

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

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Vishay General Semiconductor

Soft Recovery Ultrafast Plastic Rectifier



PRIMARY CHARACTERISTICS							
I _{F(AV)}	3.0 A						
V _{RRM}	50 V, 100 V, 200 V, 300 V, 400 V, 500 V, 600 V, 800 V, 1000 V						
I _{FSM}	150 A						
t _{rr}	50 ns, 75 ns						
V_{F}	1.0 V, 1.7 V						
T _J max.	150 °C						
Package	DO-201AD						
Diode variations	Single die						

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 <u>www.vishav.com/doc?99912</u>

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 _A = 25 °C unless otherwise noted)											
PARAMETER	SYMBOL	UF5400	UF5401	UF5402	UF5403	UF5404	UF5405	UF5406	UF5407	UF5408	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, 0.375" (9.5 mm) lead length at T _A = 55 °C	I _{F(AV)}		3.0								А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}		150							А	
Operating junction and storage temperature range	T _J , T _{STG}		-55 to +150								°C

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)													
PARAMETER	TEST CONDITIONS		SYMBOL	UF5400	JF5400 UF5401 UF5402 UF5403 UF5404				UF5405	UF5406	UF5407	UF5408	UNIT
Maximum instantaneous forward voltage	3.0 A		V _F ⁽¹⁾	1.0				V _F ⁽¹⁾ 1.0 1.7					٧
Maximum DC reverse current		T _A = 25 °C	I_	10									
at rated DC blocking voltage		T _A = 100 °C	75 200			I _R 75				00		μA	
Maximum reverse recovery time	$I_F = 0.5 A,$ $I_R = 1.0 A,$ $I_{rr} = 0.25 A$	T _J = 25 °C	t _{rr}	50				50 75		5		ns	
Typical junction capacitance	4.0 V, 1 MH	łz	CJ	45 36					pF				

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)											
PARAMETER	SYMBOL	UF5400	UF5401	UF5402	UF5403	UF5404	UF5405	UF5406	UF5407	UF5408	UNIT
Typical thermal resistance	Rθ _{JA} ⁽¹⁾	20							°C/W		
Typical thermal resistance	Rθ _{JL} ⁽¹⁾	8.5						C/VV			

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_A = 25 °C unless otherwise noted)

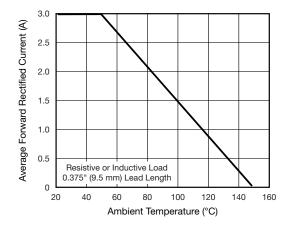


Fig. 1 - Maximum Forward Current Derating Curve

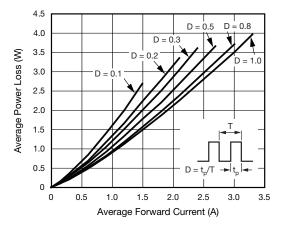


Fig. 2 - Forward Power Loss Characteristics



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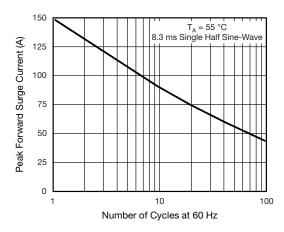


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

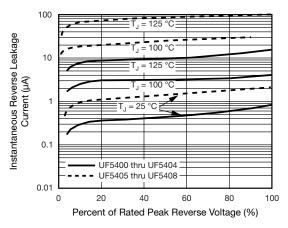


Fig. 5 - Typical Reverse Leakage Characteristics

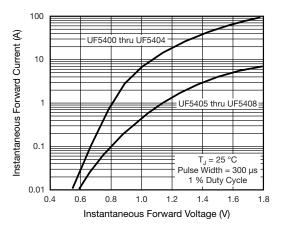


Fig. 4 - Typical Instantaneous Forward Characteristics

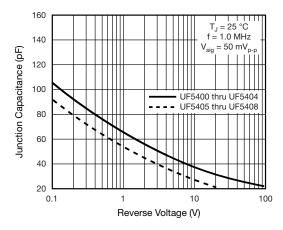
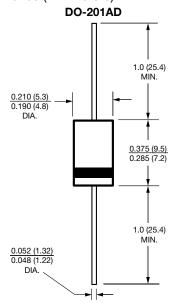


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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