

## 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							
$V_{RRM}$	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							
$V_{F}$	1.0 V, 1.7 V							
$T_J$ 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 <a href="https://www.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></a>

#### 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

MAXIMUM RATINGS (T <sub>A</sub> = 25 °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	$V_{DC}$	50	100	200	300	400	500	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>		3.0							Α	
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	T <sub>J</sub> , T <sub>STG</sub>		-55 to +150								°C

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)														
PARAMETER	TEST CONDITIONS		SYMBOL	. UF5400 UF5401 UF5402 UF5403 UF5404				UF5405	UF5406	UF5407	UF5408	UNIT		
Maximum instantaneous forward voltage	3.0 A		V <sub>F</sub> <sup>(1)</sup>	1.0				(1) 1.0 1.7						٧
Maximum DC reverse current		T <sub>A</sub> = 25 °C	I_	10									T.,,	
at rated DC blocking voltage		T <sub>A</sub> = 100 °C	I <sub>R</sub>			75				20	00		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				ns		
Typical junction capacitance	4.0 V, 1 MH	łz	CJ	45 36					pF					

#### Note

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

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL UF5400 UF5401 UF5402 UF5403 UF5404 UF5405 UF5406 UF5407 UF5408						UNIT		
Typical thermal resistance	Rθ <sub>JA</sub> <sup>(1)</sup>	20							°C/W
Typical thermal resistance	Rθ <sub>JL</sub> <sup>(1)</sup>	8.5					- C/VV		

#### Note

<sup>(1)</sup> 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)

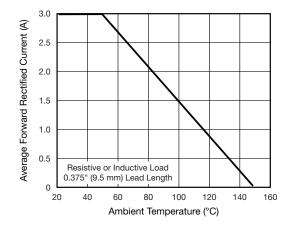


Fig. 1 - Maximum Forward Current Derating Curve

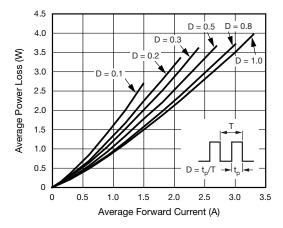


Fig. 2 - Forward Power Loss Characteristics

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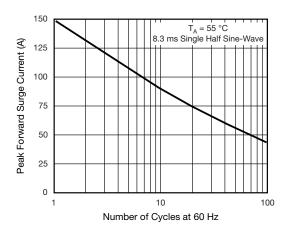


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

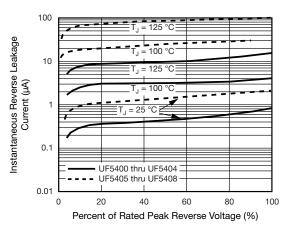


Fig. 5 - Typical Reverse Leakage Characteristics

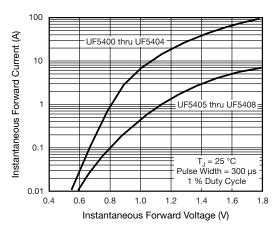


Fig. 4 - Typical Instantaneous Forward Characteristics

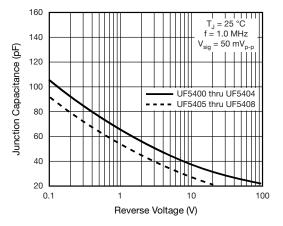
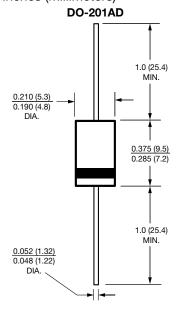


Fig. 6 - Typical Junction Capacitance

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



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