

General Purpose Plastic Rectifier



DO-41 (DO-204AL)

FEATURES

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



RoHS
COMPLIANT

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 μ A
T_J max.	150 °C
Package	DO-41 (DO-204AL)
Circuit configuration	Single

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 ($T_A = 25$ °C unless otherwise noted)

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PARAMETER	SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	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	
Non-repetitive peak forward surge current square waveform T _A = 25 °C (fig. 3)	t _p = 1 ms	I _{FSM}	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 _L = 75 °C	I _{R(AV)}	30							μA	
Rating for fusing (t < 8.3 ms)	I 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

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

PARAMETER	TEST CONDITIONS		SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	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	5.0							μA
		T _A = 125 °C		50							
Typical junction capacitance	4.0 V, 1 MHz		C _J	15							pF

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

PARAMETER	SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	50							°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
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 ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve



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

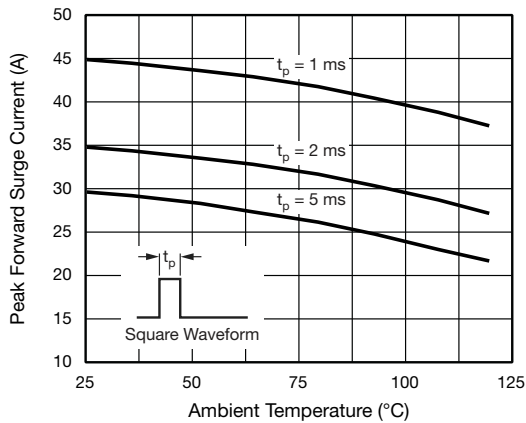


Fig. 3 - Non-Repetitive Peak Forward Surge Current

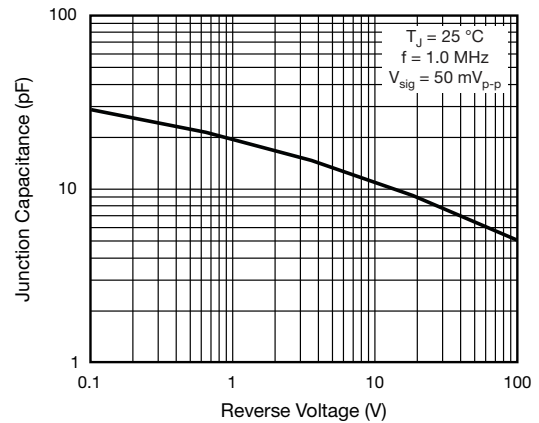


Fig. 6 - Typical Junction Capacitance

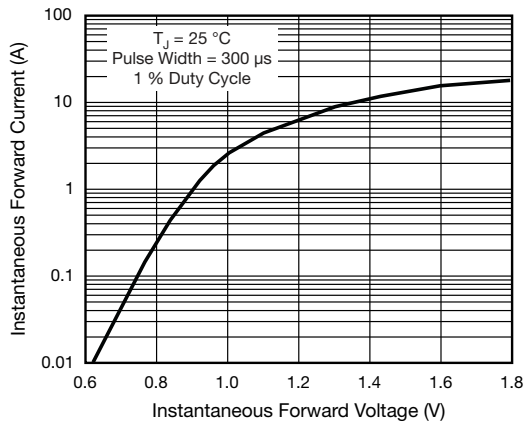


Fig. 4 - Typical Instantaneous Forward Characteristics

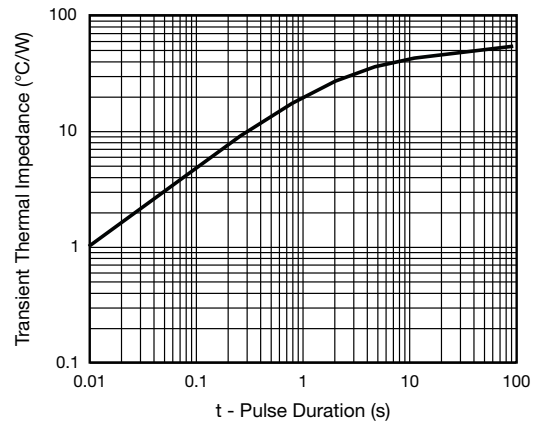


Fig. 7 - Typical Transient Thermal Impedance

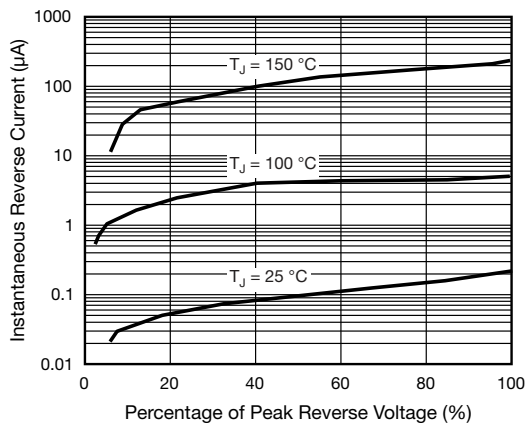
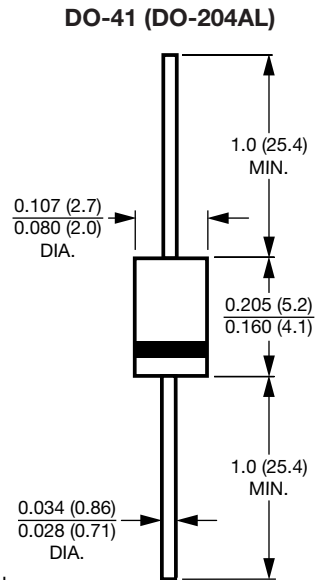


Fig. 5 - Typical Reverse Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Note

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



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