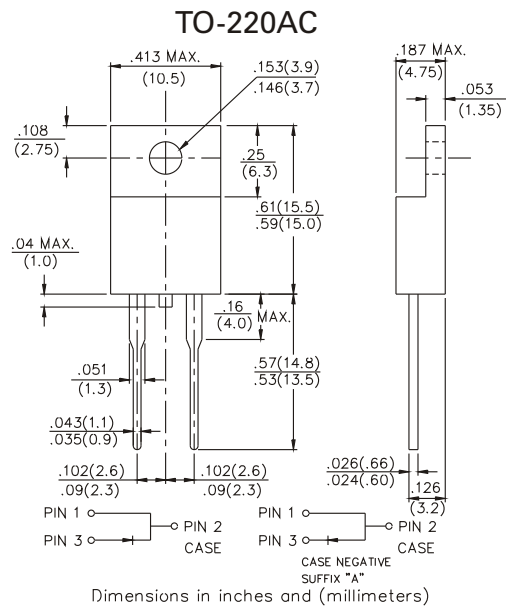
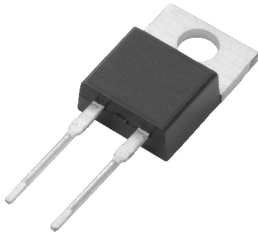


# UF505 thru UF506

SURFACE MOUNT REVERSE VOLTAGE 500 TO 600 VOL TS

ULTRA FAST RECTIFIERS FORWARD CURRENT - 5.0 AMPERES



## FEATURES

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for freewheeling diode and power factor correction applications
- Soft recovery characteristics
- Excellent high temperature switching
- Optimized to reduce switching losses
- Glass passivated chip junction

## MECHANICAL DATA

**Case:** JEDEC TO-220AC, molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026  
High temperature soldering in accordance with CECC 802 / Reflow guaranteed

**Polarity:** As marked

**Mounting Position:** Any

**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 oz., 2.24 g

## MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	UF505	UF506	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	500	600	V
Maximum working reverse voltage	V <sub>RWM</sub>	400	480	V
Maximum RMS voltage	V <sub>RMS</sub>	350	420	V
Maximum DC blocking voltage	V <sub>DC</sub>	500	600	V
Maximum average forward rectified current	I <sub>F(AV)</sub>		5.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T <sub>C</sub> = 100°C	I <sub>FSM</sub>		65	A
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>		-55 to +150	°C
RMS Isolation voltage (UGF types only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V <sub>ISOL</sub>		4500 <sup>(1)</sup> 3500 <sup>(2)</sup> 1500 <sup>(3)</sup>	V

# UF505 thru UF506

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ULTRA FAST RECTIFIERS FORWARD CURRENT - 5.0 AMPERES



## ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	UF505	UF506	Unit
Maximum instantaneous forward voltage <sup>(4)</sup>	I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C I <sub>F</sub> = 5A, T <sub>J</sub> = 125°C	V <sub>F</sub>	1.75 1.50	V
Maximum DC reverse current at V <sub>RWM</sub>	T <sub>J</sub> = 25°C T <sub>J</sub> = 100°C T <sub>J</sub> = 125°C	I <sub>R</sub>	30 800 4.0	μA μA mA
Maximum reverse recovery time at I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A	t <sub>rr</sub>		25	ns
Maximum reverse recovery time at I <sub>F</sub> = 1.0A, di/dt = 50A/μs, V <sub>R</sub> = 30V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>	t <sub>rr</sub>		50	ns
Typical softness factor (t <sub>b</sub> /t <sub>a</sub> ) I <sub>F</sub> = 5.0A, di/dt = 240A/μs, V <sub>R</sub> = 400V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>	S		0.9	—
Maximum reverse recovery current at I <sub>F</sub> = 5.0A, di/dt = 40A/μs, V <sub>R</sub> = 400V, T <sub>C</sub> = 125°C	I <sub>RM</sub>		3.0	A
Maximum reverse recovery current at I <sub>F</sub> = 5.0A, di/dt = 240A/μs, V <sub>R</sub> = 400V, T <sub>C</sub> = 125°C	I <sub>RM</sub>		9.0	A
Peak forward recovery time at I <sub>F</sub> = 5.0A, di/dt = 64A/μs, V <sub>F</sub> = 1.1V <sub>F max</sub>	t <sub>fr</sub>		500	ns



## THERMAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	TO220AC	Unit
Typical thermal resistance from junction to case	R <sub>θJC</sub>	3.0	°C/W

Notes: (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset  
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")

(2) Clip mounting (on case), where leads do overlap heatsink  
(4) Pulse test: 300μs pulse width, 1% duty cycle

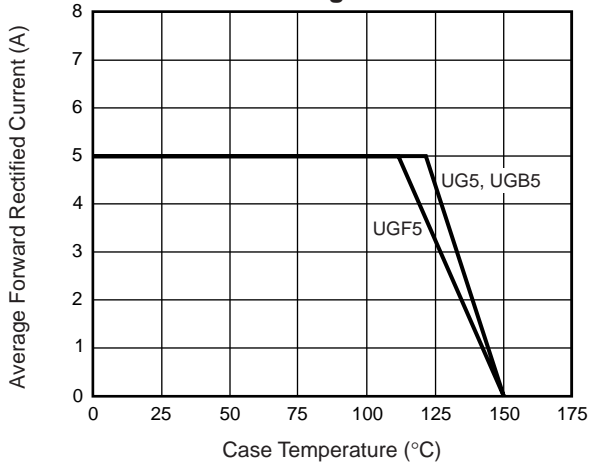
# UF505 thru UF506

SURFACE MOUNT REVERSE VOLTAGE 500 TO 600 VOL TS

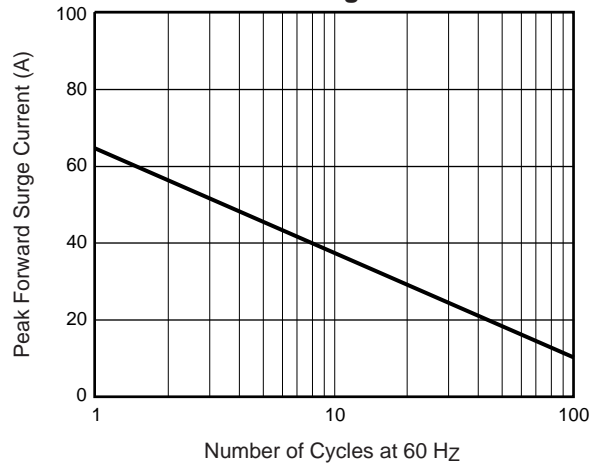
ULTRA FAST RECTIFIERS FORWARD CURRENT - 5.0 AMPERES

## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

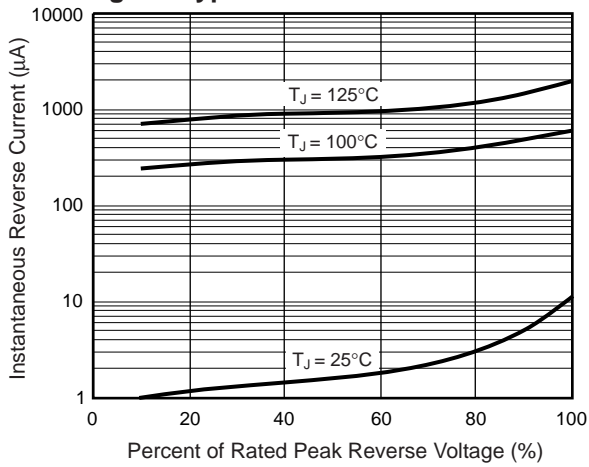
**Fig. 1 – Forward Current Derating Curve**



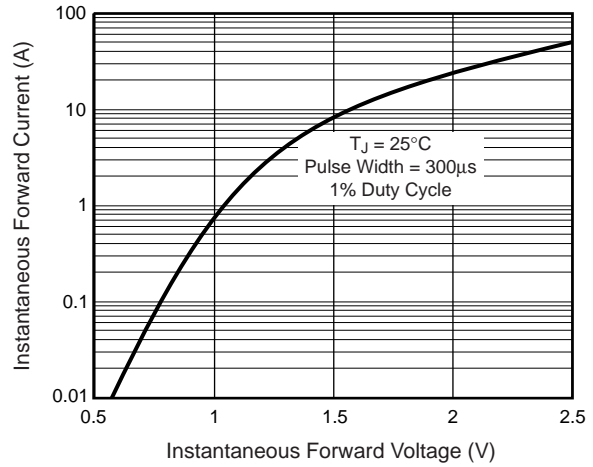
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



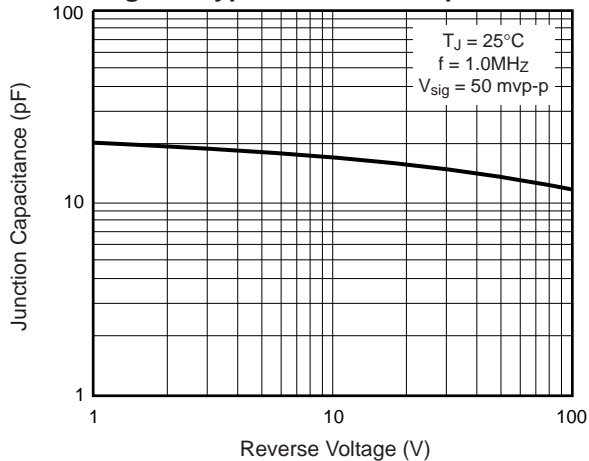
**Fig. 3 – Typical Reverse Characteristics**



**Fig. 4 – Typical Instantaneous Forward Characteristics**



**Fig. 5 – Typical Junction Capacitance**



**Fig. 6 – Reverse Switching Characteristics**

