





## General Purpose Plastic Rectifier



DO-204AL (DO-41)

### 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](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### TYPICAL APPLICATIONS

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

#### Note

- These devices are not AEC-Q101 qualified.

### MECHANICAL DATA

**Case:** 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.5 A
$V_{RRM}$	50 V, 100 V, 200 V, 300 V, 400 V, 500 V, 600 V, 800 V, 1000 V
$I_{FSM}$	50 A
$V_F$	1.4 V
$I_R$	5.0 $\mu$ A
$T_J$ max.	150 °C
Package	DO-204AL (DO-41)
Diode variations	Single die

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)											
PARAMETER	SYMBOL	1N5391	1N5392	1N5393	1N5394	1N5395	1N5396	1N5397	1N5398	1N5399	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	300	400	500	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	210	280	350	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	300	400	500	600	800	1000	V
Maximum average forward rectified current 0.500" (12.7 mm) lead length at $T_L = 70\text{ °C}$	$I_{F(AV)}$	1.5									A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50									A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_L = 70\text{ °C}$	$I_{R(AV)}$	300									$\mu$ A
Operation junction and storage temperature range	$T_J, T_{STG}$	- 50 to + 150									°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)													
PARAMETER	TEST CONDITIONS		SYMBOL	1N5391	1N5392	1N5393	1N5394	1N5395	1N5396	1N5397	1N5398	1N5399	UNIT
Maximum instantaneous forward voltage	1.5 A	T <sub>A</sub> = 70 °C	V <sub>F</sub>					1.4					V
Maximum DC reverse current at rated DC blocking voltage		T <sub>A</sub> = 25 °C	I <sub>R</sub>					5.0					μA
		T <sub>A</sub> = 150 °C						300					
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>					2.0					μs
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>					15					pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)											
PARAMETER	SYMBOL	1N5391	1N5392	1N5393	1N5394	1N5395	1N5396	1N5397	1N5398	1N5399	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>					55					°C/W
	R <sub>θJL</sub> <sup>(1)</sup>					25					

**Note**

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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
1N5391-E3/54	0.336	54	5500	13" diameter paper tape and reel
1N5391-E3/73	0.336	73	3000	Ammo pack packaging

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

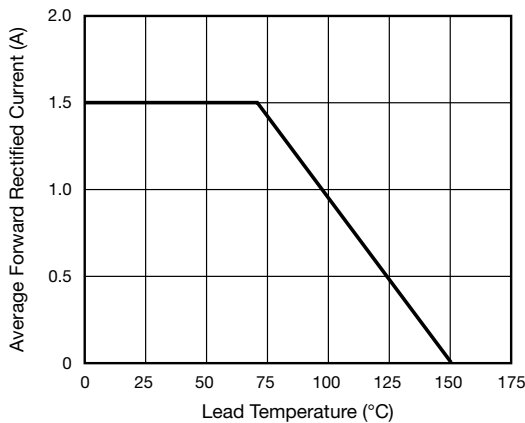


Fig. 1 - Forward Current Derating Curve

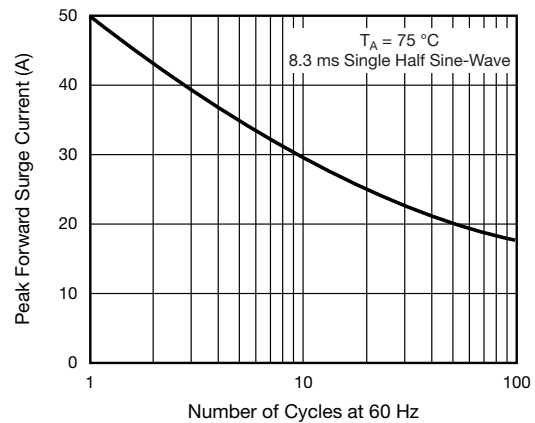


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

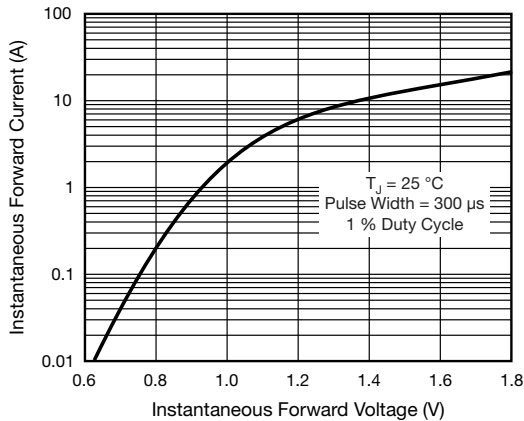


Fig. 3 - Typical Instantaneous Forward Characteristics

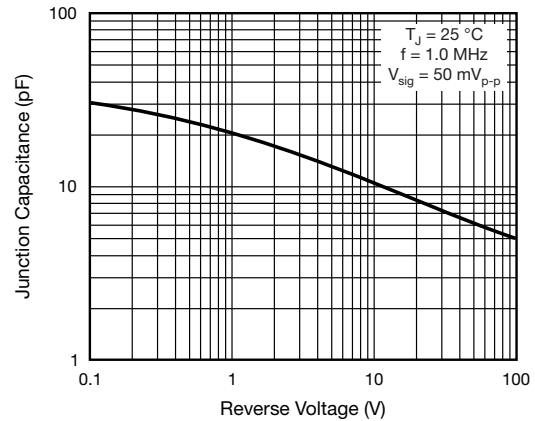


Fig. 5 - Typical Junction Capacitance

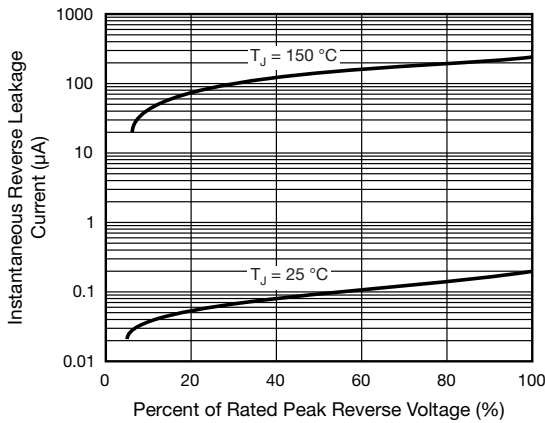


Fig. 4 - Typical Reverse Characteristics

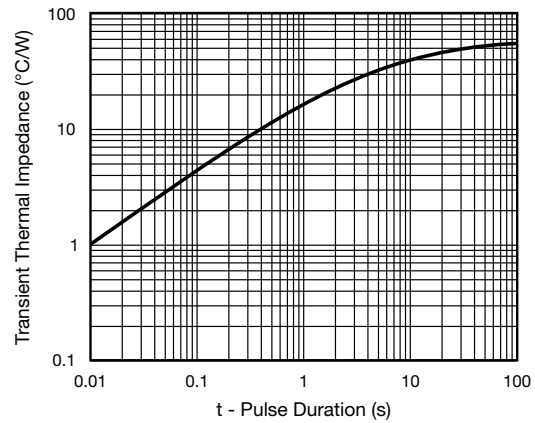
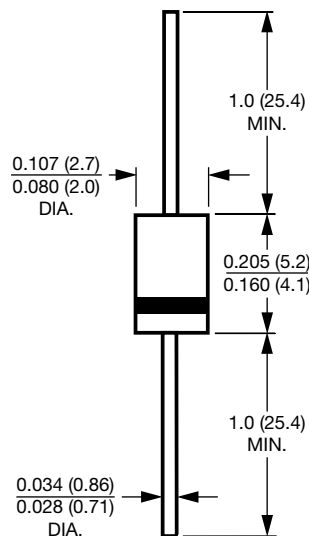


Fig. 6 - Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

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





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