

Pb Free Plating Product

FFB10UP20STM



10Amperes,200Volts Single Surface Mount Ultra Fast Recovery Epitaxial Diode

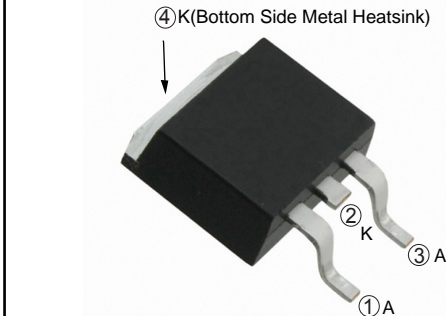
APPLICATION

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

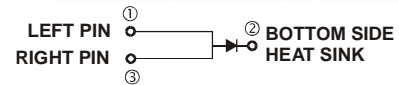
PRODUCT FEATURE

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current

TO-263/D2PAK(SMD-220)



Internal Configuration



Note: Pins Left & Right must be electrically connected at the printed circuit board.

GENERAL DESCRIPTION

FFB10UP20STM using the latest FRED FAB process(planar passivation pellet) with ultrafast and soft recovery characteristics.

Absolute Maximum Ratings (per diode) T_a = 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	10	A
I _{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	100	A
T _J , T _{STG}	Operating Junction and Storage Temperature	- 65 to +150	°C

Thermal Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Max	Units
R _{θJC}	Maximum Thermal Resistance, Junction to Case	3.0	°C/W

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

Symbol	Parameter	Min.	Typ.	Max.	Units	
V _{FM} *	I _F = 10A	T _C = 25 °C	-	-	1.15	V
		T _C = 150 °C	-	-	1.0	V
I _{RM} *	V _R = 200V	T _C = 25 °C	-	-	100	μA
		T _C = 150 °C	-	-	500	μA
t _{rr}	I _F = 1A, di/dt = 100A/μs, V _{CC} = 30V I _F = 10A, di/dt = 200A/μs, V _{CC} = 130V	T _C = 25 °C	-	-	35	ns
		T _C = 25 °C	-	-	45	ns
t _a	I _F = 10A, di/dt = 200A/μs, V _{CC} = 130V	T _C = 25 °C	-	15	-	ns
t _b		T _C = 25 °C	-	12	-	ns
Q _{rr}		T _C = 25 °C	-	36	-	nC
W _{AVL}	Avalanche Energy (L = 20mH)	10	-	-	mJ	

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

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

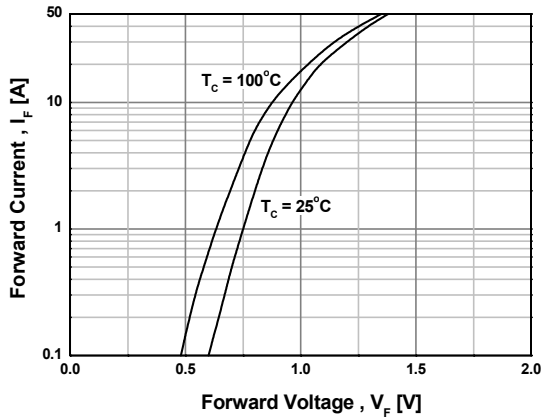


Figure 2. Typical Reverse Current

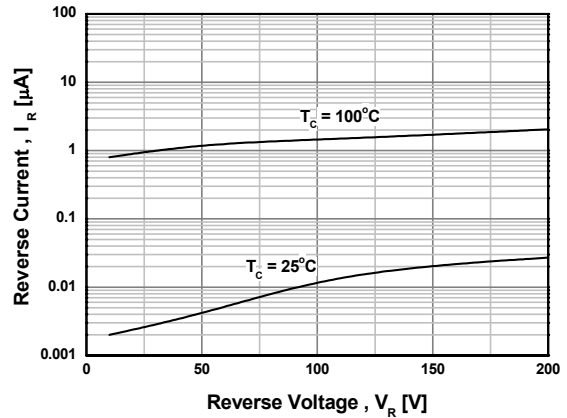


Figure 3. Typical Junction Capacitance

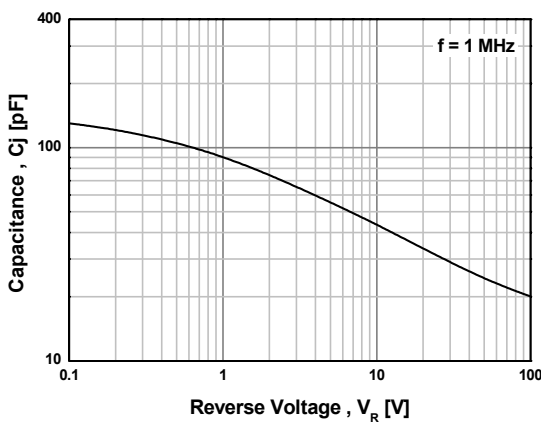


Figure 4. Typical Reverse Recovery Time

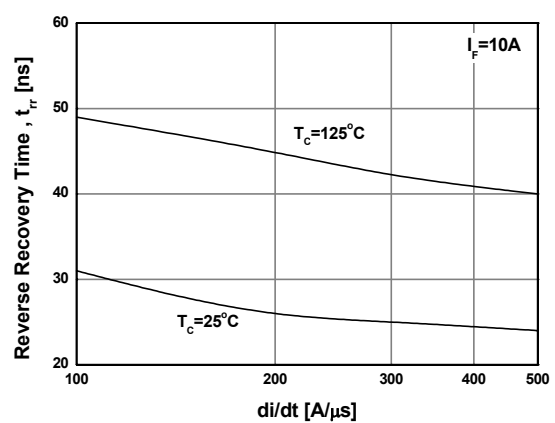


Figure 5. Typical Reverse Recovery Current

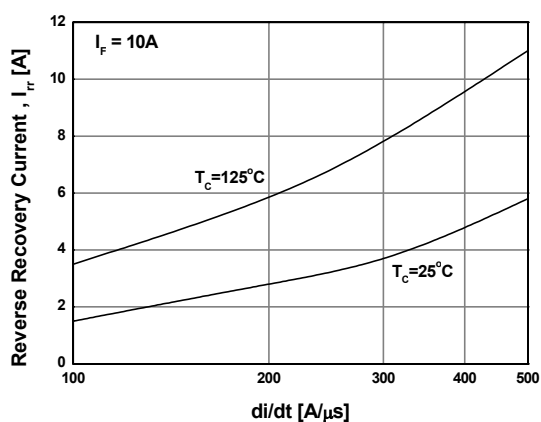
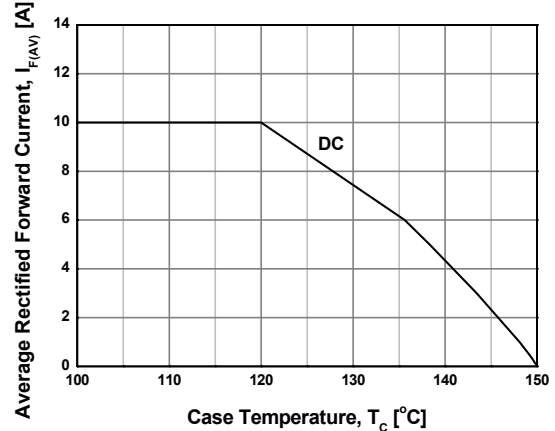
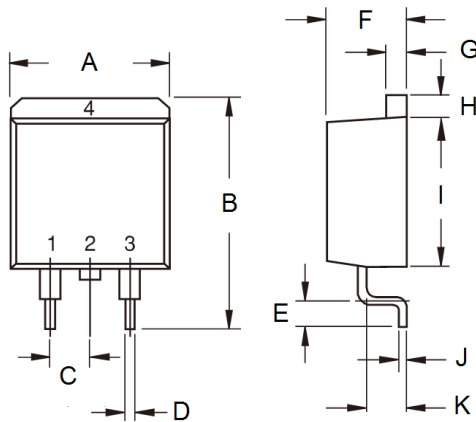


Figure 6. Forward Current Deration Curve

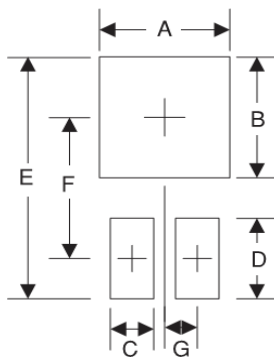


PACKAGE OUTLINE DIMENSIONS TO-263 (D²PAK)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	-	10.5	-	0.413
B	14.60	15.88	0.575	0.625
C	2.41	2.67	0.095	0.105
D	0.68	0.94	0.027	0.037
E	2.29	2.79	0.090	0.110
F	4.44	4.70	0.175	0.185
G	1.14	1.40	0.045	0.055
H	1.14	1.40	0.045	0.055
I	8.25	9.25	0.325	0.364
J	0.36	0.53	0.014	0.021
K	2.03	2.79	0.080	0.110

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	10.8	0.425
B	8.3	0.327
C	1.1	0.043
D	3.5	0.138
E	16.9	0.665
F	9.5	0.374
G	2.5	0.098