

# FFPF20UP30DN

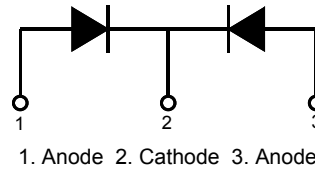
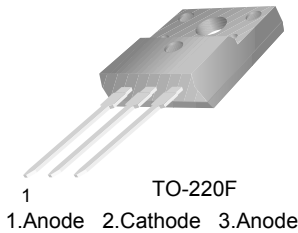
## Ultrafast Recovery Power Rectifier

### Features

- Ultrafast with Soft Recovery : < 45ns
- High Reverse Voltage :  $V_{RRM} = 300V$
- Avalanche Energy Rated
- Planar Construction

### 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	Units
$V_{RRM}$	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	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	4.0	$^\circ\text{C/W}$

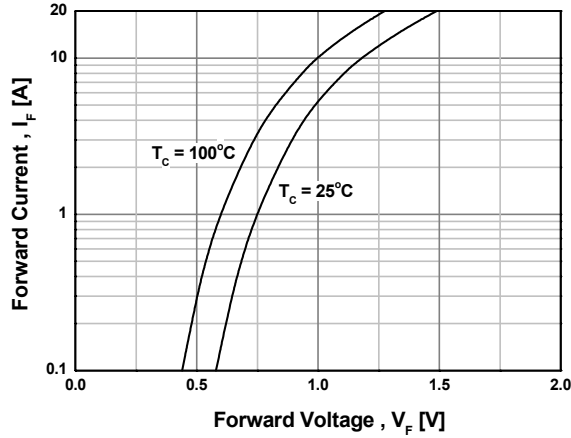
**Electrical Characteristics** (per diode)  $T_a = 25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Units	
$V_{FM}^*$	$I_F = 10\text{A}$ $I_F = 10\text{A}$	$T_C = 25^\circ\text{C}$	-	-	1.4	V
		$T_C = 150^\circ\text{C}$	-	-	1.2	V
$I_{RM}^*$	$V_R = 300\text{V}$ $V_R = 300\text{V}$	$T_C = 25^\circ\text{C}$	-	-	100	$\mu\text{A}$
		$T_C = 150^\circ\text{C}$	-	-	500	$\mu\text{A}$
$t_{rr}$	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$ $I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 195\text{V}$	$T_C = 25^\circ\text{C}$	-	-	35	ns
		$T_C = 25^\circ\text{C}$	-	-	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 = 20mH)	20	-	-	mJ	

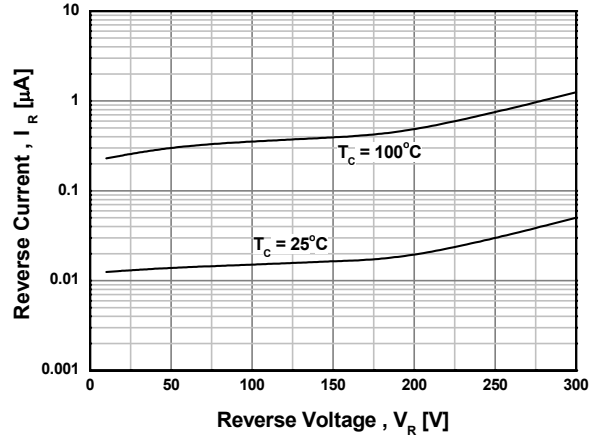
\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

## Typical Performance Characteristics

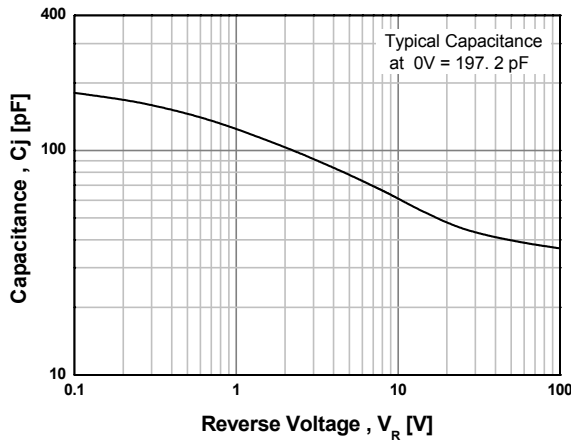
**Figure 1. Typical Forward Voltage Drop**



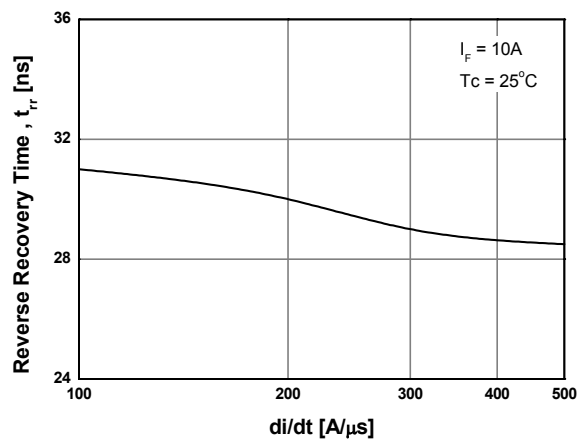
**Figure 2. Typical Reverse Current**



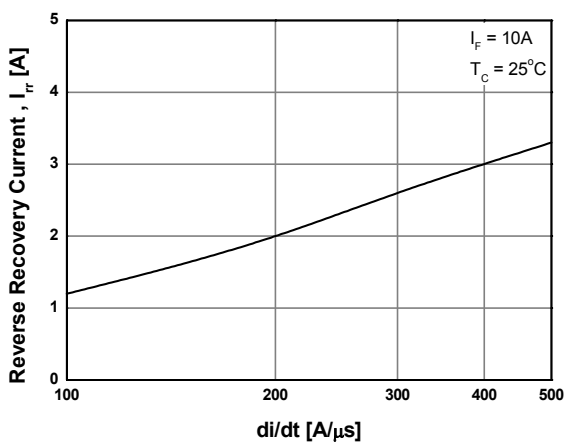
**Figure 3. Typical Junction Capacitance**



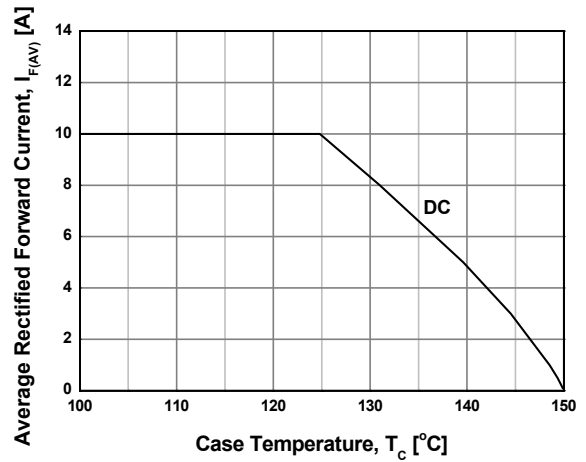
**Figure 4. Typical Reverse Recovery Time**



**Figure 5. Typical Reverse Recovery Current**

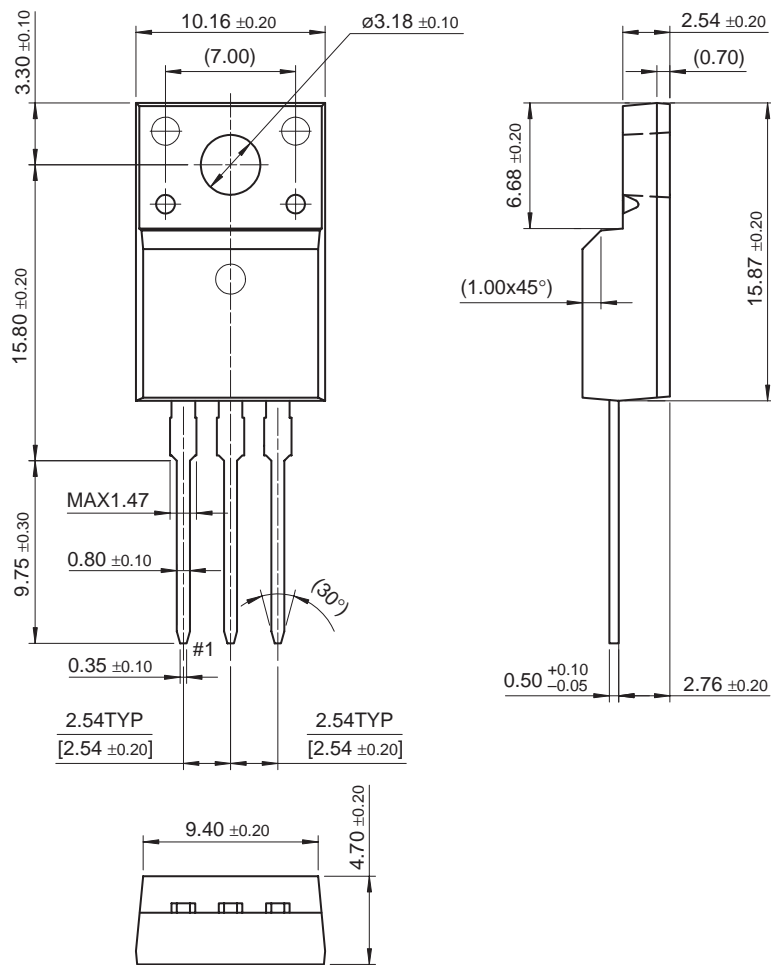


**Figure 6. Forward Current Deration Curve**



# Package Demensions

## TO-220F



Dimensions in Millimeters

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CROSSVOLT™	GTO™	MICROWIRE™	Quiet Series™	UHC™
DOME™	HiSeC™	MSX™	RapidConfigure™	UltraFET®
EcoSPARK™	I <sup>2</sup> C™	MSXPro™	RapidConnect™	UniFET™
E <sup>2</sup> C MOS™	i-Lo™	OCX™	μSerDes™	VCX™
EnSigna™	ImpliedDisconnect™	OCXPro™	SILENT SWITCHER®	Wire™
FACT™	IntelliMAX™	OPTOLOGIC®	SMART START™	
FACT Quiet Series™		OPTOPLANAR™	SPM™	
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Programmable Active Droop™		Power247™	SuperSOT™-3	
		PowerEdge™	SuperSOT™-6	

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