

Ultrafast Plastic Rectifier



DO-41 (DO-204AL)

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



RoHS
COMPLIANT
HALOGEN
FREE

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-41 (DO-204AL)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and M3 suffix 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, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I_{FSM}	30 A
t_{rr}	50 ns, 75 ns
V_F	1.0 V, 1.7 V
T_J max.	150 °C
Package	DO-41 (DO-204AL)
Circuit configuration	Single

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)									
PARAMETER	SYMBOL	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	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 $T_A = 55\text{ °C}$	$I_{F(AV)}$	1.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30							A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150							°C



ELECTRICAL CHARACTERISTICS (T _A = 25 °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 ⁽¹⁾	1.0				1.7				V
Maximum DC reverse current at rated DC blocking voltage	T _A = 25 °C	I _R	10							μA	
	T _A = 100 °C		50								
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	t _{rr}	50				75				ns
Typical junction capacitance	4.0 V, 1 MHz	C _J	17							pF	

Note

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	UF4001	UF4002	UF4003	UF4004	UF4005	UF4006	UF4007	UNIT	
Typical thermal resistance	R _{θJA} ⁽¹⁾	60							°C/W	
	R _{θJL} ⁽¹⁾	15								

Note

(1) 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
UF4007-M3/54	0.33	54	5500	13" diameter paper tape and reel
UF4007-M3/73	0.34	73	3000	Ammo pack packaging

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

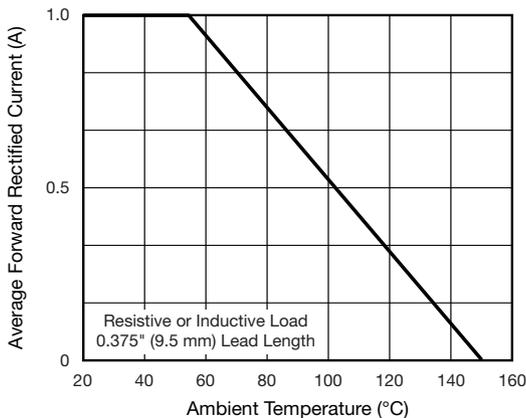


Fig. 1 - Maximum Forward Current Derating Curve

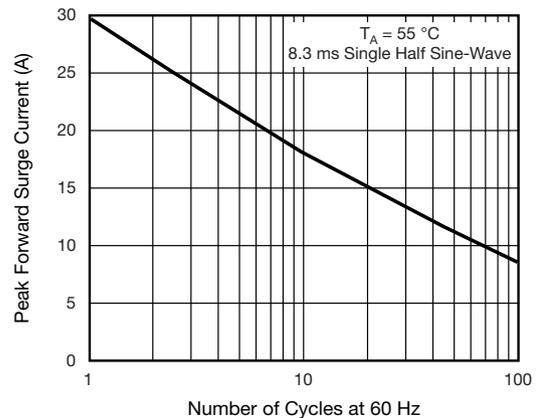


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

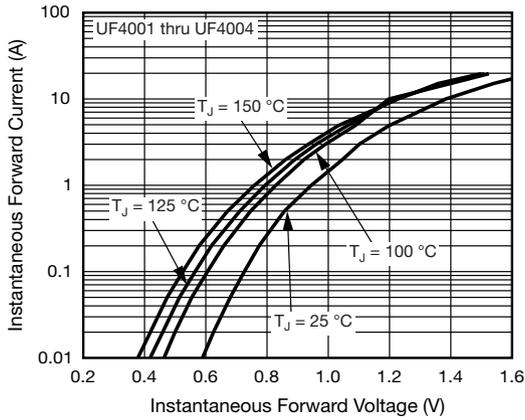


Fig. 3 - Typical Instantaneous Forward Characteristics

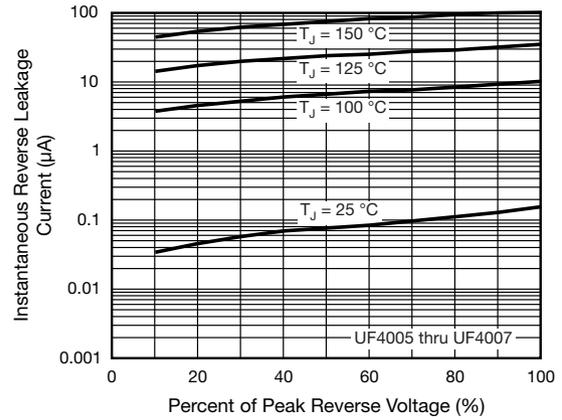


Fig. 6 - Typical Reverse Leakage Characteristics

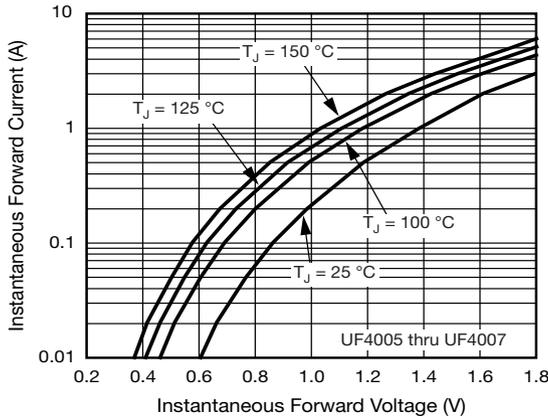


Fig. 4 - Typical Instantaneous Forward Characteristics

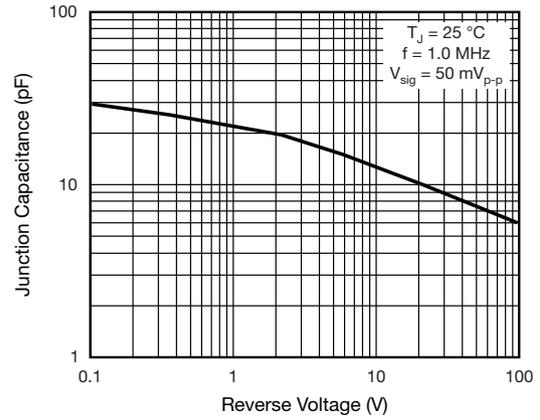


Fig. 7 - Typical Junction Capacitance

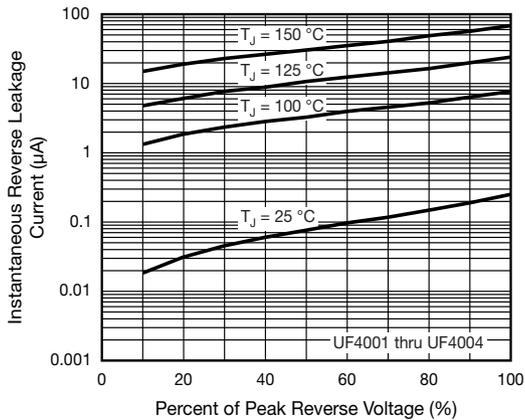
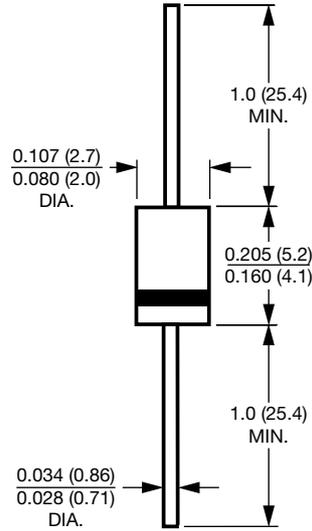


Fig. 5 - Typical Reverse Leakage Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)





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