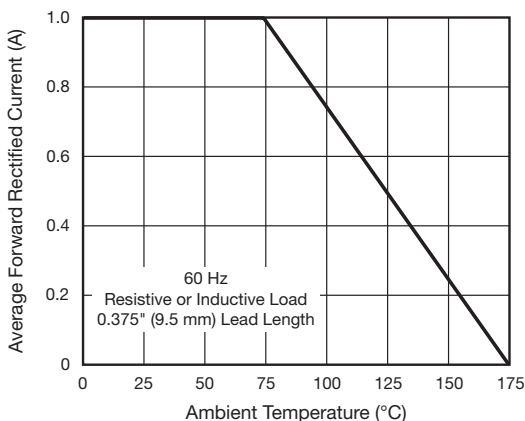


Fig. 1 - Forward Current Derating Curve

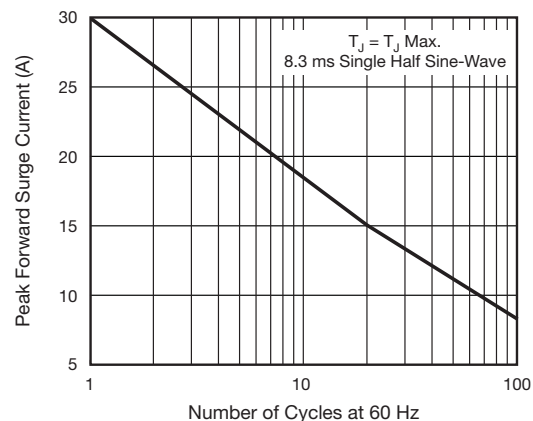


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

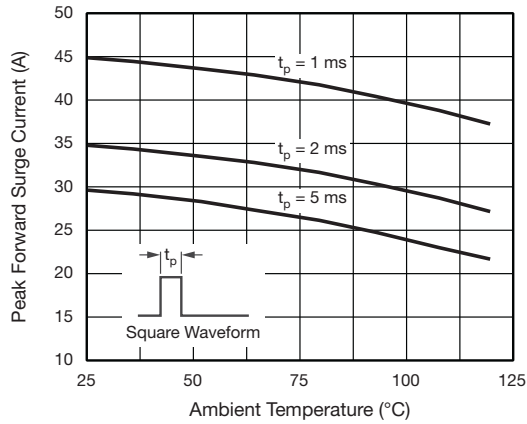


Fig. 3 - Non-Repetitive Peak Forward Surge Current

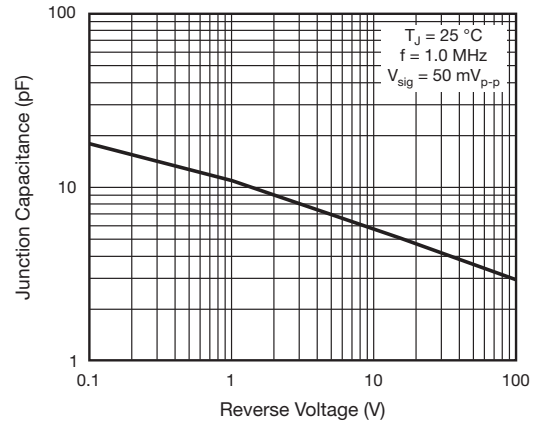


Fig. 6 - Typical Junction Capacitance

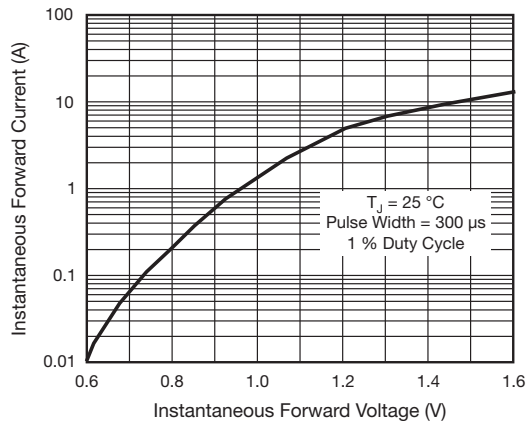


Fig. 4 - Typical Instantaneous Forward Characteristics

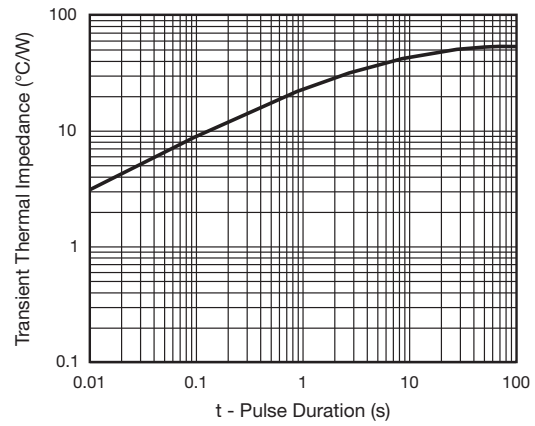


Fig. 7 - Typical Transient Thermal Impedance

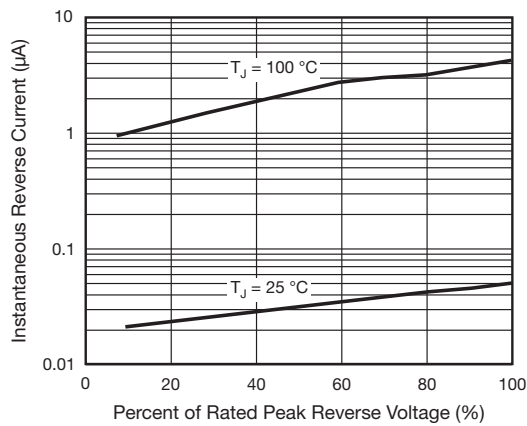
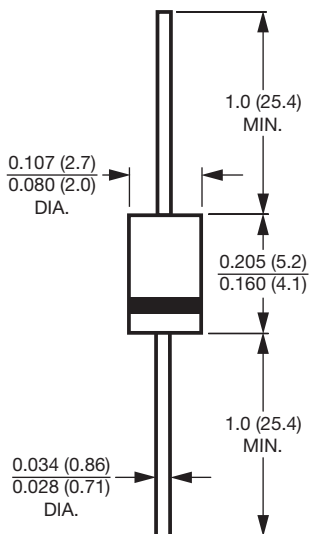


Fig. 5 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



Note

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



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.