

# FFPF10UP20S

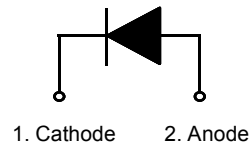
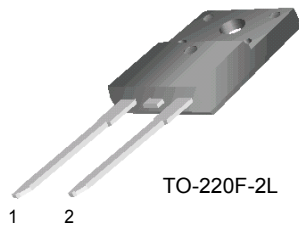
## Ultrafast Rectifier

### Features

- Ultrafast with soft recovery  
(@  $I_F = 1A$ ), < 35ns
- Reverse Voltage, 200V
- Forward Voltage (@  $T_C = 100^\circ C$ ), < 1.1V
- Enhanced Avalanche Energy

### Applications

- Power switching circuits
- Output rectifiers
- Freewheeling diodes
- Switching mode power supply



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

Symbol	Parameter	Value	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	200	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100^\circ C$	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	$^\circ C$

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

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	4.3	$^\circ C/W$

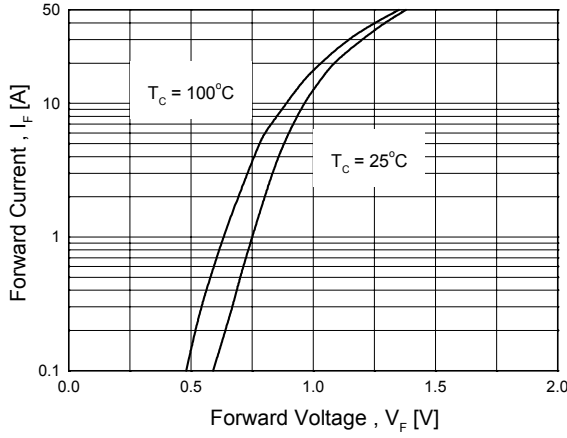
## Electrical Characteristics (per diode) $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Units
$V_{FM}^*$	Maximum Instantaneous Forward Voltage $I_F = 10\text{A}$ $I_F = 10\text{A}$	- -	- -	1.15 1.10	V
$I_{RM}^*$	Maximum Instantaneous Reverse Current @ rated $V_R$	- -	- -	100 500	$\mu\text{A}$
$t_{rr}$ $I_{rr}$ $Q_{rr}$	Reverse Recovery Time Reverse Recovery Current Reverse Recovery Charge ( $I_F = 6\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ )	- - -	32 1.65 24.4	- - -	ns A nC
$t_{rr}$	Maximum Reverse Recovery Time ( $I_F = 1\text{A}$ , $di/dt = 100\text{A}/\mu\text{s}$ )	-	-	35	ns
$W_{AVL}$	Avalanche Energy ( $L=40\text{mH}$ )	5	-	-	mJ

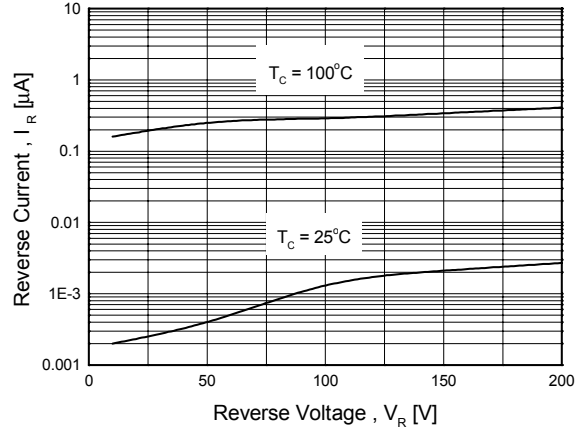
\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

### Typical Performance Characteristics

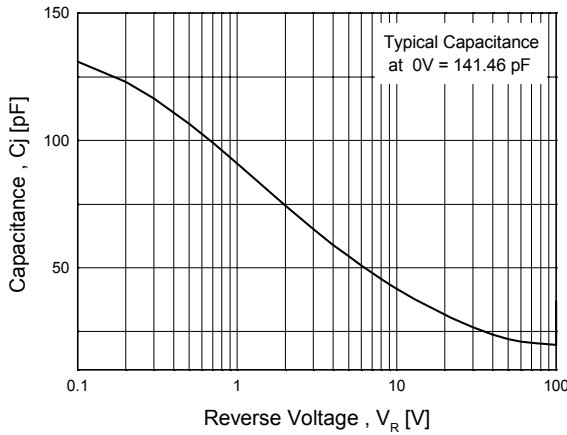
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



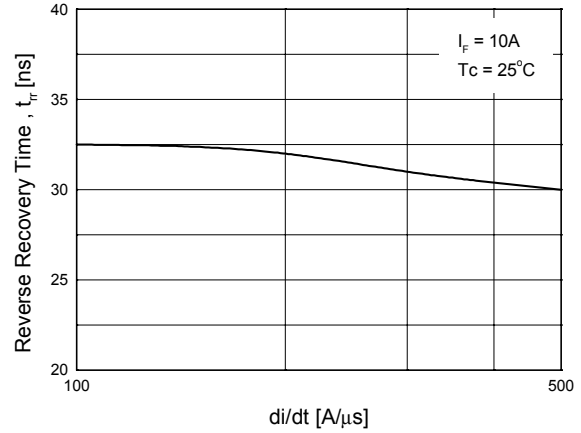
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



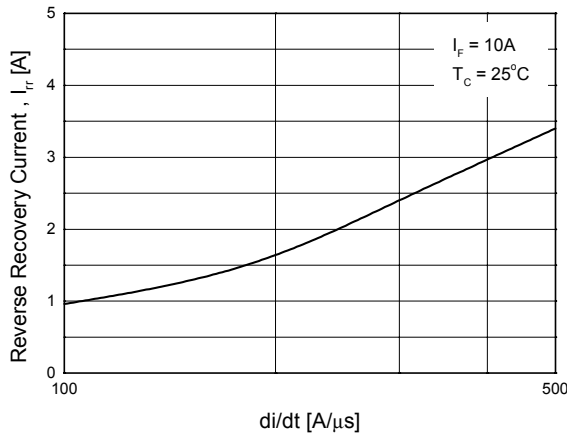
**Figure 3. Typical Junction Capacitance**



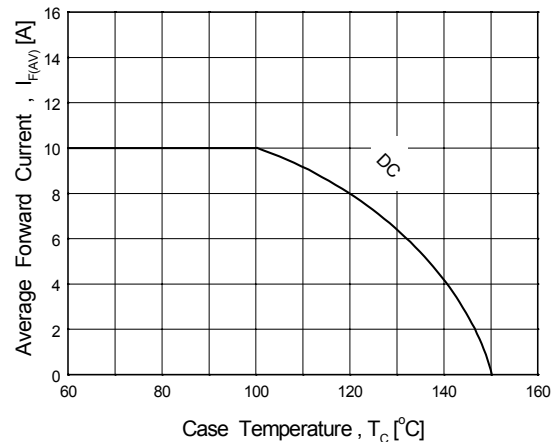
**Figure 4. Typical Reverse Recovery Time vs. di/dt**



**Figure 5. Typical Reverse Recovery Current vs. di/dt**

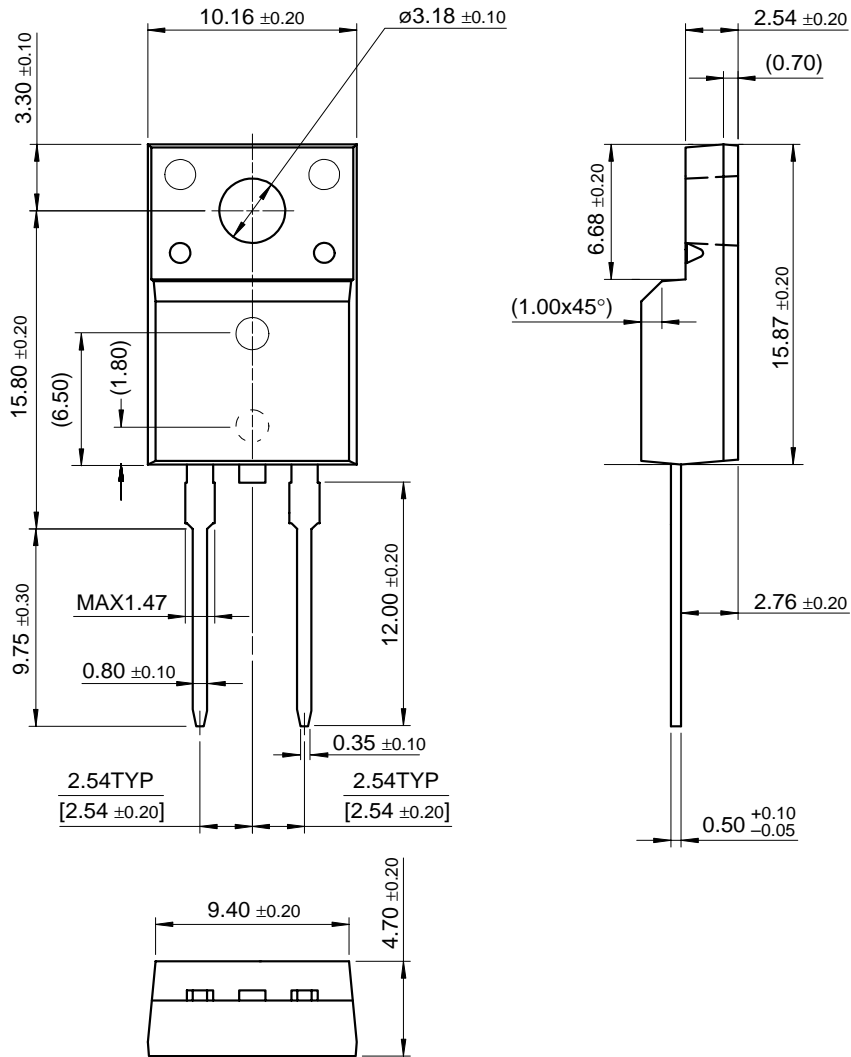


**Figure 6. Forward Current Derating Curve**



Mechanical Dimensions

TO-220F-2L



Dimensions in Millimeters

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