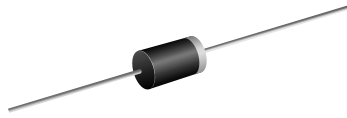


## General Purpose Plastic Rectifier


**DO-204AL (DO-41)**

### FEATURES

- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

(Note: These devices are not Q101 qualified.)

### MECHANICAL DATA

**Case:** DO-204AL, molded epoxy body

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

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
$V_F$	1.1 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	150 °C

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)	$I_{FSM}$	$t_p = 1$ ms: 45 $t_p = 2$ ms: 35 $t_p = 5$ ms: 30							A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length $T_L = 75$ °C	$I_{R(AV)}$	30							$\mu$ A
Rating for fusing ( $t < 8.3$ ms) <sup>(1)</sup>	$I^2t$	3.7							A <sup>2</sup> s
Operating junction and storage temperature	$T_J, T_{STG}$	- 50 to + 150							°C

**Note:**

(1) For device using on bridge rectifier application

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$				5.0				$\mu\text{A}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$				15				pF

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$				50				$^\circ\text{C/W}$
					25				

**Note:**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

<b>ORDERING INFORMATION</b> (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)

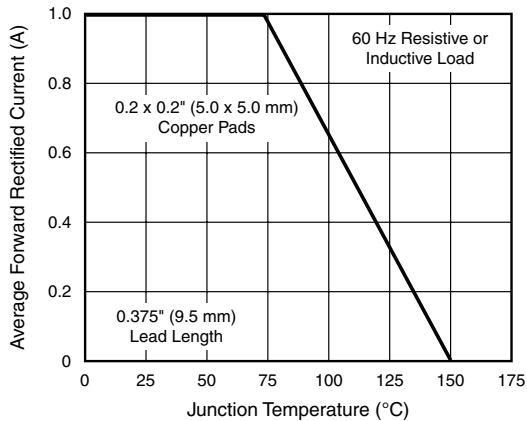


Figure 1. Forward Current Derating Curve

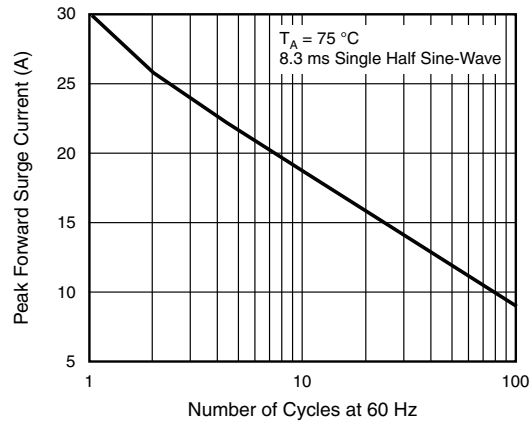


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

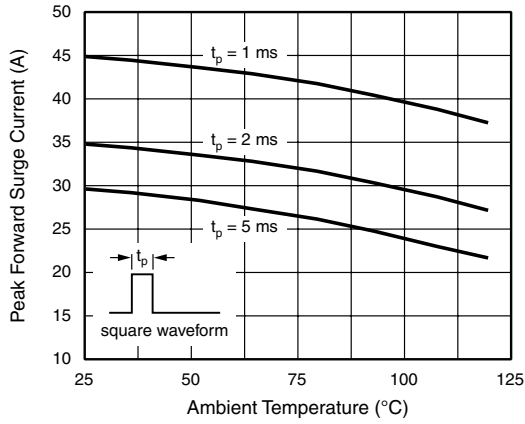


Figure 3. Typical Instantaneous Forward Characteristics

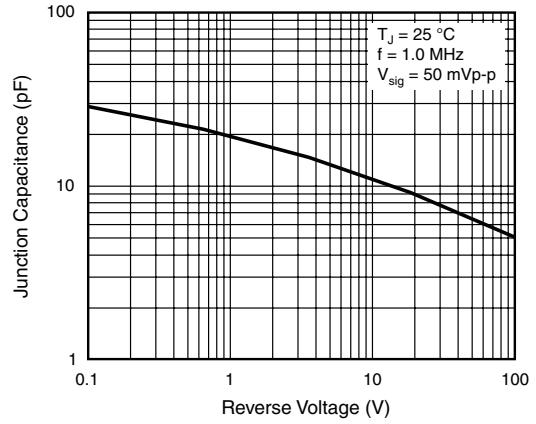


Figure 6. Typical Junction Capacitance

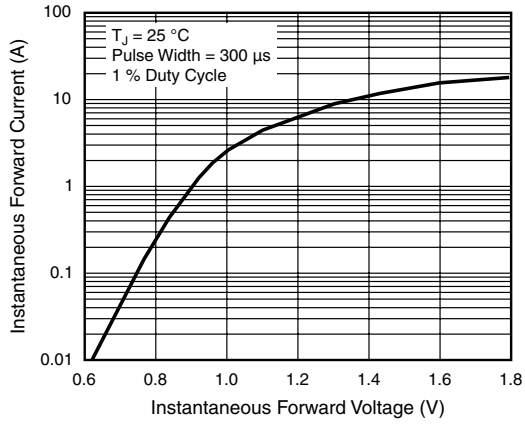


Figure 4. Typical Instantaneous Forward Characteristics

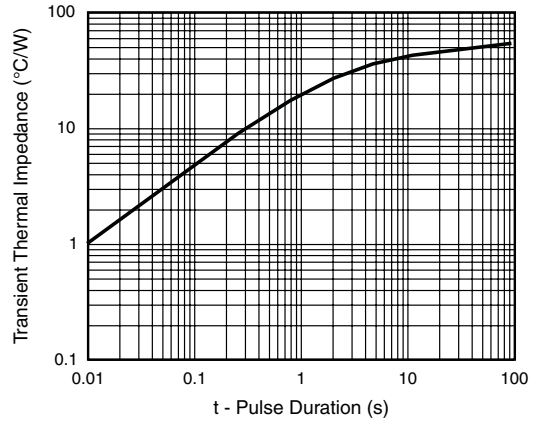


Figure 7. Typical Transient Thermal Impedance

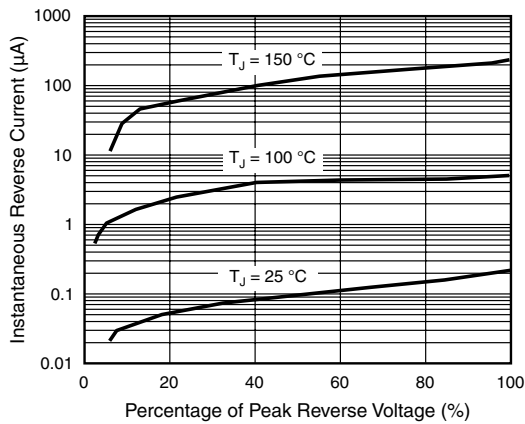
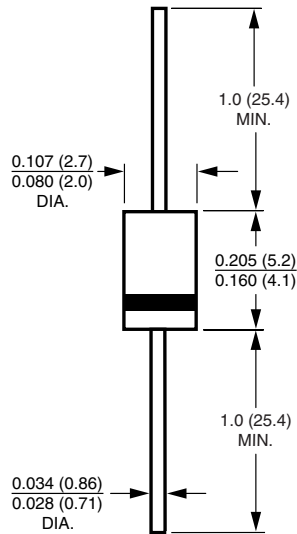


Figure 5. Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-204AL (DO-41)



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



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