

Pb Free Plating Product

FFPF12UP20DPTU



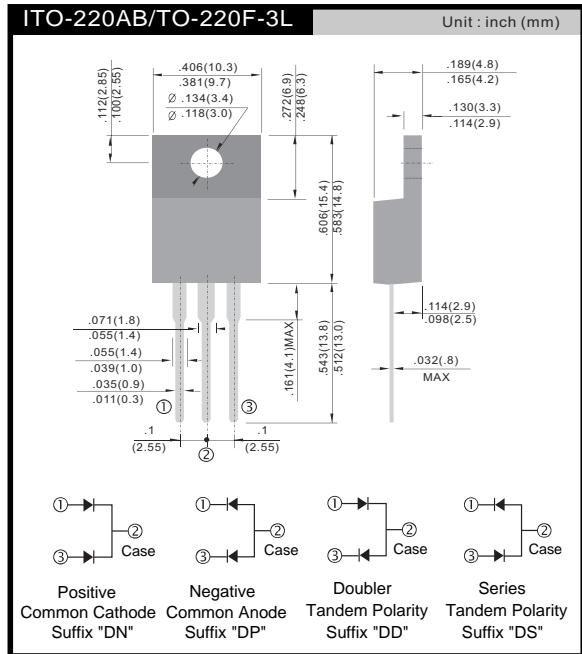
12Amperes,200Volts Insulated Common Anode Ultra Fast Soft Recovery Epitaxial Diodes

APPLICATION

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS

PRODUCT FEATURE

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- 175 Operating Junction Temperature
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



GENERAL DESCRIPTION

FFPF12UP20DPTU using latest FRED FAB process(planar passivation pellet) with ultrafast soft recovery characteristics.

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

Symbol	Parameter	Value	Units
V_{RRM}	Peak Repetitive Reverse Voltage	200	V
V_{RWM}	Working Peak Reverse Voltage	200	V
V_R	DC Blocking Voltage	200	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 120^\circ\text{C}$	6	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

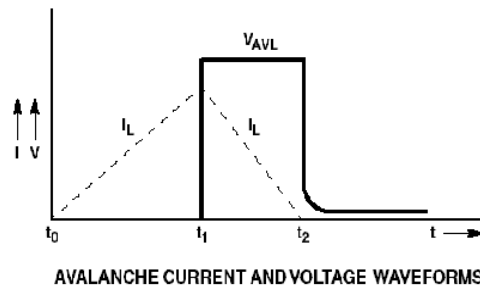
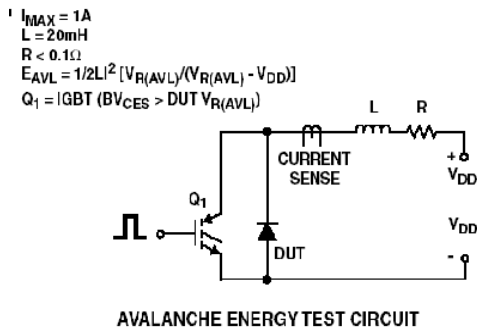
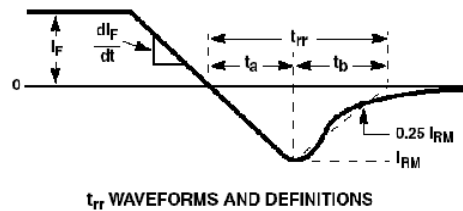
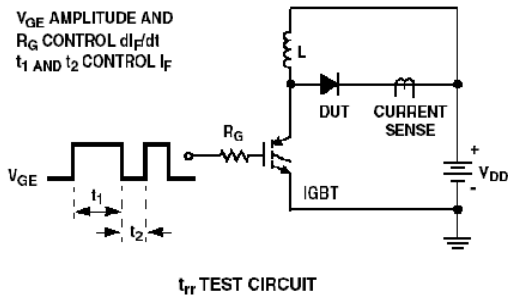
Symbol	Parameter	Max	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	5.0	$^\circ\text{C/W}$

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

Symbol	Parameter	Min.	Typ.	Max.	Units
V_{FM}^*	$I_F = 6\text{A}$	-	-	1.15	V
	$I_F = 6\text{A}$	-	-	1.0	V
I_{RM}^*	$V_R = 200\text{V}$	-	-	100	μA
	$V_R = 200\text{V}$	-	-	500	μA
t_{rr}	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$	-	-	30	ns
	$I_F = 6\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$	-	-	35	ns
t_a	$I_F = 6\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$	-	12	-	ns
t_b		-	12	-	ns
Q_{rr}		-	24	-	nC
W_{AVL}	Avalanche Energy (L = 20mH)	10	-	-	mJ

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

Test Circuit and Waveforms



Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

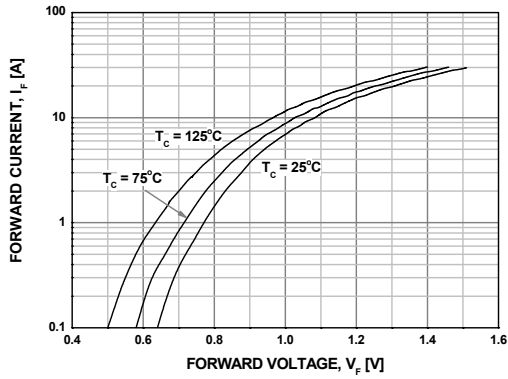


Figure 2. Typical Reverse Current

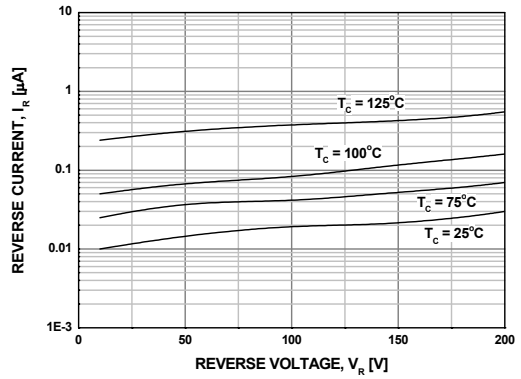


Figure 3. Typical Junction Capacitance

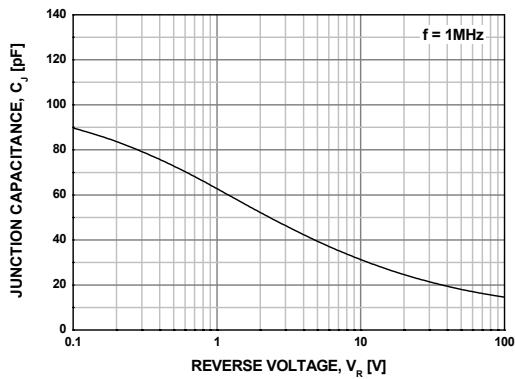


Figure 4. Typical Reverse Recovery Time

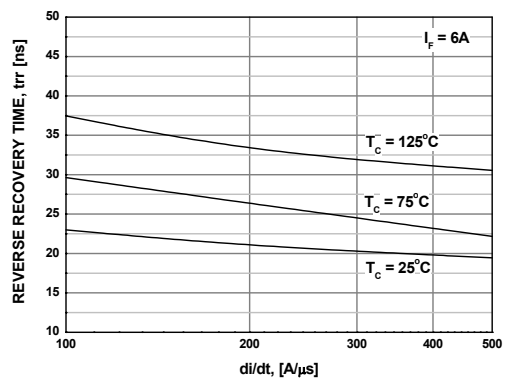


Figure 5. Typical Reverse Recovery Current

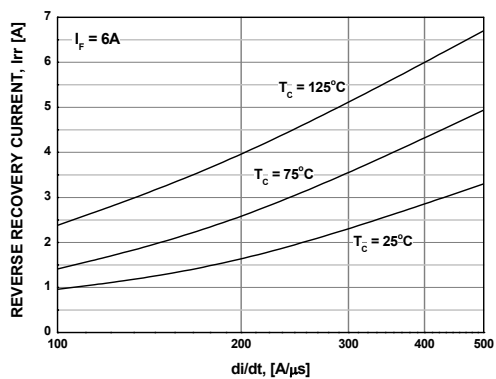


Figure 6. Forward Current Deration Curve

