Pb Free Plating Product

F12UP20DN

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

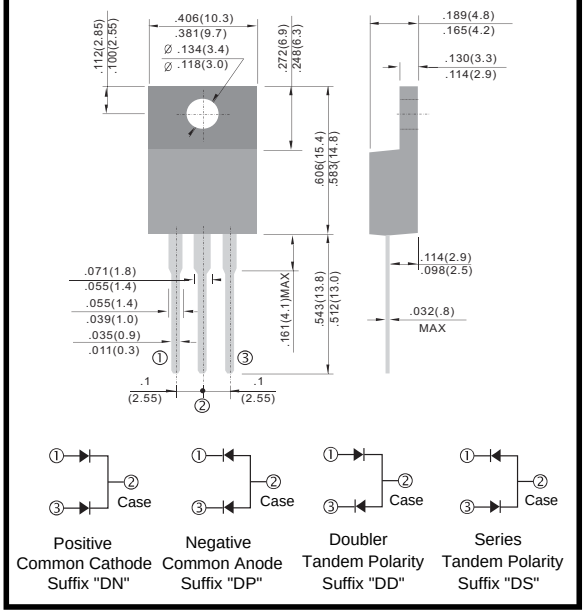
APPLICATION

- 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

ITO-220AB/TO-220F-3L Unit : inch (mm)



GENERAL DESCRIPTION

F12UP20DN using lastest FRED FAB process(planar passivation pellet) with ultrafast soft recovery characteristics.

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

Thermal Characteristics

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

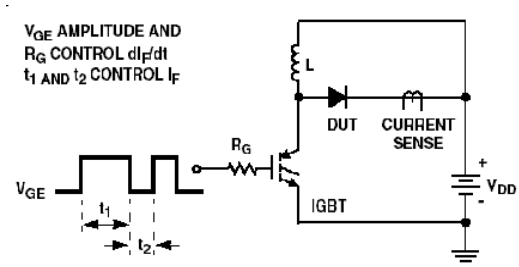
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Electrical Characteristics (per diode) T_C = 25°C unless otherwise noted

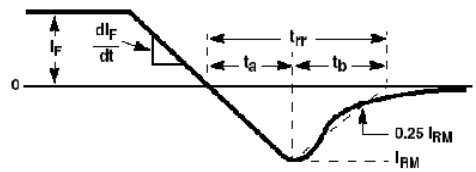
Symbol	Parameter		Min.	Typ.	Max.	Units
V_{FM} *	I_F = 6A I_F = 6A	T_C = 25 °C T_C = 100 °C	- -	- -	1.15 1.0	V V
I_{RM} *	V_R = 200V V_R = 200V	T_C = 25 °C T_C = 100 °C	- -	- -	100 500	μA μA
t_{rr}	I_F =1A, di/dt = 100A/μs, V_{CC} = 30V I_F =6A, di/dt = 200A/μs, V_{CC} = 130V	T_C = 25 °C T_C = 25 °C	- -	- -	30 35	ns ns
t_a t_b Q_{rr}	I_F =6A, di/dt = 200A/μs, V_{CC} = 130V	T_C = 25 °C T_C = 25 °C T_C = 25 °C	- - -	12 12 24	- - -	ns ns nC
W_{AVL}	Avalanche Energy (L = 20mH)		10	-	-	mJ

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

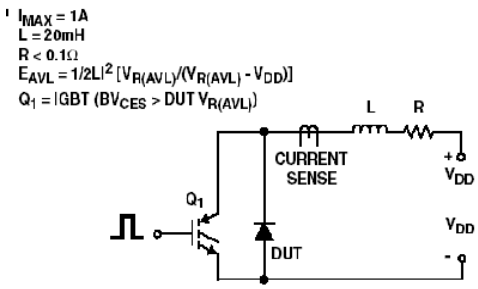
Test Circuit and Waveforms



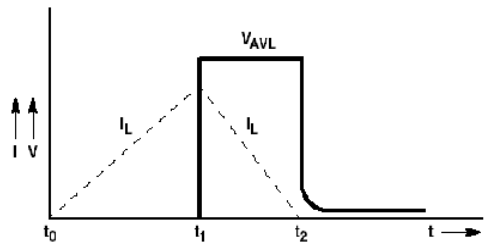
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

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Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

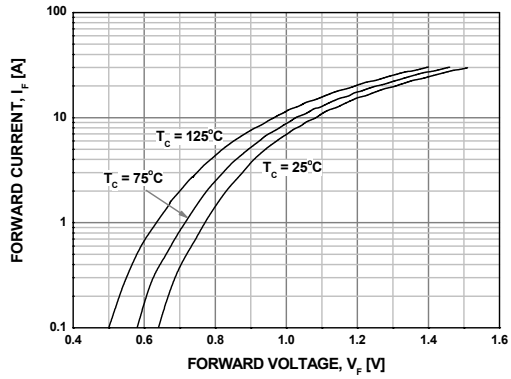


Figure 2. Typical Reverse Current

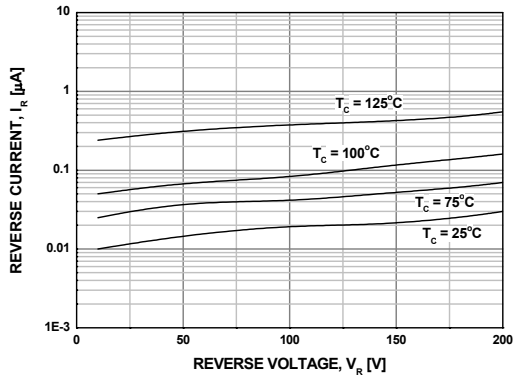


Figure 3. Typical Junction Capacitance

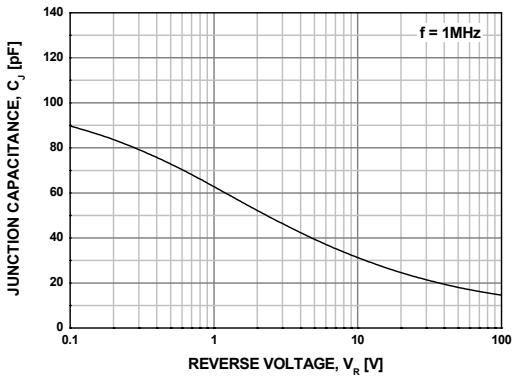


Figure 4. Typical Reverse Recovery Time

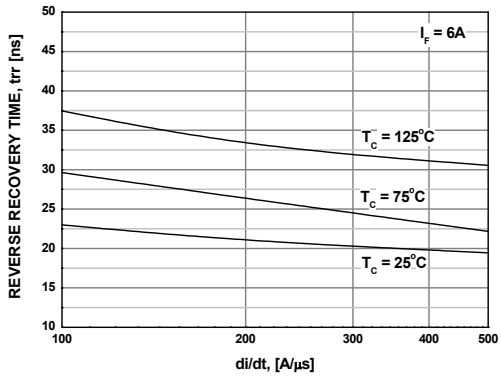


Figure 5. Typical Reverse Recovery Current

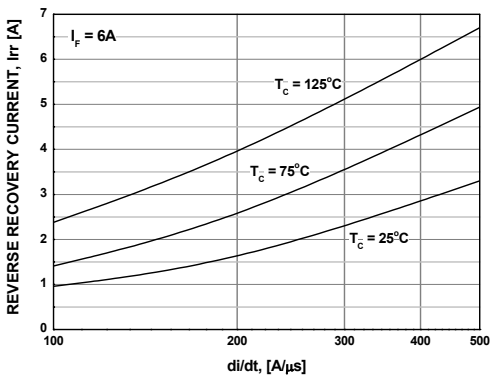
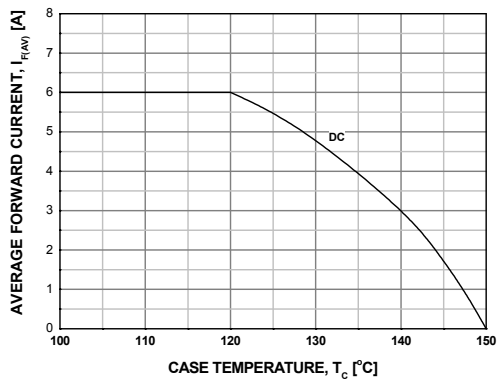


Figure 6. Forward Current Deration Curve



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