

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 µA
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)										
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	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 ($T_A = 25^\circ\text{C}$ 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	$T_A = 25^\circ\text{C}$	I_R			5.0					μA
	$T_A = 125^\circ\text{C}$				50					
Typical junction capacitance	4.0 V, 1 MHz	C_J				15				pF

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

PARAMETER	SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$			50					$^\circ\text{C}/\text{W}$
	$R_{\theta JL}^{(1)}$			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

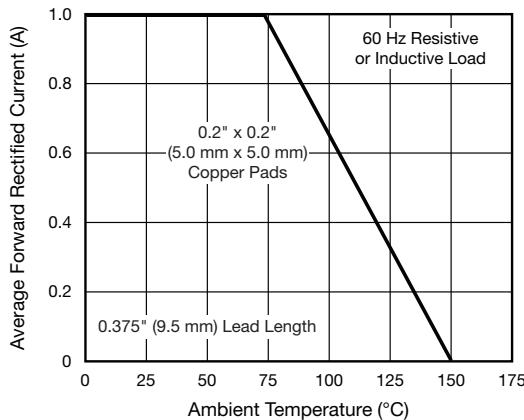
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

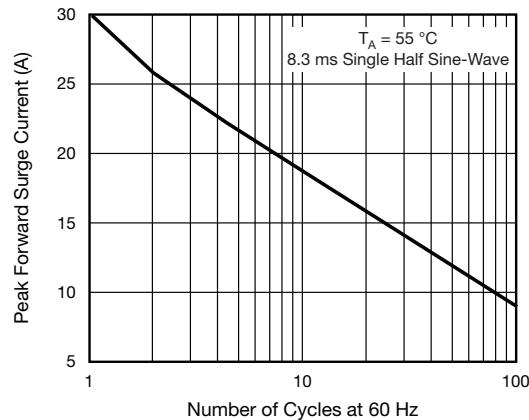


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

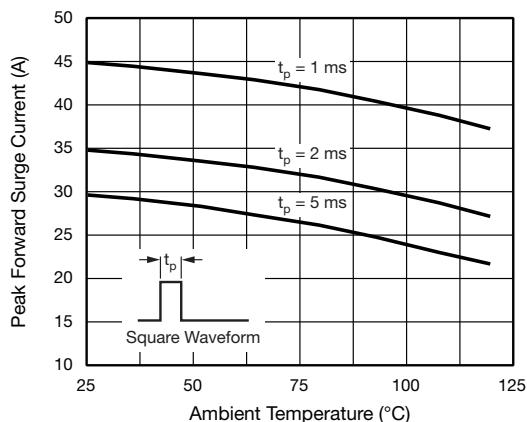


Fig. 3 - Non-Repetitive Peak Forward Surge Current

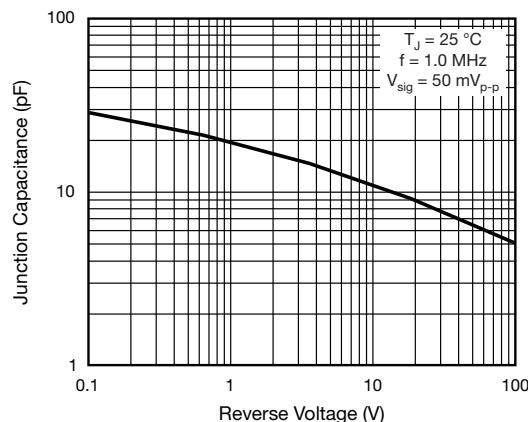


Fig. 6 - Typical Junction Capacitance

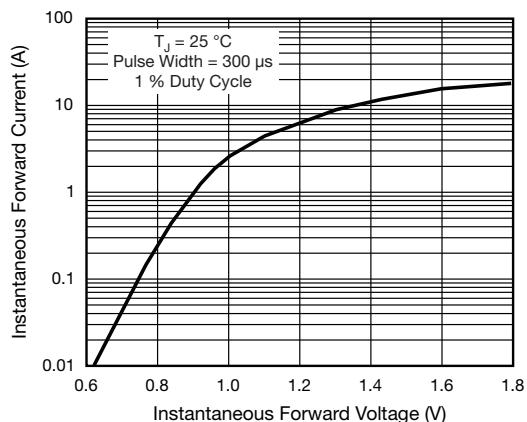


Fig. 4 - Typical Instantaneous Forward Characteristics

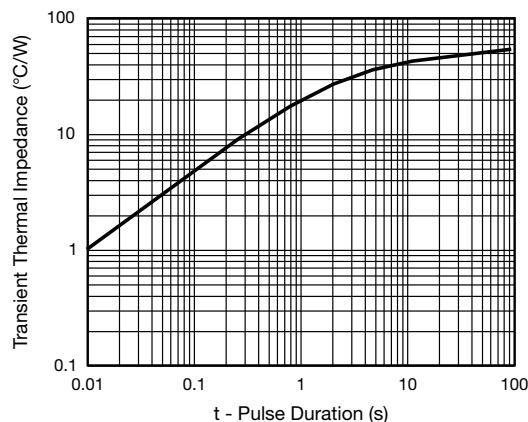


Fig. 7 - Typical Transient Thermal Impedance

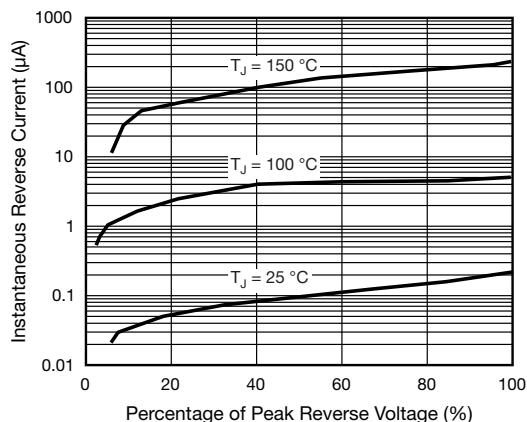
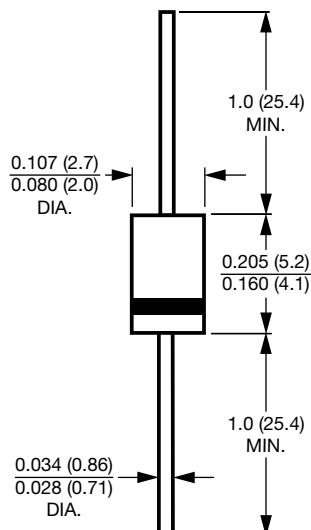


Fig. 5 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)

**Note**

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

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