

FFPF10UP30S

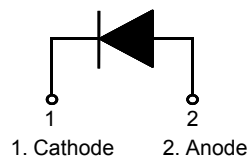
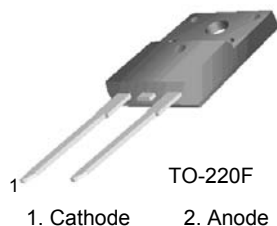
Ultrafast Recovery Power Rectifier

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}^*	$I_F = 10\text{A}$	$T_C = 25^\circ\text{C}$	-	-	1.4	V
	$I_F = 10\text{A}$	$T_C = 150^\circ\text{C}$	-	-	1.2	V
I_{RM}^*	$V_R = 300\text{V}$	$T_C = 25^\circ\text{C}$	-	-	100	μA
	$V_R = 300\text{V}$	$T_C = 150^\circ\text{C}$	-	-	500	μA
t_{rr}	$I_F = 1\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$, $V_{CC} = 30\text{V}$	$T_C = 25^\circ\text{C}$	-	-	35	ns
	$I_F = 10\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$, $V_{CC} = 195\text{V}$	$T_C = 25^\circ\text{C}$	-	-	45	ns
t_a	$I_F = 10\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$, $V_{CC} = 195\text{V}$	$T_C = 25^\circ\text{C}$	-	11	-	ns
t_b		$T_C = 25^\circ\text{C}$	-	13	-	ns
Q_{rr}		$T_C = 25^\circ\text{C}$	-	20	-	nC
W_{AVL}	Avalanche Energy ($L = 20\text{mH}$)		20	-	-	mJ

* Pulse Test: Pulse Width=300 μs , Duty Cycle=2%

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

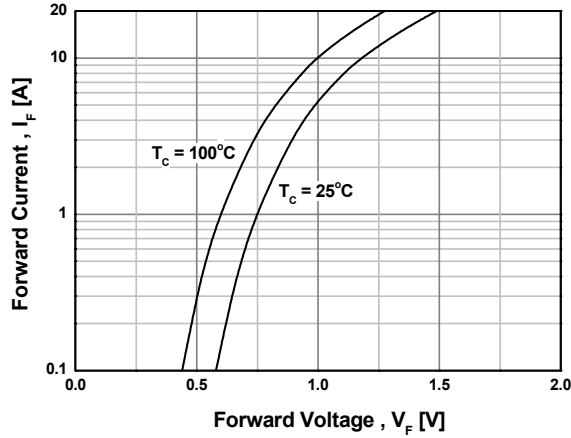


Figure 2. Typical Reverse Current

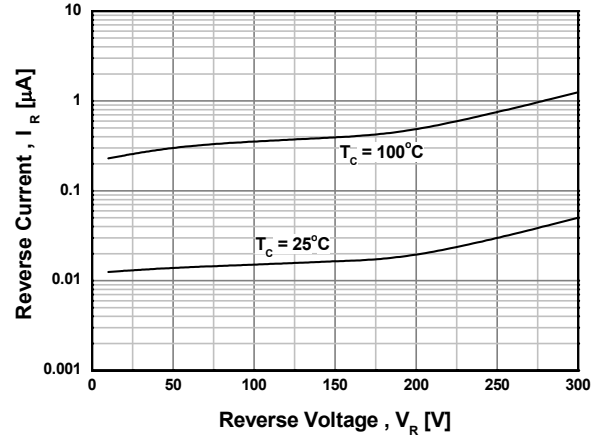


Figure 3. Typical Junction Capacitance

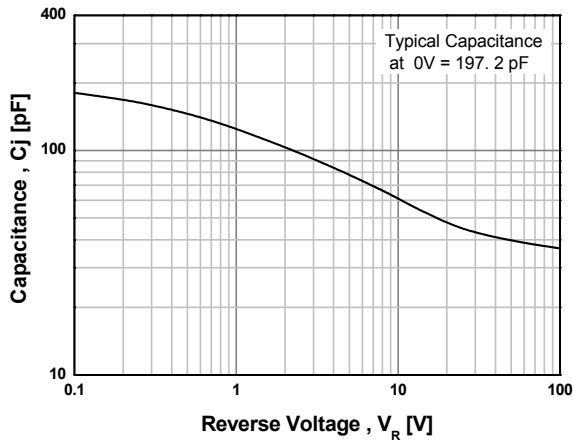


Figure 4. Typical Reverse Recovery Time

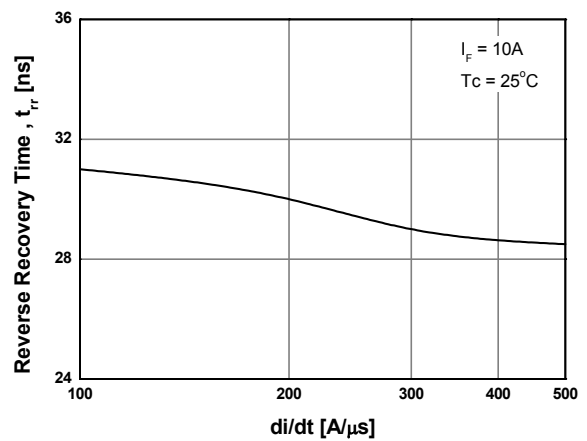


Figure 5. Typical Reverse Recovery Current

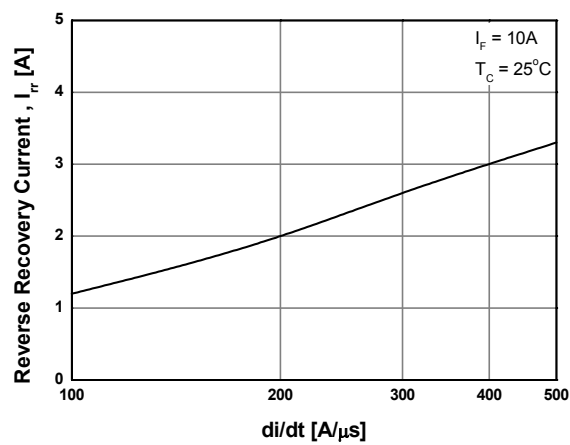
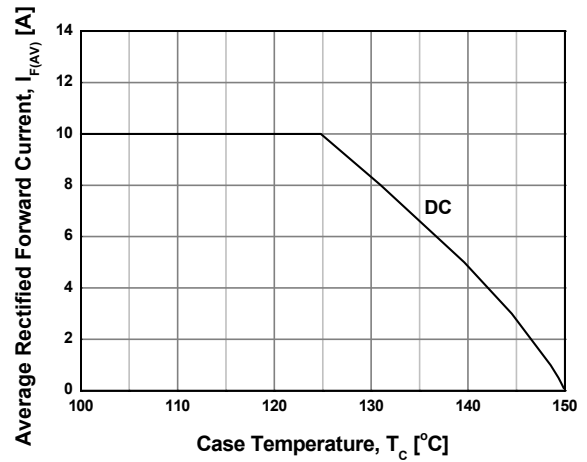


Figure 6. Forward Current Deration Curve



Technical drawing of a mechanical part, showing three views: front, side, and bottom views. The dimensions are as follows:

- Front View:**
 - Overall width: 10.16 ± 0.20
 - Top flange thickness: 3.30 ± 0.10
 - Central hole diameter: $\varnothing 3.18 \pm 0.10$
 - Four small holes in the top flange: diameter $\varnothing 1.80$
 - Overall height: 15.80 ± 0.20
 - Distance from top flange to the start of the main body: (6.50)
 - Distance from the start of the main body to the bottom: 12.00 ± 0.20
 - Bottom flange thickness: 0.35 ± 0.10
 - Bottom flange width: 9.40 ± 0.20
 - Bottom flange height: 4.70 ± 0.20
 - Bottom flange features three small rectangular holes.
- Side View:**
 - Overall width: 2.54 ± 0.20
 - Top flange thickness: (0.70)
 - Overall height: 15.87 ± 0.20
 - Distance from top flange to the start of the main body: 6.68 ± 0.20
 - Distance from the start of the main body to the bottom: 9.75 ± 0.30
 - Bottom flange thickness: $0.50^{+0.10}_{-0.05}$
 - Bottom flange width: 2.76 ± 0.20
 - Bottom flange height: 2.54 TYP (typical)
 - Bottom flange width: $[2.54 \pm 0.20]$ (maximum)
 - Bottom flange features three small rectangular holes.
- Bottom View:**
 - Overall width: 9.40 ± 0.20
 - Overall height: 4.70 ± 0.20
 - Bottom flange features three small rectangular holes.

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