

FFA60UP30DN

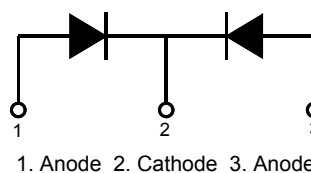
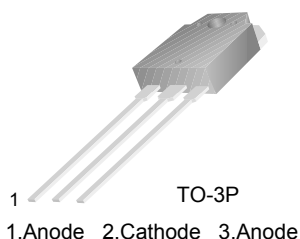
Ultrafast Recovery Power Rectifier

Features

- Ultrafast with Soft Recovery : < 55ns
- 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) $T_a = 25^\circ C$ 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 @ $T_C = 135^\circ C$	30	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	300	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	Max	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.53	$^\circ C/W$

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

Symbol	Parameter		Min.	Typ.	Max.	Units
V_{FM}^*	$I_F = 30\text{A}$	$T_C = 25^\circ\text{C}$	-	-	1.5	V
	$I_F = 30\text{A}$	$T_C = 150^\circ\text{C}$	-	-	1.3	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}	$I_F = 1\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$, $V_{CC} = 30\text{V}$	$T_C = 25^\circ\text{C}$	-	-	45	ns
	$I_F = 30\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$, $V_{CC} = 195\text{V}$	$T_C = 25^\circ\text{C}$	-	-	55	ns
t_a	$I_F = 30\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$, $V_{CC} = 195\text{V}$	$T_C = 25^\circ\text{C}$	-	17	-	ns
t_b		$T_C = 25^\circ\text{C}$	-	15	-	ns
Q_{rr}		$T_C = 25^\circ\text{C}$	-	50	-	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

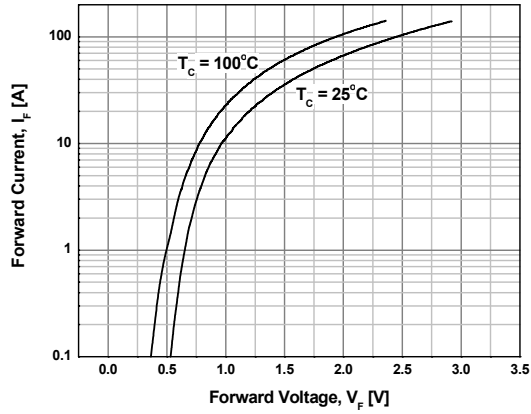


Figure 2. Typical Reverse Current

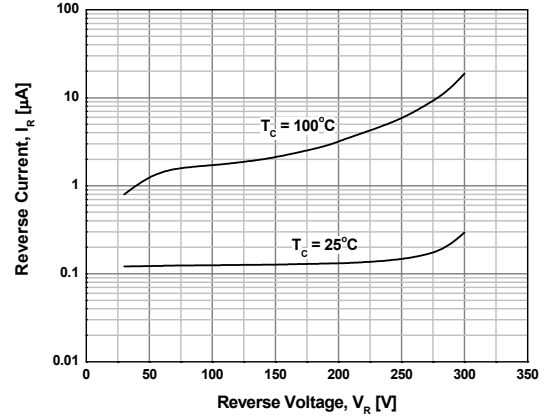


Figure 3. Typical Junction Capacitance

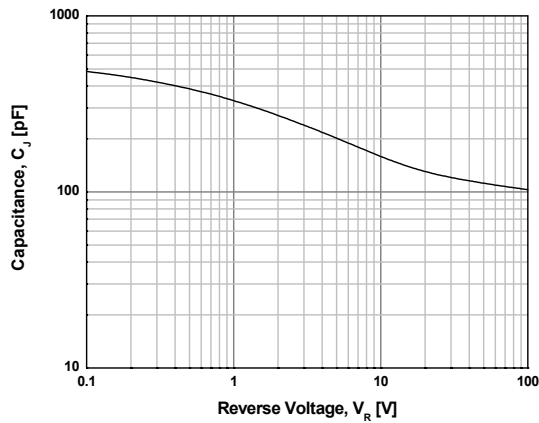


Figure 4. Typical Reverse Recovery Time

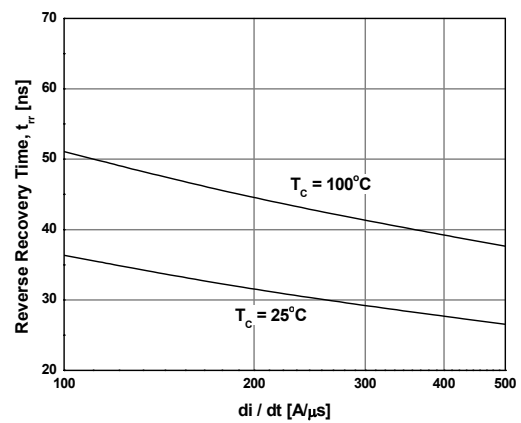


Figure 5. Typical Reverse Recovery Current

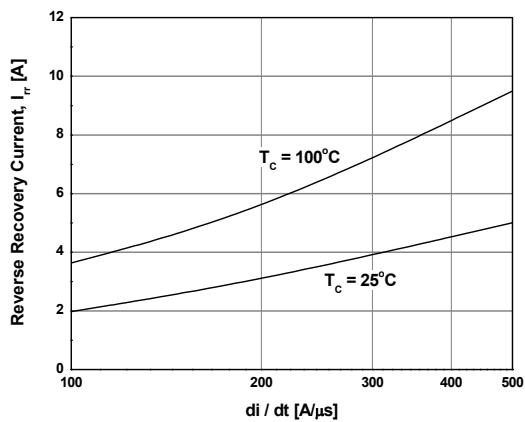
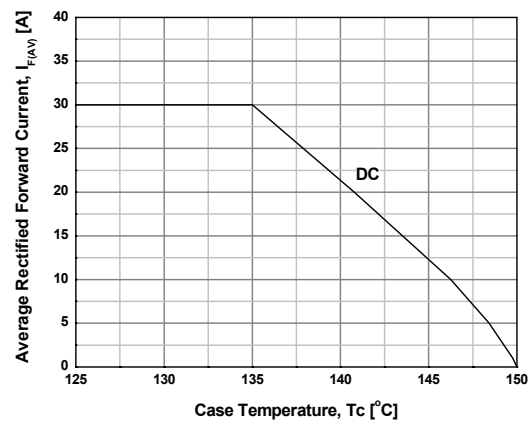


Figure 6. Forward Current Deration Curve



Technical drawing of a mechanical part, showing dimensions in millimeters (mm). The drawing includes a front view, a side view, and a top view.

Front View Dimensions:

- Overall width: 15.60 ± 0.20
- Overall height: 23.40 ± 0.20
- Top flange width: 13.60 ± 0.20
- Top flange height: 3.80 ± 0.20
- Central hole diameter: $\varnothing 3.20 \pm 0.10$
- Distance from top flange to base: 12.76 ± 0.20
- Distance from top flange to base (alternative): 19.90 ± 0.20
- Base height: 13.90 ± 0.20
- Slot widths (from left to right): 2.00 ± 0.20 , 3.00 ± 0.20 , 1.00 ± 0.20
- Slot depths: 5.45 TYP with tolerance $[5.45 \pm 0.30]$
- Distance from base to top flange: 3.50 ± 0.20
- Distance from base to top flange (alternative): 16.50 ± 0.30

Side View Dimensions:

- Overall height: 18.70 ± 0.20
- Top flange width: 4.80 ± 0.20
- Top flange height: $1.50^{+0.15}_{-0.05}$
- Slot width: 1.40 ± 0.20
- Slot depth: $0.60^{+0.15}_{-0.05}$

Top View Dimensions:

- Slot widths (from left to right): 5.45 TYP with tolerance $[5.45 \pm 0.30]$

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