FAIRCHILD SEMICONDUCTOR™

February 2009

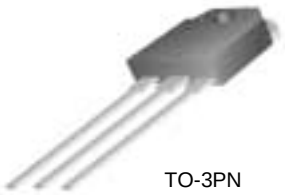
FFA20U40DN

Features

- Ultrafast with soft recovery
- Low forward voltage

Applications

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



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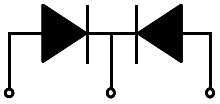

1. Anode 2.Cathode 3. Anode

ULTRA FAST RECOVERY POWER RECTIFIER

Absolute Maximum Ratings (per diode) T_C=25°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°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	°C

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	2.0	°C/W

Electrical Characteristics (per diode) T_C=25 °C unless otherwise noted

Symbol	Parameter		Min.	Typ.	Max.	Units
V_{FM} *	Maximum Instantaneous Forward Voltage					V
	I_F = 20A	T_C = 25 °C	-	-	1.4	
	I_F = 20A	T_C = 100 °C	-	-	1.3	
I_{RM} *	Maximum Instantaneous Reverse Current					µA
	@ rated V_R	T_C = 25 °C	-	-	50	
		T_C = 100 °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 =20A, di/dt = 200A/µs)		-	-	138	nC
W_{AVL}	Avalanche Energy		1.0	-	-	mJ

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

Typical Characteristics

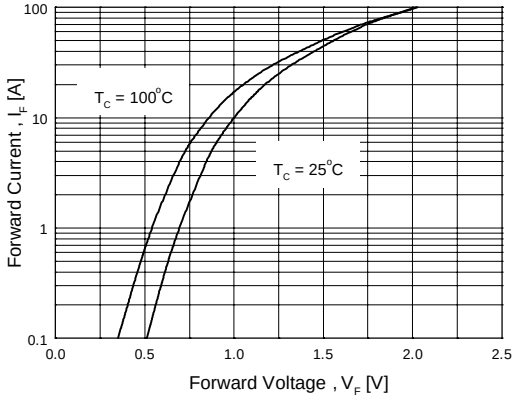

Figure 1. Typical Forward Voltage Drop vs. Forward Current

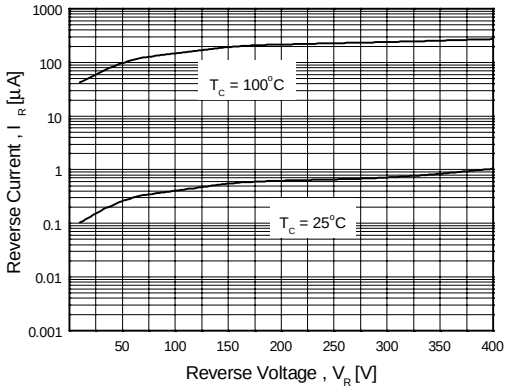

Figure 2. Typical Reverse Current vs. Reverse Voltage

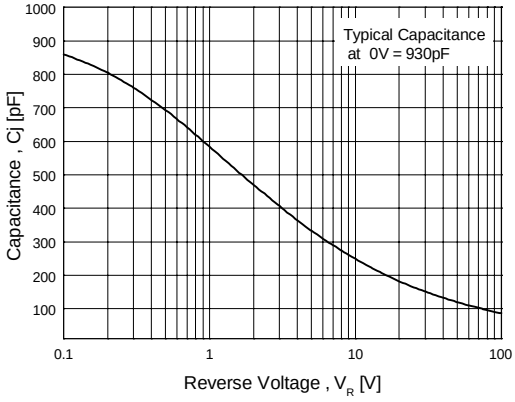

Figure 3. Typical Junction Capacitance

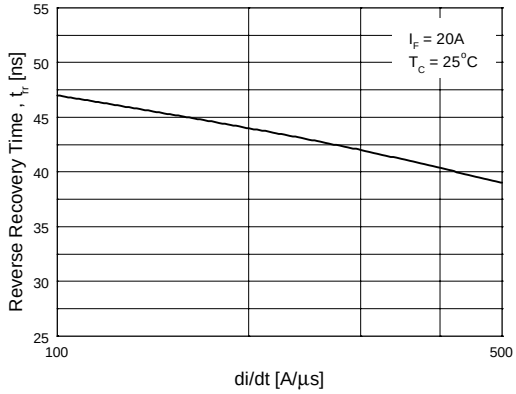

Figure 4. Typical Reverse Recovery Time vs. di/dt

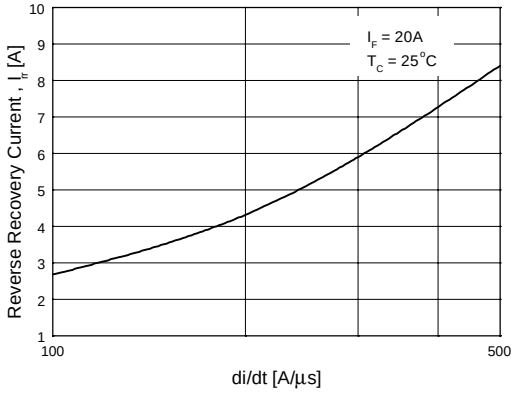

Figure 5. Typical Reverse Recovery Current vs. di/dt

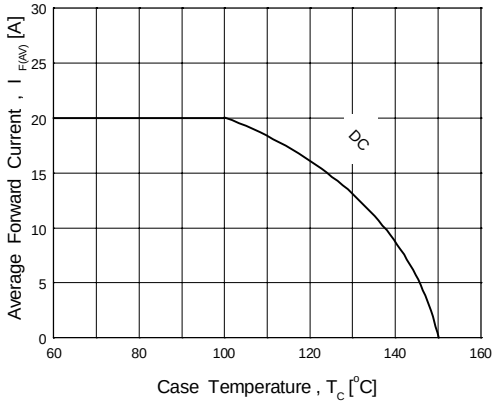

Figure 6. Forward Current Derating Curve

Package Dimensions

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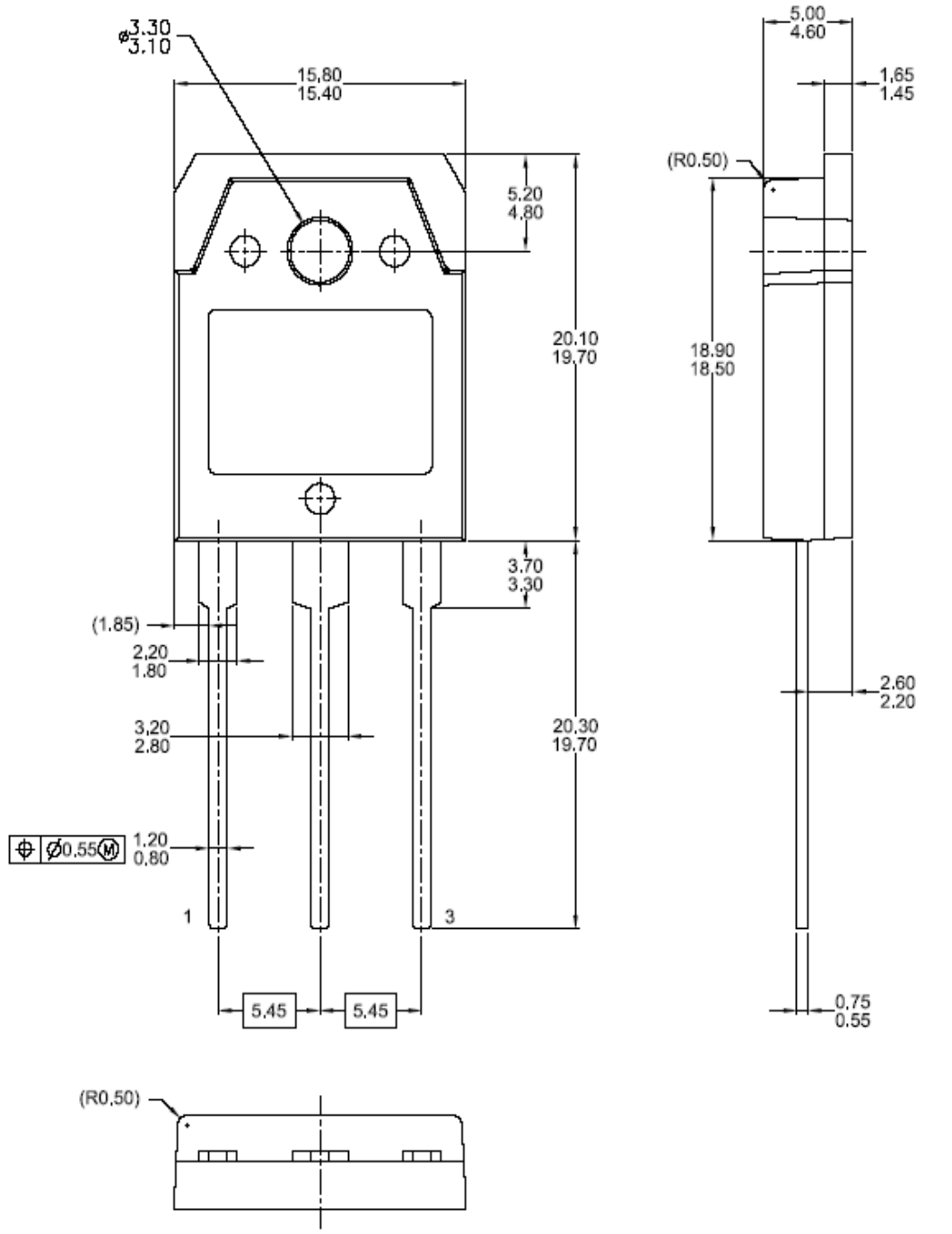

Dimensions in Millimeters

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