

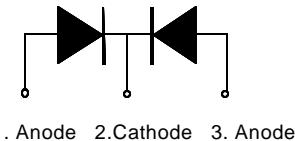
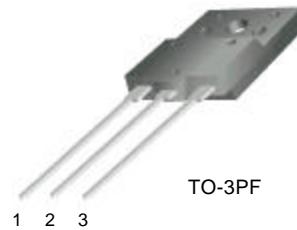
# FFAF20U120DN

## Features

- High voltage and high reliability
- High speed switching
- Low forward voltage

## Applications

- General purpose
- Switching mode power supply
- Free-wheeling diode for motor application
- Power switching circuits



1. Anode 2. Cathode 3. Anode

## ULTRA FAST RECOVERY POWER RECTIFIER

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

Symbol	Parameter	Value	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	1200	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$	20	A
$I_{FSM}$	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	120	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	- 65 to +150	°C

## Thermal Characteristics

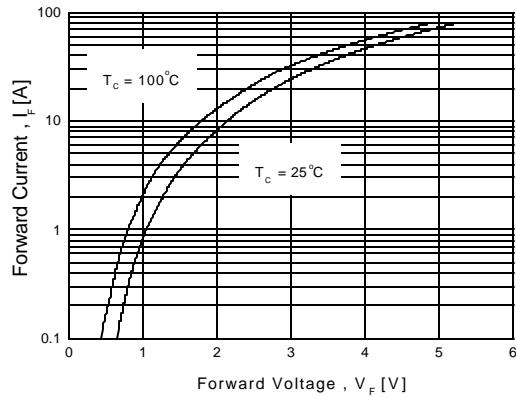
Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.84	°C/W

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

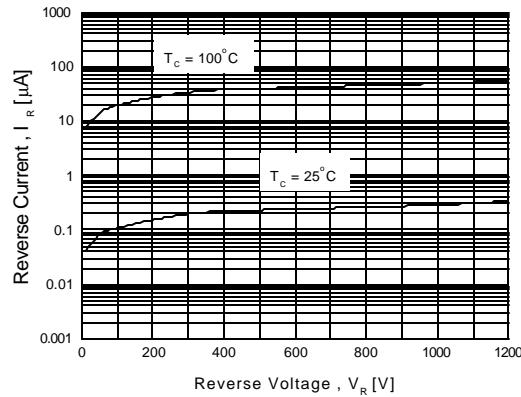
Symbol	Parameter	Min.	Typ.	Max.	Units	
$V_{FM}$ *	Maximum Instantaneous Forward Voltage $I_F = 20\text{A}$ $I_F = 20\text{A}$	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	- -	- -	3.5 3.2	V
$I_{RM}$ *	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	- -	- -	20 1.2	$\mu\text{A}$ mA
$t_{rr}$ $I_{rr}$ $Q_{rr}$	Maximum Reverse Recovery Time Maximum Reverse Recovery Current Maximum Reverse Recovery Charge ( $I_F = 20\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ )	- - -	- - -	120 10 500	ns A nC	
$W_{AVL}$	Avalanche Energy	1.0	-	-	mJ	

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

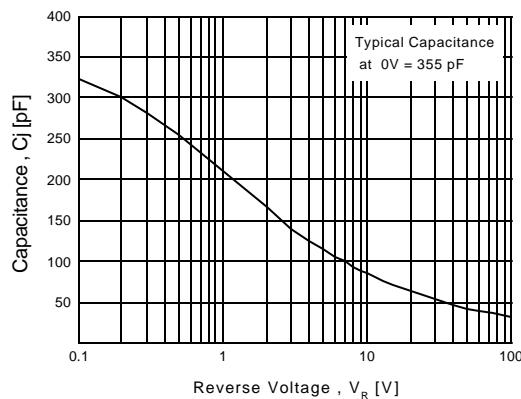
## Typical Characteristics



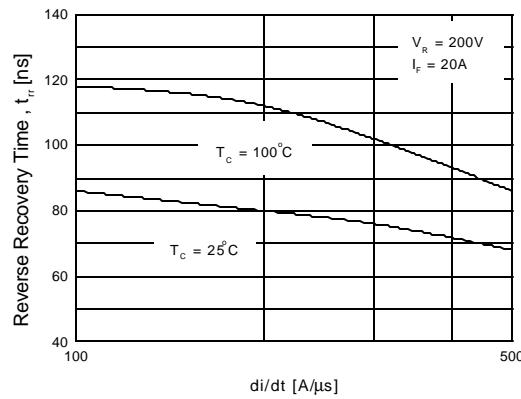
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



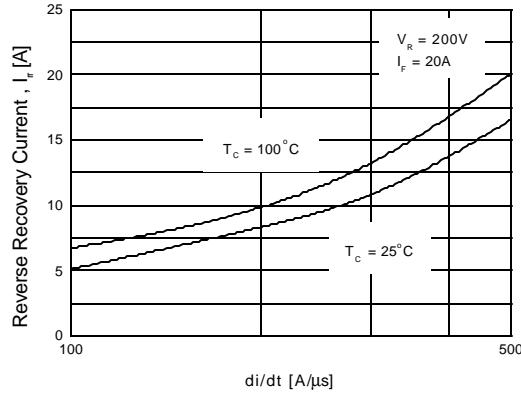
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



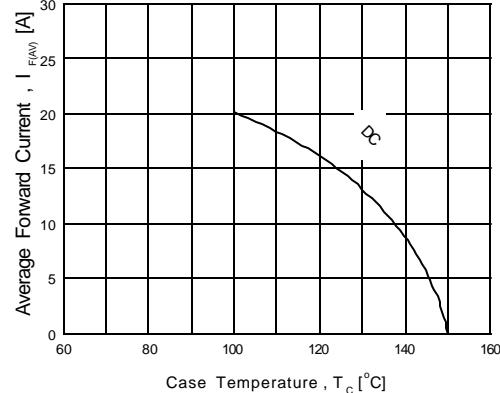
**Figure 3. Typical Junction Capacitance**



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



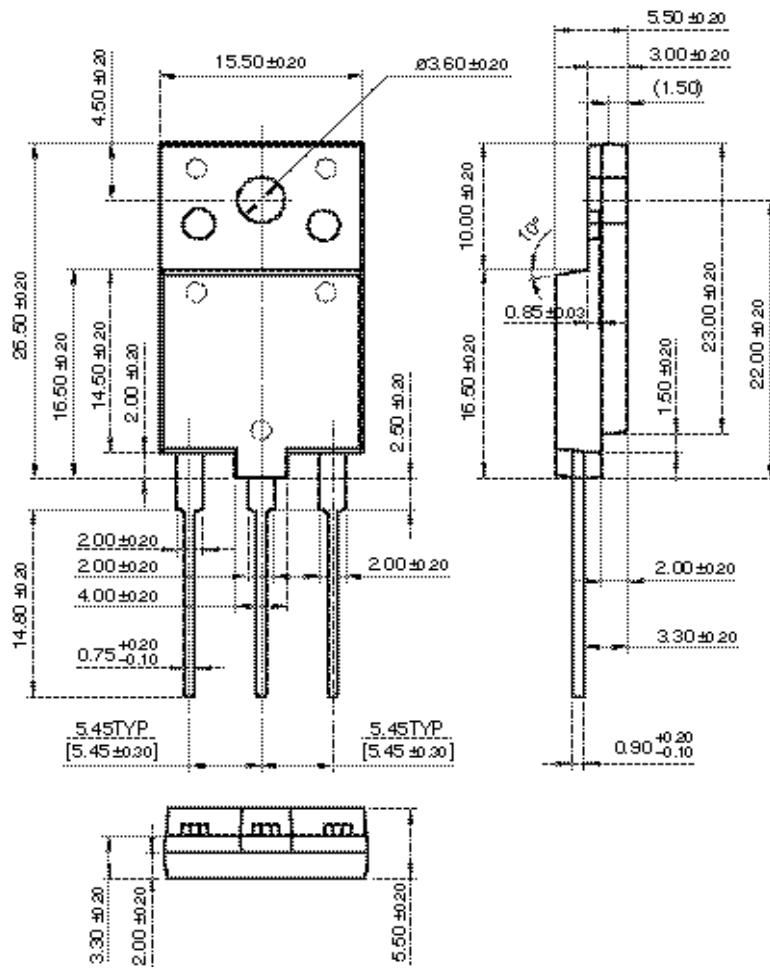
**Figure 5. Typical Reverse Recovery Current vs.  $di/dt$**



**Figure 6. Forward Current Derating Curve**

## Package Dimensions

## TO-3PF



Dimensions in Millimeters

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