Pb Free Plating Product

FFB20U20S

20Amperes,200Volts Single Surface Mount Ultra Fast Recovery Epitaxial Diode

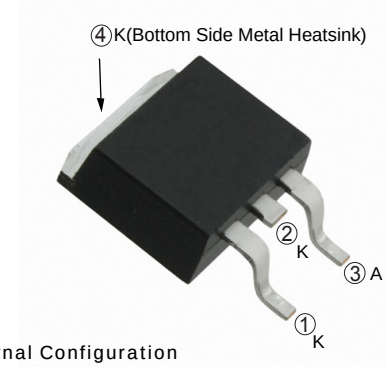
APPLICATION

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

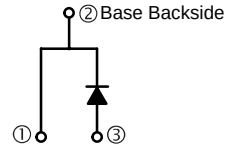
PRODUCT FEATURE

- 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



GENERAL DESCRIPTION

FFB20U20S using the lastest FRED FAB process(planar passivation pellet) with ultrafast and soft recovery characteristics.

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{RRM}	Peak Repetitive Reverse Voltage	200	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	2.5	°C/W

Electrical Characteristics 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	-	-	1.2	
	I_F = 20A	T_C = 100 °C	-	-	1.0	
I_{RM} *	Maximum Instantaneous Reverse Current					μA
	@ rated V_R	T_C = 25 °C	-	-	20	
		T_C = 100 °C	-	-	200	
t_{rr}	Maximum Reverse Recovery Time		-	-	40	ns
I_{rr}	Maximum Reverse Recovery Current		-	-	4.0	A
Q_{rr}	Maximum Reverse Recovery Charge (I_F =20A, di/dt = 200A/μs)		-	-	80	nC
W_{AVL}	Avalanche Energy		0.5	-	-	mJ

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

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Typical Characteristics

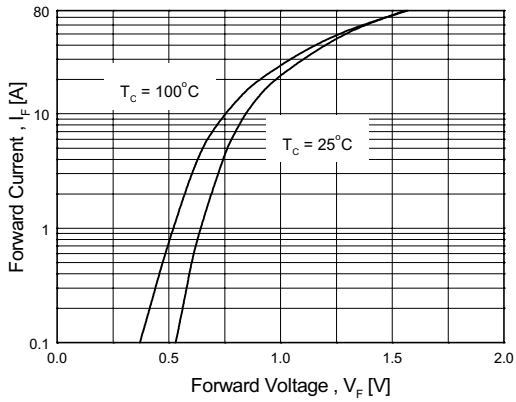

Figure 1. Typical Forward Voltage Drop vs. Forward Current

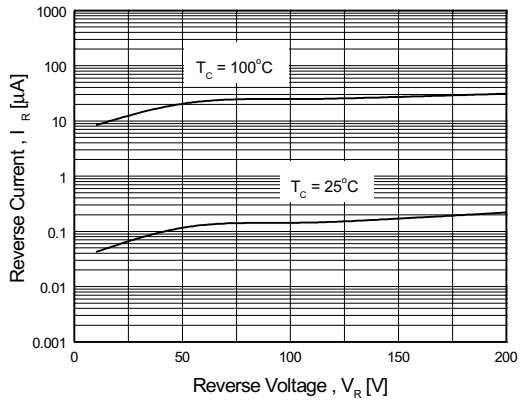

Figure 2. Typical Reverse Current vs. Reverse Voltage

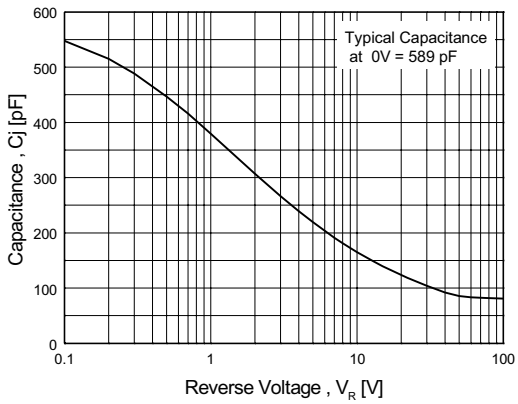

Figure 3. Typical Junction Capacitance

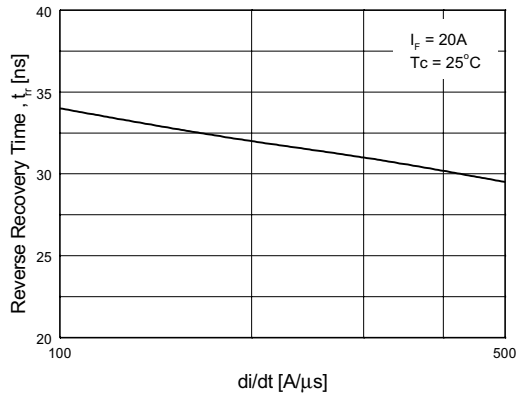

Figure 4. Typical Reverse Recovery Time vs. di/dt

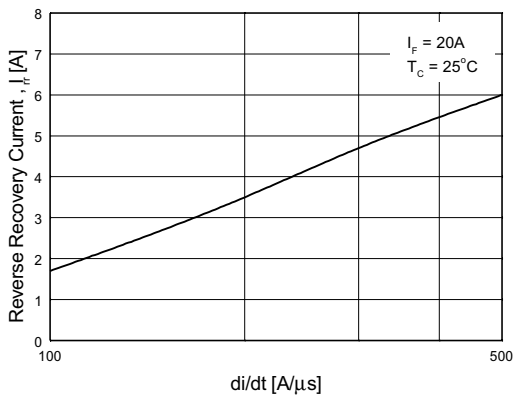

Figure 5. Typical Reverse Recovery Current vs. di/dt

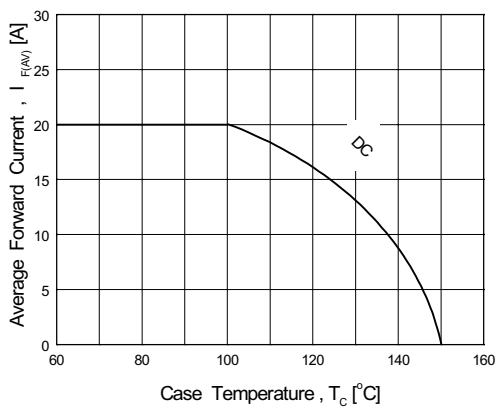

Figure 6. Forward Current Derating Curve

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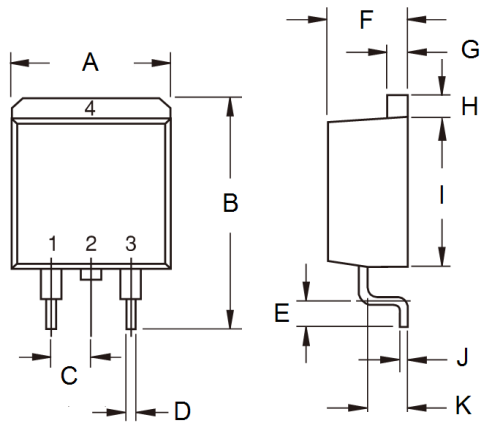
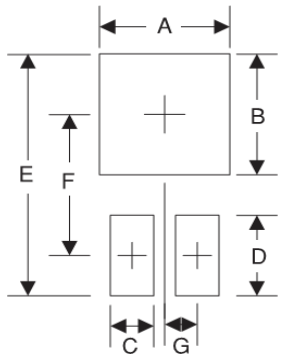
PACKAGE OUTLINE DIMENSIONS **TO-263 (D^2PAK)**



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

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