



# FFPF20UP30DN

## Features

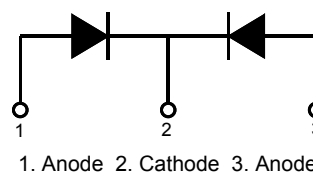
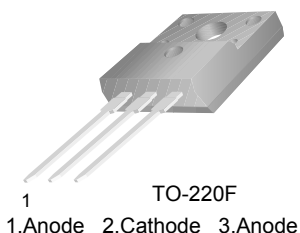
- Ultrafast Recovery  $t_{rr} = 45 \text{ ns}$  (@  $I_F = 10 \text{ A}$ )
- Max Forward Voltage,  $V_F = 1.3 \text{ V}$  (@  $T_C = 25^\circ\text{C}$ )
- Reverse Voltage,  $V_{RRM} = 300 \text{ V}$
- Avalanche Energy Rated
- RoHS Compliant

## 20 A, 300 V, Ultrafast Dual Diode

The FFPF20UP30DN is an ultrafast dual diode with low forward voltage drop and rugged UIS capability. This device is intended for use as freewheeling and clamping diodes in a variety of switching power supplies and other power switching applications. It is specially suited for use in switching power supplies and industrial applications as welder and UPS application.

## Applications

- General Purpose
- Switching Mode Power Supply
- Free-Wheeling Diode for Motor Application
- Power Switching Circuits



## Absolute Maximum Ratings (per diode) $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Unit
$V_{RRM}$	Peak Repetitive Reverse Voltage	300	V
$V_{RWM}$	Working Peak Reverse Voltage	300	V
$V_R$	DC Blocking Voltage	300	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 125^\circ\text{C}$	10	A
$I_{FSM}$	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	100	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	- 65 to +150	$^\circ\text{C}$

## Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	4.0	$^\circ\text{C}/\text{W}$

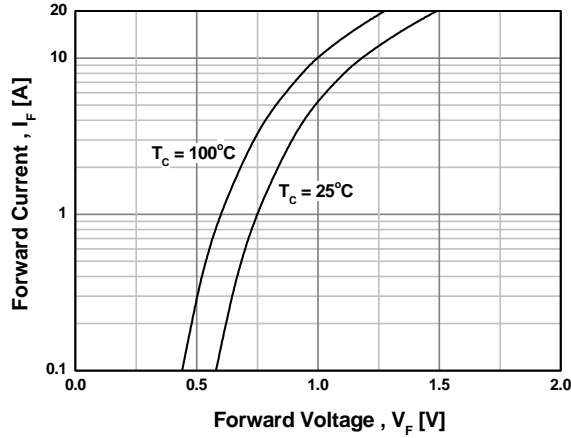
**Electrical Characteristics** (per diode)  $T_a = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit	
$V_F$ *	$I_F = 10\text{ A}$	-	-	1.3	V	
	$I_F = 10\text{ A}$	-	-	1.2	V	
$I_R$ *	$V_R = 300\text{ V}$	-	-	100	$\mu\text{A}$	
	$V_R = 300\text{ V}$	-	-	500	$\mu\text{A}$	
$t_{rr}$	$I_F = 1\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , $V_{CC} = 30\text{ V}$	-	-	35	ns	
	$I_F = 10\text{ A}$ , $di/dt = 200\text{ A}/\mu\text{s}$ , $V_{CC} = 195\text{ V}$	-	-	45	ns	
$t_a$ $t_b$ $Q_{rr}$	$I_F = 10\text{ A}$ , $di/dt = 200\text{ A}/\mu\text{s}$ , $V_{CC} = 195\text{ V}$	$T_C = 25^\circ\text{C}$	-	11	-	ns
		$T_C = 25^\circ\text{C}$	-	13	-	ns
		$T_C = 25^\circ\text{C}$	-	20	-	nC
$W_{AVL}$	Avalanche Energy (L = 20 mH)	20	-	-	mJ	

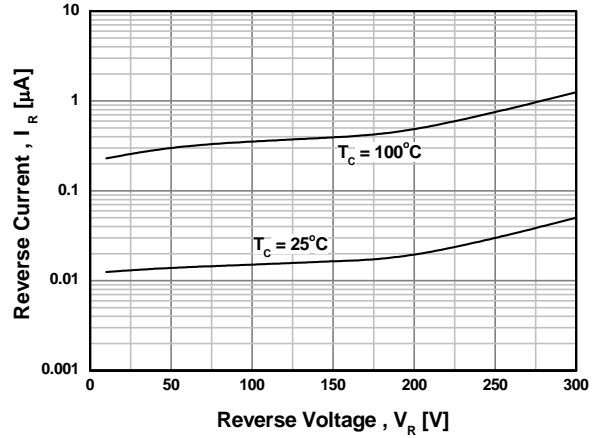
\*Pulse Test: Pulse Width=300  $\mu\text{s}$ , Duty Cycle=2%

## Typical Performance Characteristics

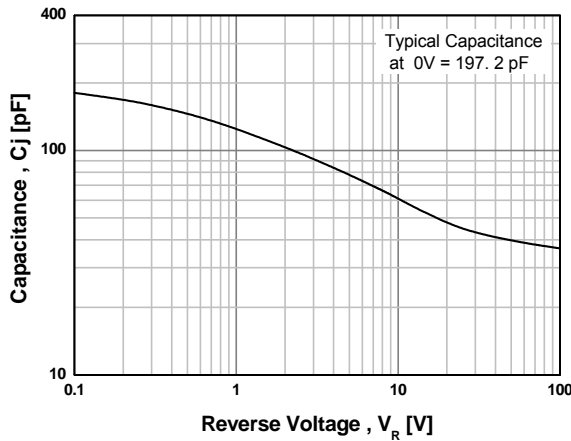
**Figure 1. Typical Forward Voltage Drop**



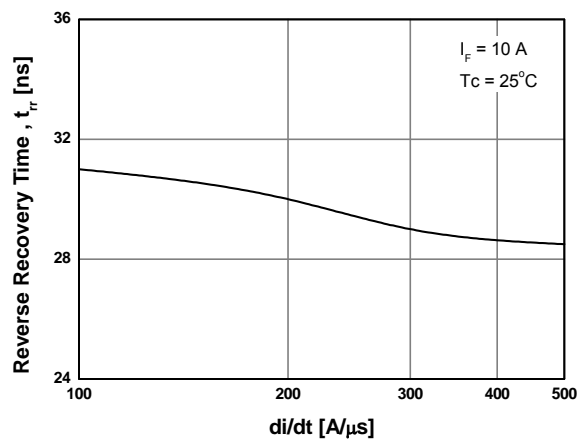
**Figure 2. Typical Reverse Current**



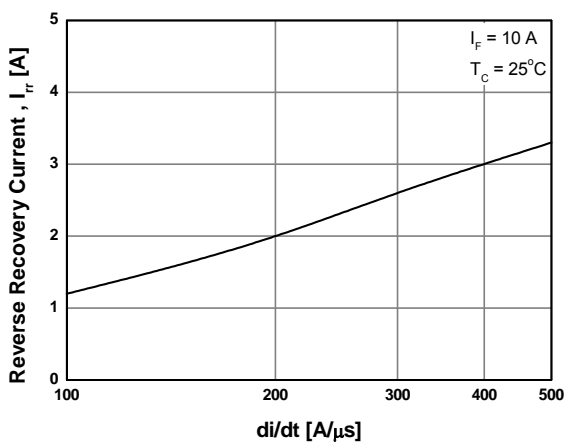
**Figure 3. Typical Junction Capacitance**



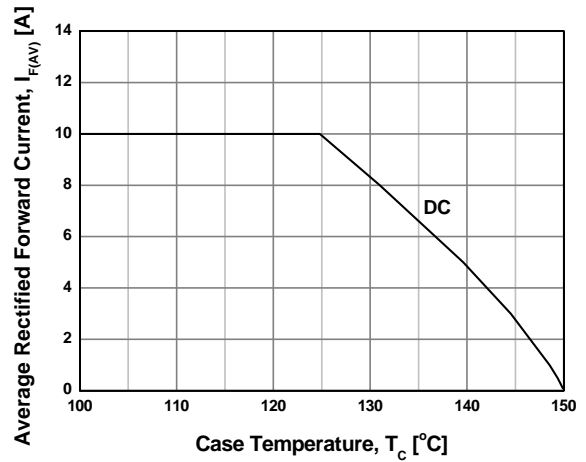
**Figure 4. Typical Reverse Recovery Time**



**Figure 5. Typical Reverse Recovery Current**



**Figure 6. Forward Current Deration Curve**












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