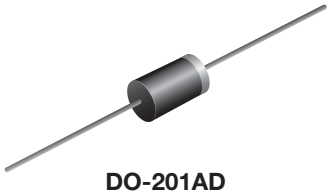
Soft Recovery Ultrafast Plastic Rectifier



DO-201AD

FEATURES

- Glass passivated pallet 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

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

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

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									A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150									A
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**	**UF5401**	**UF5402**	**UF5403**	**UF5404**	**UF5405**	**UF5406**	**UF5407**	**UF5408**	**UNIT**
Maximum instantaneous forward voltage	3.0 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		75					200				
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					75				ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	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	$R\theta_{JA}$ (1)	20									°C/W
	$R\theta_{JL}$ (1)	8.5									

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)

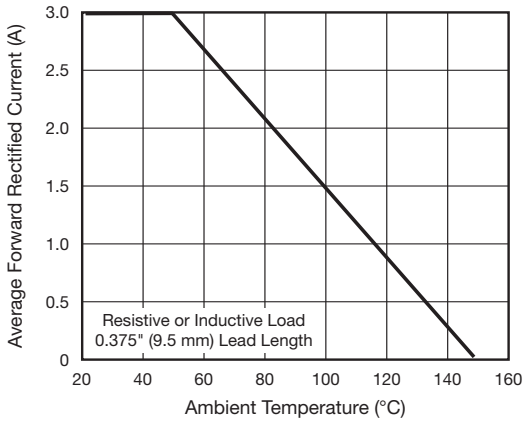

Fig. 1 - Maximum Forward Current Derating Curve

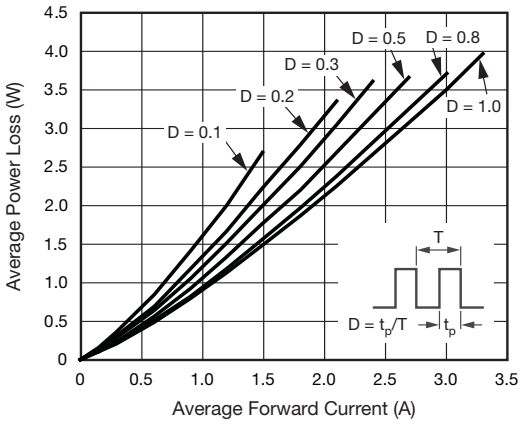

Fig. 2 - Forward Power Loss Characteristics

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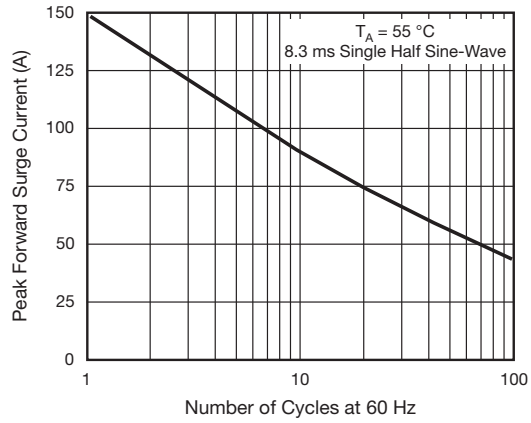


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

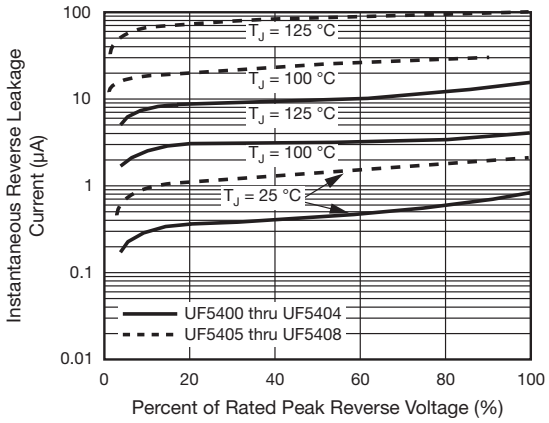


Fig. 5 - Typical Reverse Leakage Characteristics

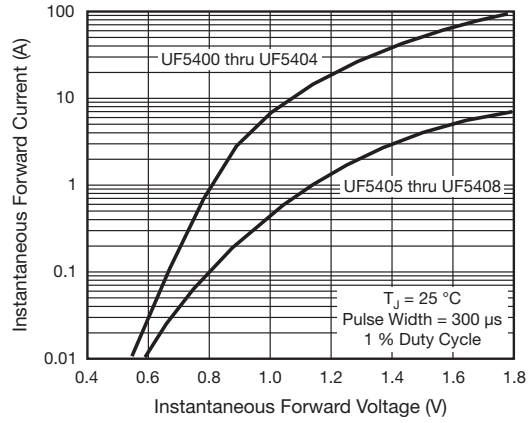


Fig. 4 - Typical Instantaneous Forward Characteristics

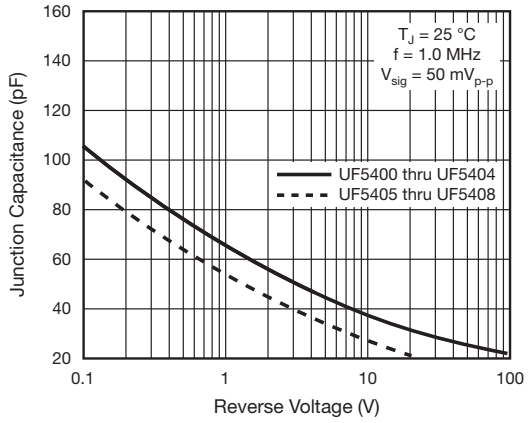
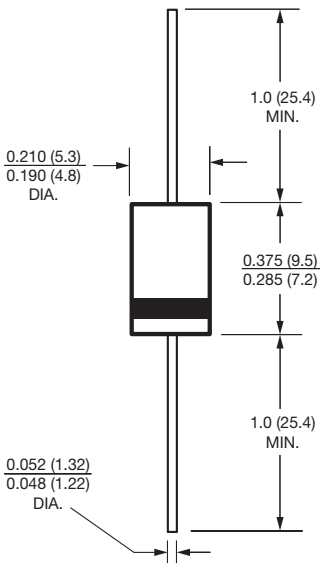


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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