UF5400, UF5401, UF5402, UF5403, UF5404, UF5405, UF5406, UF5407, UF5408



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Vishay General Semiconductor

# Soft Recovery Ultrafast Plastic Rectifier



PRIMARY CHARACTERISTICS							
I <sub>F(AV)</sub>	3.0 A						
V <sub>RRM</sub>	50 V, 100 V, 200 V, 300 V, 400 V, 500 V, 600 V, 800 V, 1000 V						
I <sub>FSM</sub>	150 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-201AD						
Circuit configuration	Single						

## **FEATURES**

- · Glass passivated pellet 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

### 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-201AD

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

<b>MAXIMUM RATINGS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)											
PARAMETER	SYMBOL	UF5400	UF5401	UF5402	UF5403	UF5404	UF5405	UF5406	UF5407	UF5408	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	300	400	500	600	800	1000	v
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	210	280	350	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	300	400	500	600	800	1000	V
Maximum average forward rectified current, 0.375" (9.5 mm) lead length at $T_A$ = 55 °C	I <sub>F(AV)</sub>		3.0							А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	150							А		
Operating junction and storage temperature range	TJ, T <sub>STG</sub>		-55 to +150								°C



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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)													
PARAMETER	TEST CONDITIONS		SYMBOL	UF5400	UF5400 UF5401 UF5402 UF5403 UF5404				UF5405 UF5406 UF5407 UF540			UF5408	UNIT
Maximum instantaneous forward voltage	3.0 A		V <sub>F</sub> <sup>(1)</sup>	1.0				1.7			v		
Maximum DC reverse current		T <sub>A</sub> = 25 °C		10									
at rated DC blocking voltage		T <sub>A</sub> = 100 °C	IR	I <sub>R</sub> 75				75 200					μA
Maximum reverse recovery time	$I_F = 0.5 A,$ $I_R = 1.0 A,$ $I_{rr} = 0.25 A$	T <sub>J</sub> = 25 °C	t <sub>rr</sub>	50				50 75			5		ns
Typical junction capacitance	4.0 V, 1 M⊦	łz	CJ	45 36				6		pF			

#### Note

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)										
PARAMETER	SYMBOL	YMBOL UF5400 UF5401 UF5402 UF5403 UF5404 UF5405 UF5406 UF5407 UF5408					UNIT			
Typical thermal resistance	Rθ <sub>JA</sub> <sup>(1)</sup>	20								°C/W
rypical merma resistance	Rθ <sub>JL</sub> <sup>(1)</sup>	8.5							0/11	

#### Note

(1) Thermal resistance from junction to lead and from junction to ambient with 0.375" (9.5 mm) lead length, both leads attached to heatsink

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
UF5406-E3/54	1.172	54	1400	13" diameter paper tape and reel					
UF5406-E3/73	1.172	73	1000	Ammo pack packaging					

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

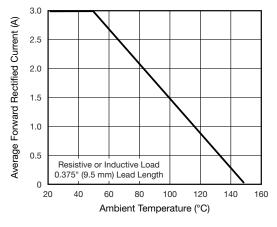


Fig. 1 - Maximum Forward Current Derating Curve

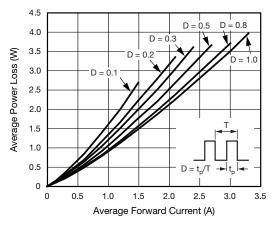


Fig. 2 - Forward Power Loss Characteristics

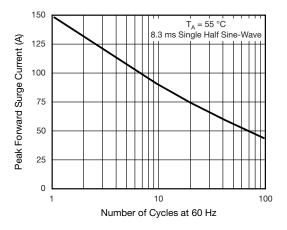
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2

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Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

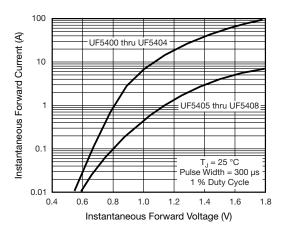
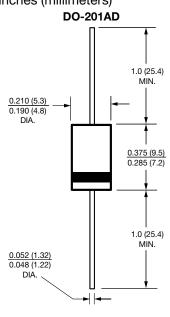


Fig. 4 - Typical Instantaneous Forward Characteristics





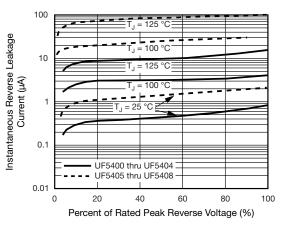


Fig. 5 - Typical Reverse Leakage Characteristics

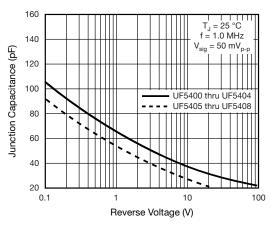


Fig. 6 - Typical Junction Capacitance

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