

## Excellent Integrated System Limited

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[Vishay Semiconductor/Diodes Division](#)  
[UF4002-E3/54](#)

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## UF4001, UF4002, UF4003, UF4004, UF4005, UF4006, UF4007

[www.vishay.com](http://www.vishay.com)

Vishay General Semiconductor

### Ultrafast Plastic Rectifier



DO-204AL (DO-41)

#### FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low switching losses, high efficiency
- 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 high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

#### MECHANICAL DATA

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

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 <sub>F(AV)</sub>	1.0 A
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I <sub>FSM</sub>	30 A
t <sub>rr</sub>	50 ns, 75 ns
V <sub>F</sub>	1.0 V, 1.7 V
T <sub>J</sub> max.	150 °C
Package	DO-204AL (DO-41)
Diode variations	Single die

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	UNIT	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V	
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V	
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V	
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T <sub>A</sub> = 55 °C	I <sub>F(AV)</sub>	1.0							A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30							A	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150							°C	



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ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	UNIT
Maximum instantaneous forward voltage	1.0 A		$V_F$ <sup>(1)</sup>	1.0			1.7			V	
Maximum DC reverse current at rated DC blocking voltage		$T_A = 25^\circ\text{C}$	$I_R$	10			50			$\mu\text{A}$	
		$T_A = 100^\circ\text{C}$		50			75				
Maximum reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$		$t_{rr}$	50			75			ns	
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	17			17			$\text{pF}$	

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	UNIT
Typical thermal resistance		$R_{0JA}$ <sup>(1)</sup>		60			$R_{0JL}$ <sup>(1)</sup>		
				15					

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
UF4007-E3/54	0.33	54	5500	13" diameter paper tape and reel
UF4007-E3/73	0.34	73	3000	Ammo pack packaging

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

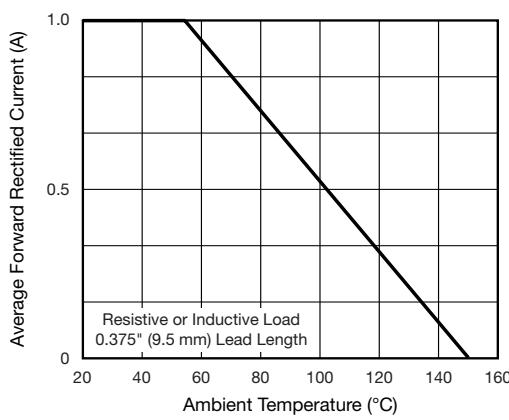


Fig. 1 - Maximum Forward Current Derating Curve

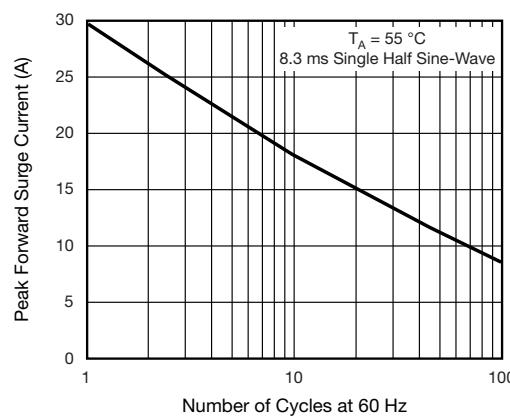


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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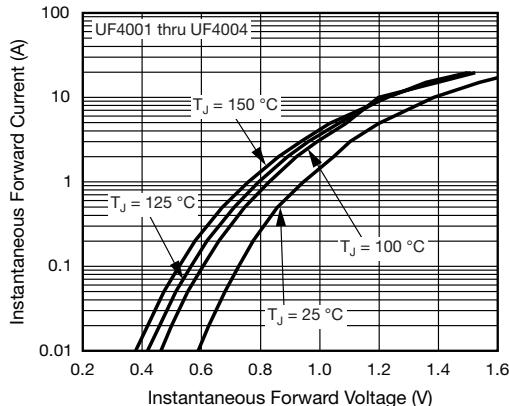


Fig. 3 - Typical Instantaneous Forward Characteristics

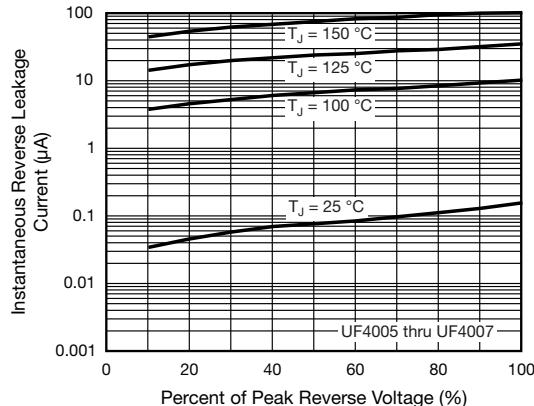


Fig. 6 - Typical Reverse Leakage Characteristics

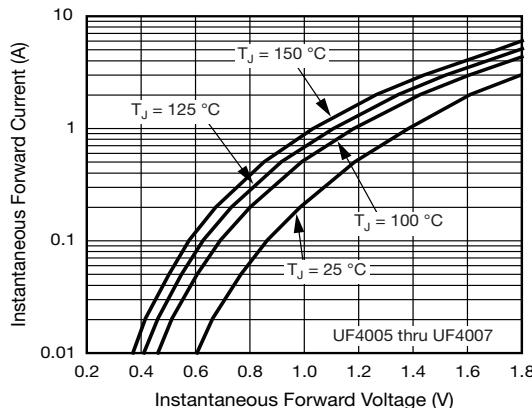


Fig. 4 - Typical Reverse Leakage Characteristics

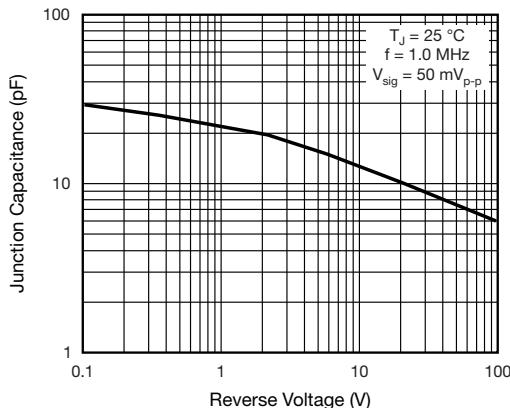


Fig. 7 - Typical Junction Capacitance

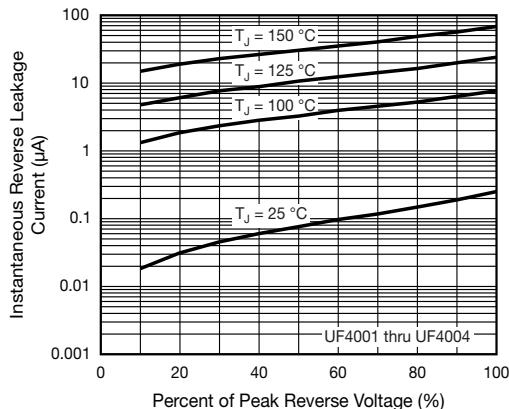


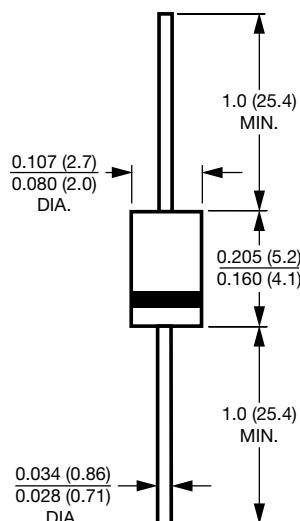
Fig. 5 - Typical Instantaneous Forward Characteristics

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

DO-204AL (DO-41)



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