

**FAIRCHILD**  
SEMICONDUCTOR™

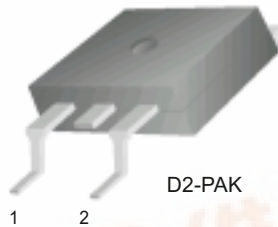
## FFB10U120S

### Features

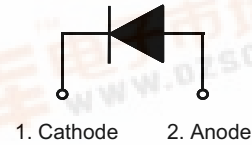
- High voltage and high reliability
- High speed switching
- Low forward voltage

### Applications

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



D2-PAK



## ULTRA FAST RECOVERY POWER RECTIFIER

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

Symbol	Parameter	Value	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	1200	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$	10	A
$I_{FSM}$	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	60	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	- 65 to +150	$^\circ\text{C}$

### Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	1.5	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Min.	Typ.	Max.	Units
$V_{FM}^*$	Maximum Instantaneous Forward Voltage $I_F = 10\text{A}$ $I_F = 10\text{A}$	$T_C = 25^\circ\text{C}$	-	3.5	V
		$T_C = 100^\circ\text{C}$	-	3.2	
$I_{RM}^*$	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$	-	10	$\mu\text{A}$
		$T_C = 100^\circ\text{C}$	-	800	
$t_{rr}$	Maximum Reverse Recovery Time	-	-	100	ns
$I_{rr}$	Maximum Reverse Recovery Current	-	-	8	A
$Q_{rr}$	Maximum Reverse Recovery Charge ( $I_F = 10\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ )	-	-	360	nC
$W_{AVL}$	Avalanche Energy	1.0	-	-	mJ

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

# Typical Characteristics

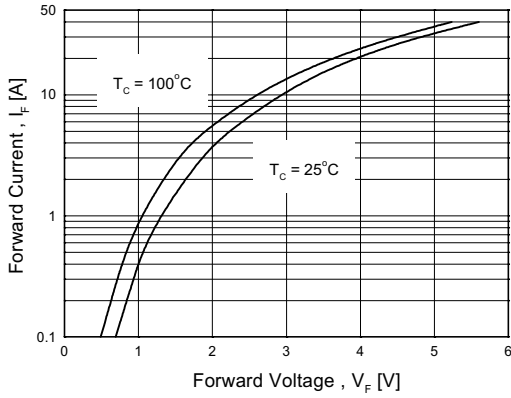


Figure 1. Typical Forward Voltage Drop vs. Forward Current

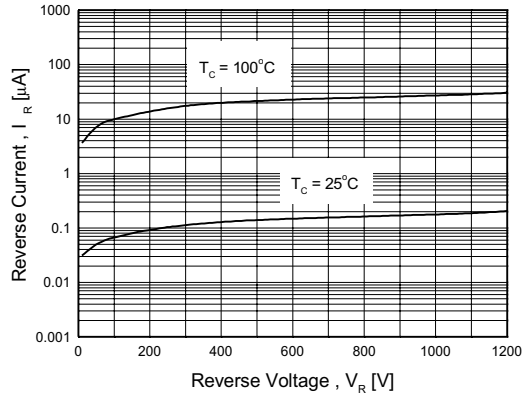


Figure 2. Typical Reverse Current vs. Reverse Voltage

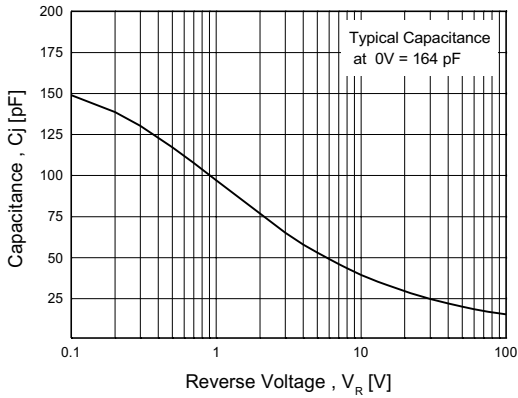


Figure 3. Typical Junction Capacitance

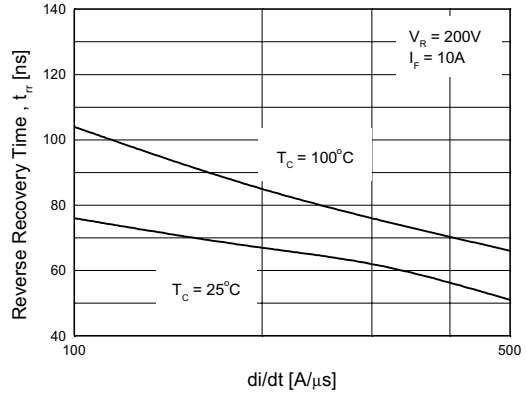


Figure 4. Typical Reverse Recovery Time vs. di/dt

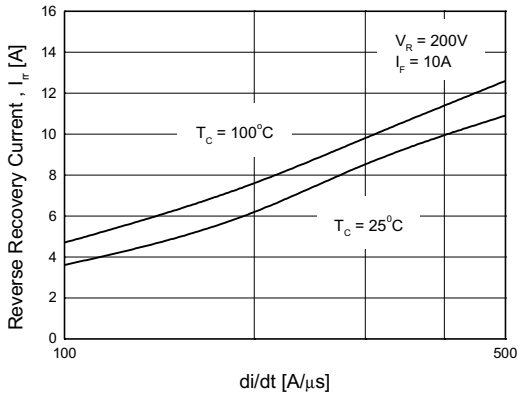


Figure 5. Typical Reverse Recovery Current vs. di/dt

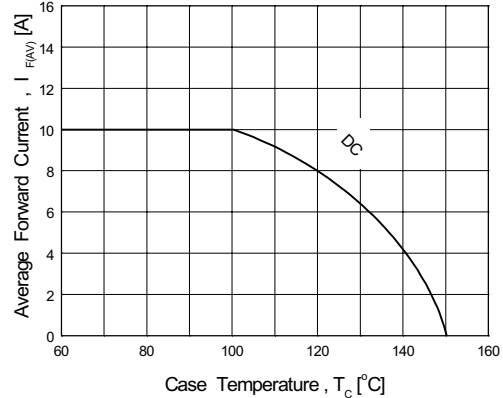
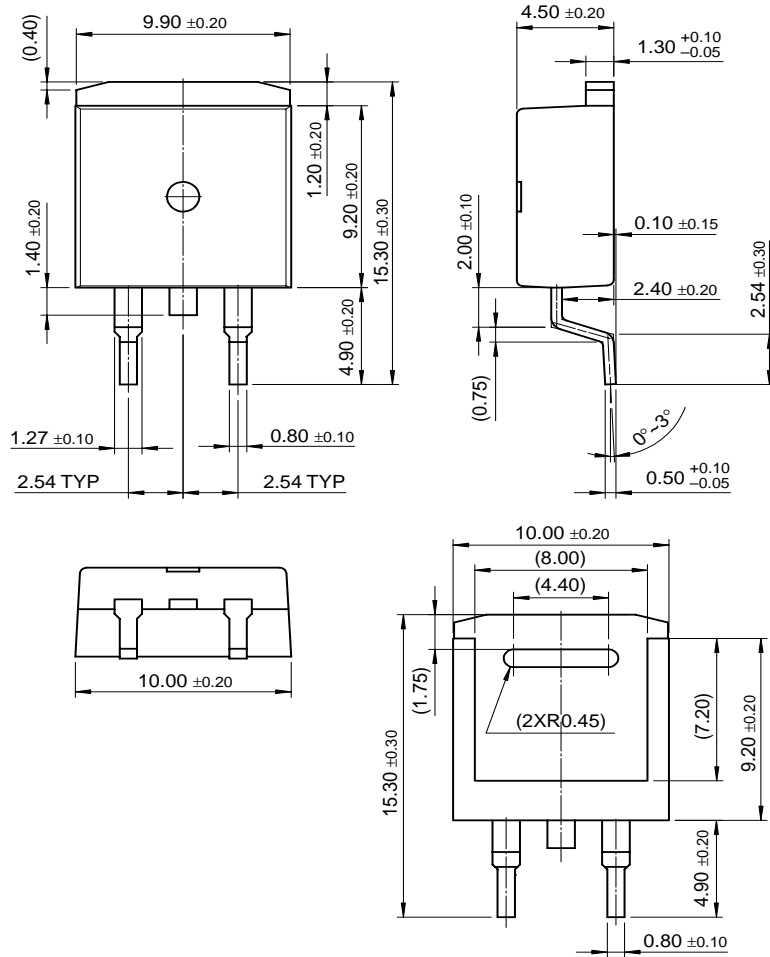


Figure 6. Forward Current Derating Curve

# Package Dimensions

## D<sup>2</sup>-PAK



Dimensions in Millimeters

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CROSSVOLT™	POP™	UHC™
E <sup>2</sup> CMOS™	PowerTrench®	VCX™
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