

Soft Recovery Ultrafast Plastic Rectifier


DO-201AD

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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


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 to 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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	UF5400	UF5401	UF5402	UF5403	UF5404	UF5405	UF5406	UF5407	UF5408	UNIT
Maximum repetitive peak reverse voltage	V_{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 $T_A = 55\text{ °C}$	$I_{F(AV)}$	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

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 _{θJA} ⁽¹⁾	20									°C/W
	R _{θJL} ⁽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

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

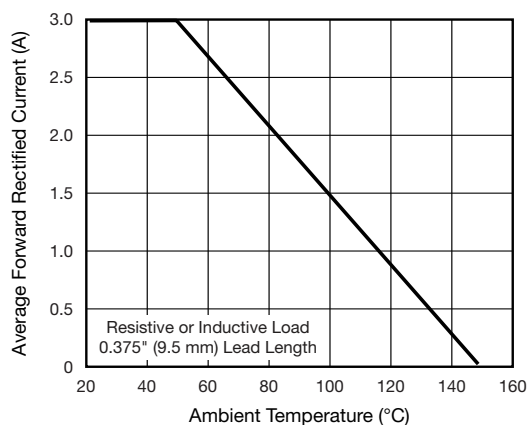


Fig. 1 - Maximum Forward Current Derating Curve

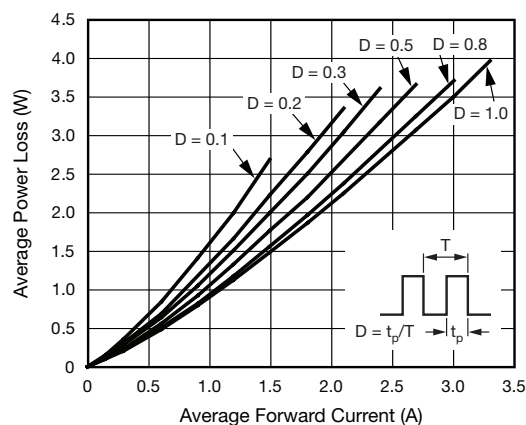


Fig. 2 - Forward Power Loss Characteristics

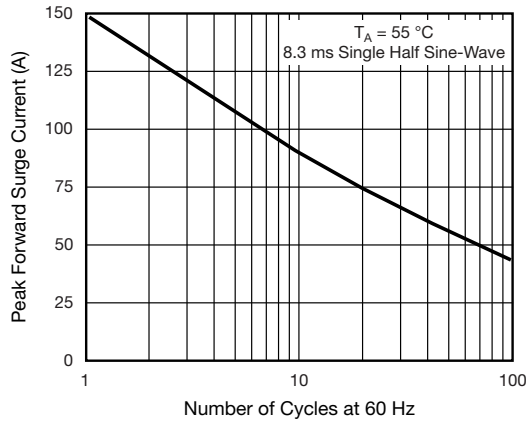


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

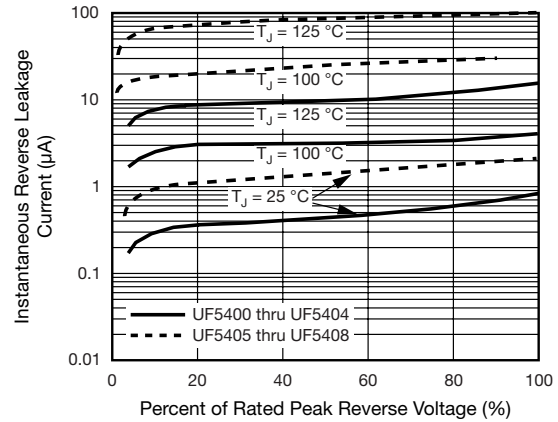


Fig. 5 - Typical Reverse Leakage Characteristics

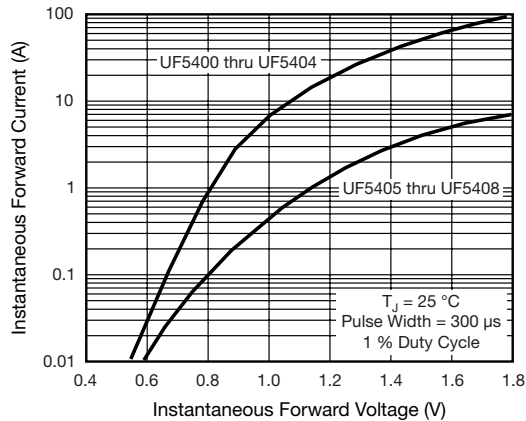


Fig. 4 - Typical Instantaneous Forward Characteristics

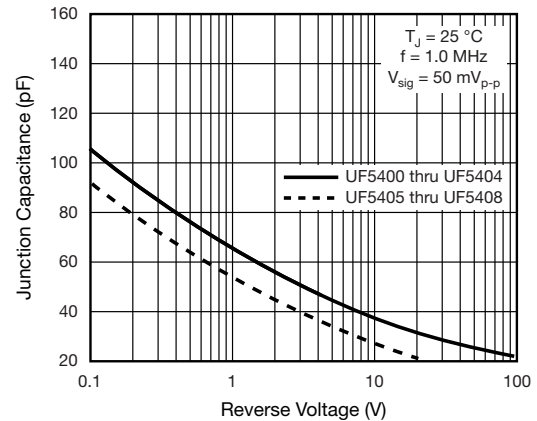
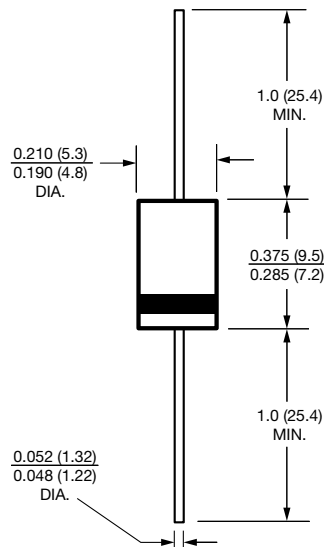


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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