

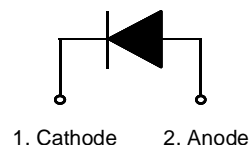
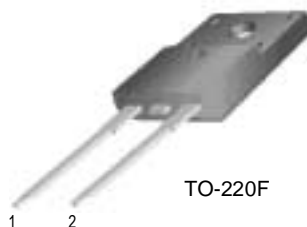
FFPF20U40S

Features

- Ultrafast with soft recovery
- Low forward voltage

Applications

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



ULTRA FAST RECOVERY RECTIFIER

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

Symbol	Parameter	Value	Units
V_{RRM}	Peak Repetitive Reverse Voltage	400	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	200	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	2.0	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Min.	Typ.	Max.	Units	
V_{FM}^*	Maximum Instantaneous Forward Voltage $I_F = 20\text{A}$ $I_F = 20\text{A}$	$T_C = 25^\circ\text{C}$	-	-	1.4	V
		$T_C = 100^\circ\text{C}$	-	-	1.3	
I_{RM}^*	Maximum Instantaneous Reverse Current @ rated V_R	$T_C = 25^\circ\text{C}$	-	-	50	μA
		$T_C = 100^\circ\text{C}$	-	-	500	
t_{rr}	Maximum Reverse Recovery Time	-	-	50	ns	
I_{rr}	Maximum Reverse Recovery Current	-	-	5.5	A	
Q_{rr}	Maximum Reverse Recovery Charge ($I_F = 20\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$)	-	-	138	nC	
W_{AVL}	Avalanche Energy	1.0	-	-	mJ	

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

Typical Characteristics

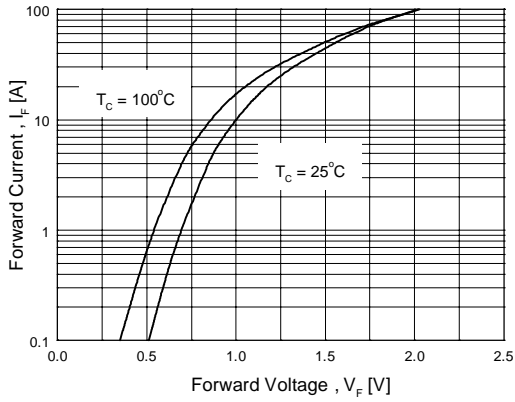


Figure 1. Typical Forward Voltage Drop vs. Forward Current

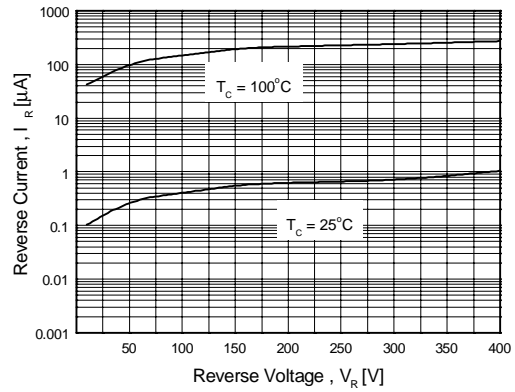


Figure 2. Typical Reverse Current vs. Reverse Voltage

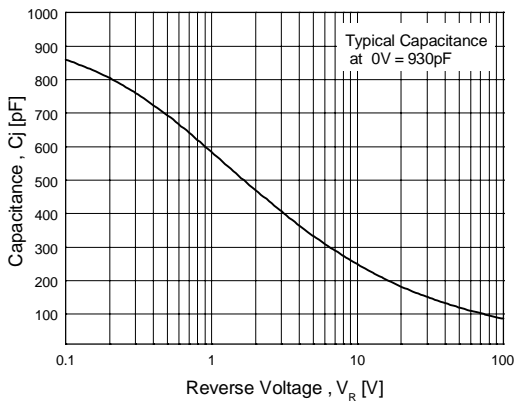


Figure 3. Typical Junction Capacitance

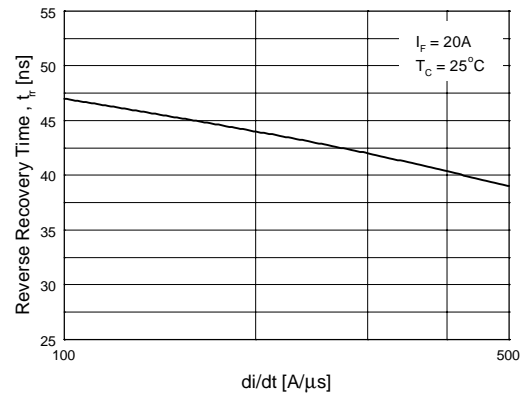


Figure 4. Typical Reverse Recovery Time vs. di/dt

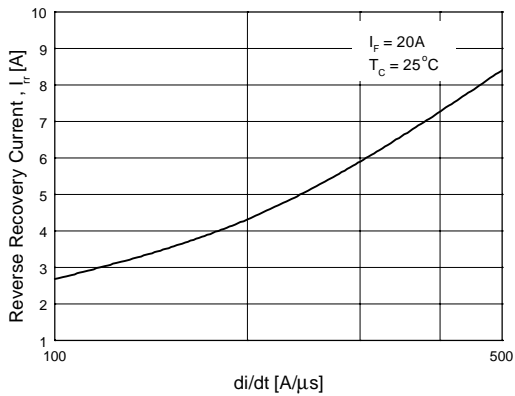


Figure 5. Typical Reverse Recovery Current vs. di/dt

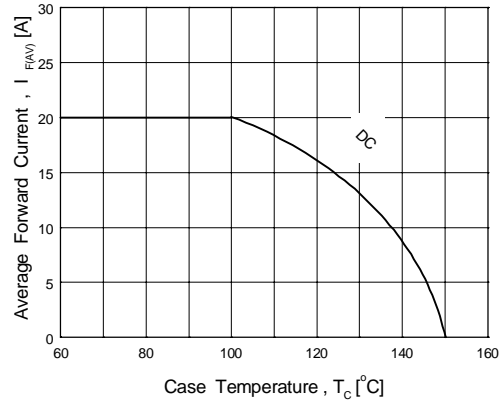
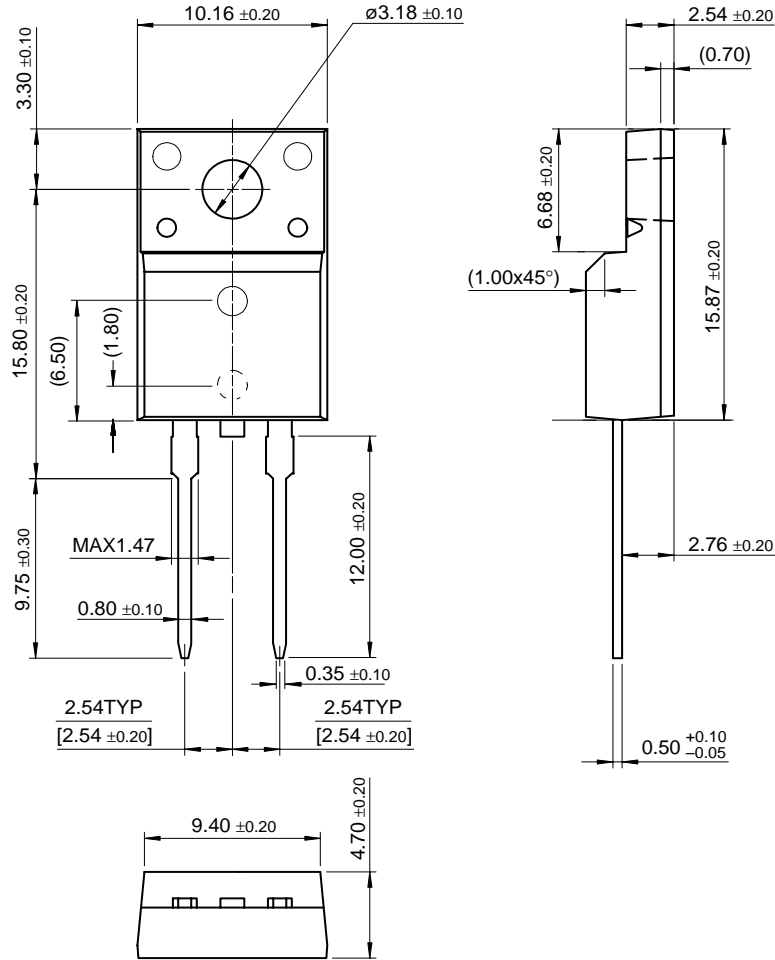


Figure 6. Forward Current Derating Curve

Package Dimensions

FFPF20U40S

TO-220F 2L



Dimensions in Millimeters

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Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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FFPF20U40S

20A/400V Ultra Fast Recovery Rectifier

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Applications

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- Output rectifiers
- Freewheeling Diodes
- Switching Mode Power Supply

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Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
FFPF20U40STU	Full Production	\$1.25	TO-220F	2	RAIL

* 1,000 piece Budgetary Pricing

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