1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007



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Vishay General Semiconductor

General Purpose Plastic Rectifier



PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.0 A						
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I _{FSM} (8.3 ms sine-wave)	30 A						
I _{FSM} (square wave t _p = 1 ms)	45 A						
V _F	1.1 V						
I _R	5.0 µA						
T _J max.	150 °C						
Package	DO-41 (DO-204AL)						
Circuit configuration	Single						

FEATURES

- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
 RoHS
- Material categorization: for definitions of COMPLIANT compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-41 (DO-204AL), molded epoxy 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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)										
PARAMETER		SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	UNIT
Maximum repetitive peak reverse vo	oltage	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	Maximum DC blocking voltage		50	100	200	400	600	800	1000	V
Maximum average forward rectified 0.375" (9.5 mm) lead length at $T_A =$	I _{F(AV)}	1.0							А	
Peak forward surge current 8.3 ms s sine-wave superimposed on rated lo	I _{FSM}	30						А		
Non-repetitive peak forward	t _p = 1 ms		45							
surge current square waveform	$t_p = 2 ms$	I _{FSM}	35							
T _A = 25 °C (fig. 3)	t _p = 5 ms		30							1
Maximum full load reverse current, f average 0.375" (9.5 mm) lead length	I _{R(AV)}	30						μA		
Rating for fusing (t < 8.3 ms)	l ² t ⁽¹⁾	3.7							A ² s	
Operating junction and storage temperature range		T _J , T _{STG}	-50 to +150							°C

Note

⁽¹⁾ For device using on bridge rectifier application

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	UNIT
Maximum instantaneous forward voltage	1.0	٩	V _F	1.1					V		
Maximum DC reverse current		T _A = 25 °C 5.0									
at rated DC blocking voltage		T _A = 125 °C	IR	50						μA	
Typical junction capacitance	4.0	4.0 V, 1 MHz C _J		15						pF	

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)									
PARAMETER	ARAMETER SYMBOL 1N4001 1N4002 1N4003 1N4004 1N4005 1N4006 1N400						1N4007	UNIT	
Typical thermal resistance	R _{0JA} ⁽¹⁾	50							°C/W
Typical memairesistance	R _{0JL} ⁽¹⁾	25							0/11

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)	BASE QUANTITY	DELIVERY MODE						
1N4004-E3/54	0.33	54	5500	13" diameter paper tape and reel					
1N4004-E3/73	0.33	73	3000	Ammo pack packaging					

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

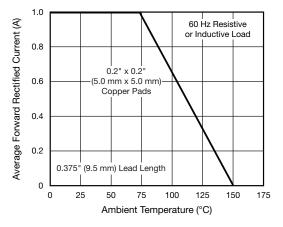


Fig. 1 - Forward Current Derating Curve

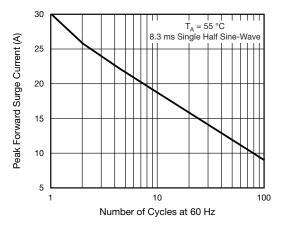
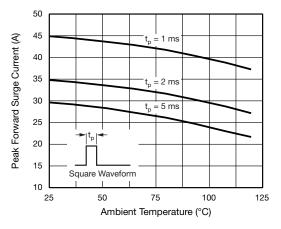


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

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Fig. 3 - Non-Repetitive Peak Forward Surge Current

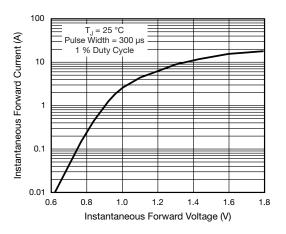


Fig. 4 - Typical Instantaneous Forward Characteristics

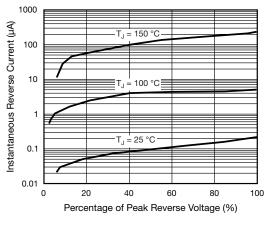


Fig. 5 - Typical Reverse Characteristics

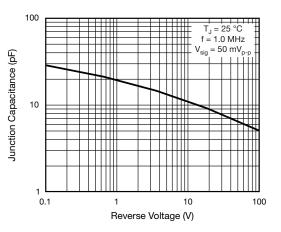


Fig. 6 - Typical Junction Capacitance

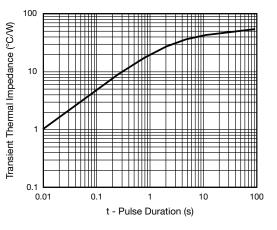


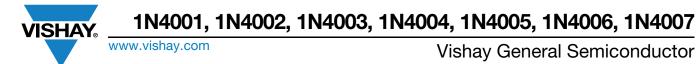
Fig. 7 - Typical Transient Thermal Impedance

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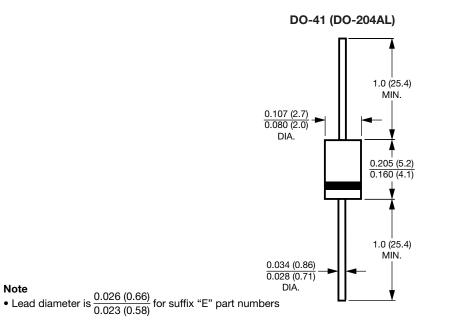
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

Note





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