

FFB20UP20S

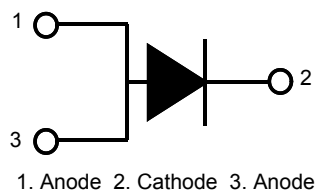
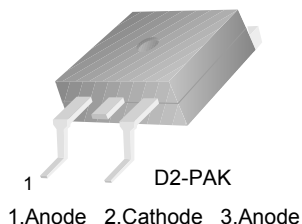
Ultrafast Recovery Power Rectifier

Features

- Ultrafast with Soft Recovery : < 45ns (@ $I_F = 20A$)
- High Reverse Voltage : $V_{RRM} = 200V$
- Avalanche Energy Rated
- Planar Construction
- RoHS Compliant

Applications

- Output Rectifiers
- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits



Absolute Maximum Ratings $T_C = 25^\circ C$ 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 @ $T_C = 115^\circ C$	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	$^\circ C$

Thermal Characteristics

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

Package Marking and Ordering Information

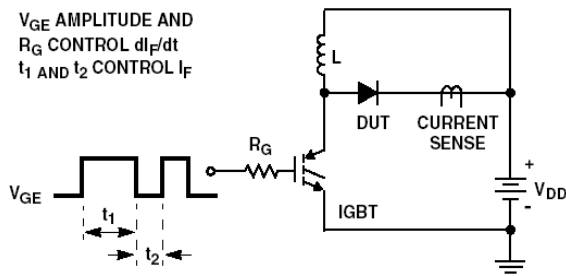
Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F20UP20S	FFB20UP20STM	D2-PAK	13" Dia	-	800

Electrical Characteristics T_C = 25°C unless otherwise noted

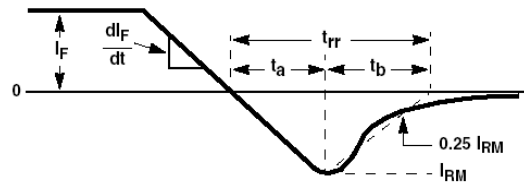
Symbol	Parameter		Min.	Typ.	Max.	Units
V _{FM} *	I _F = 20A	T _C = 25 °C	-	-	1.15	V
	I _F = 20A	T _C = 100 °C	-	-	1.0	V
I _{RM} *	V _R = 200V	T _C = 25 °C	-	-	100	μA
	V _R = 200V	T _C = 100 °C	-	-	500	μA
t _{rr}	I _F = 1A, di/dt = 100A/μs, V _{CC} = 30V	T _C = 25 °C	-	-	35	ns
	I _F = 20A, di/dt = 200A/μs, V _{CC} = 130V	T _C = 25 °C	-	-	45	ns
t _a t _b Q _{rr}	I _F = 20A, di/dt = 200A/μs, V _{CC} = 130V	T _C = 25 °C	-	11	-	ns
		T _C = 25 °C	-	13	-	ns
		T _C = 25 °C	-	21	-	nC
W _{AVL}	Avalanche Energy (L = 40mH)		20	-	-	mJ

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

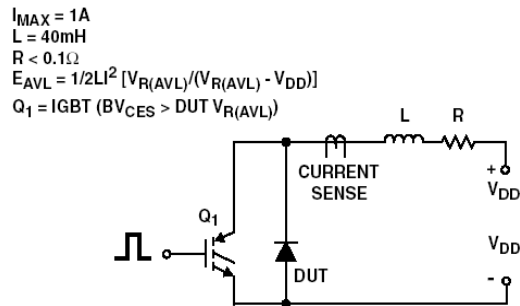
Test Circuit and Waveforms



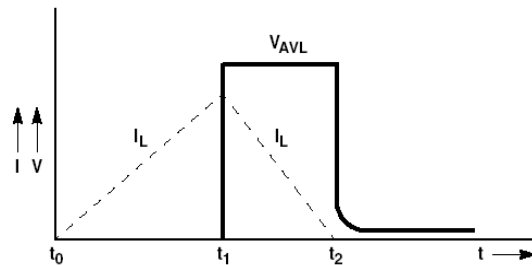
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

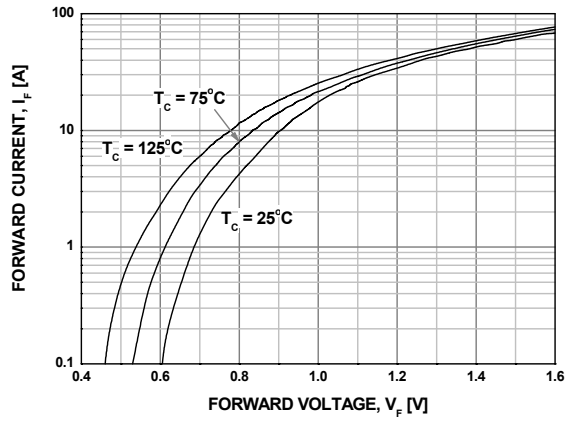


Figure 2. Typical Reverse Current

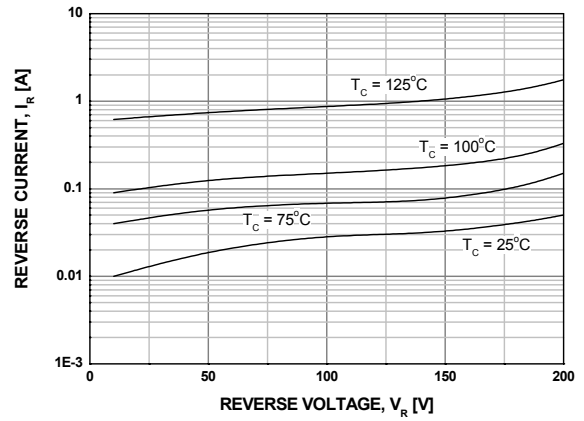


Figure 3. Typical Junction Capacitance

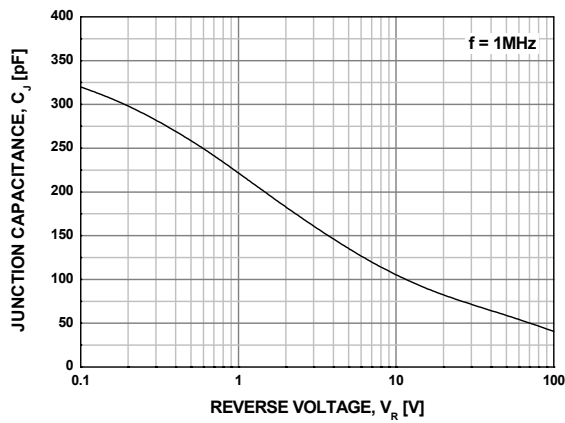


Figure 4. Typical Reverse Recovery Time

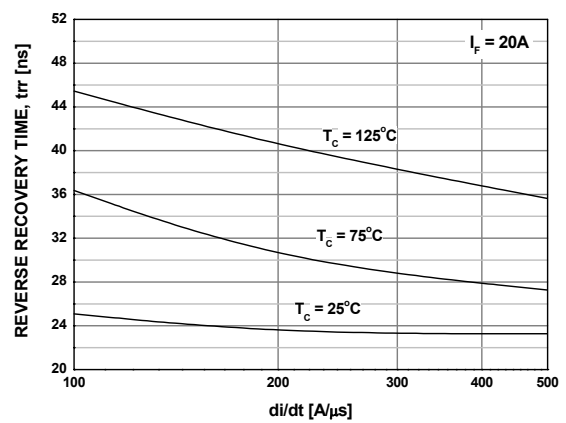


Figure 5. Typical Reverse Recovery Current

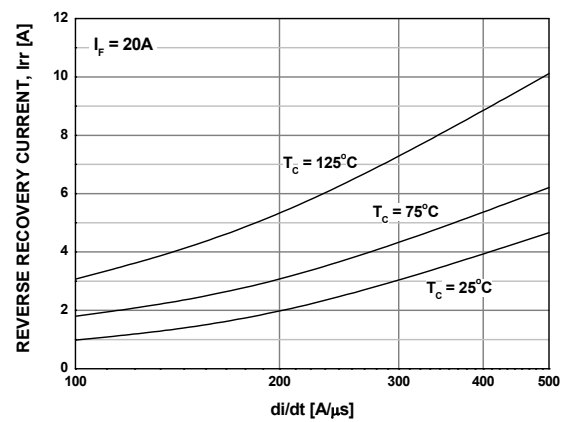
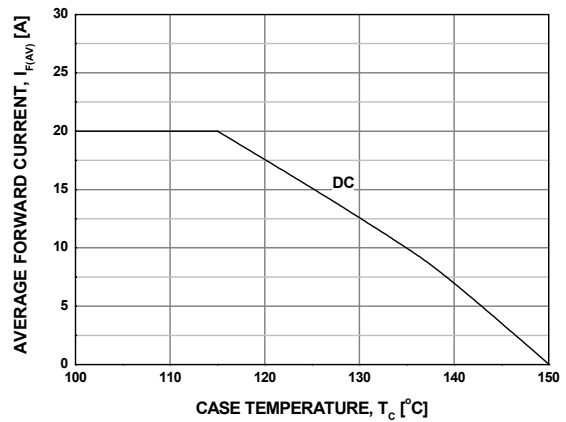
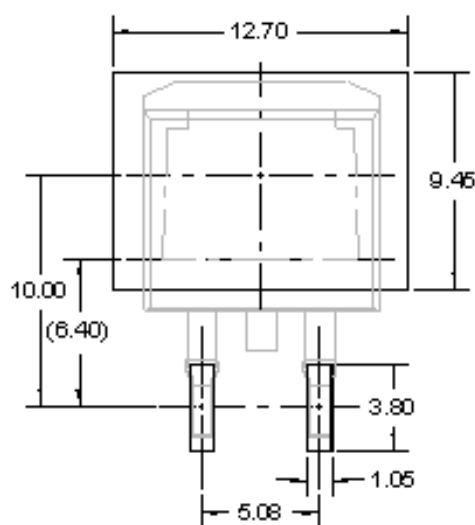
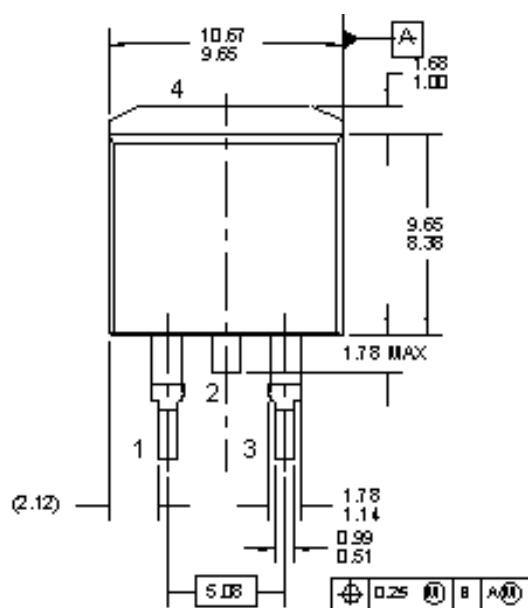


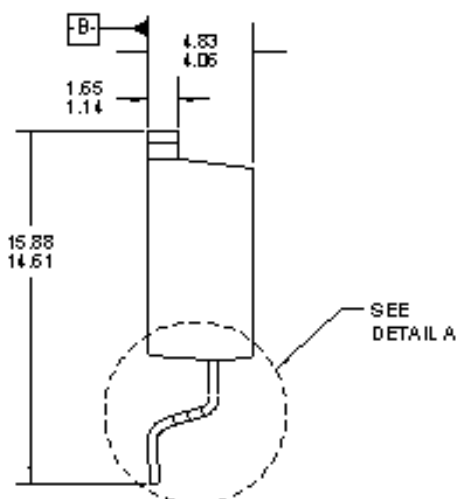
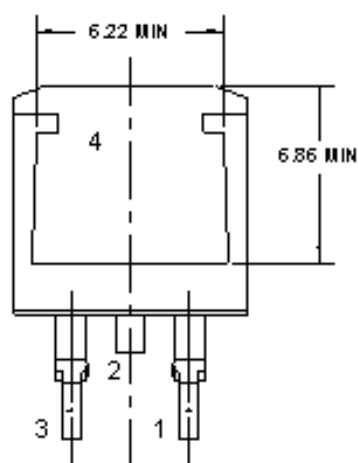
Figure 6. Forward Current Deration Curve



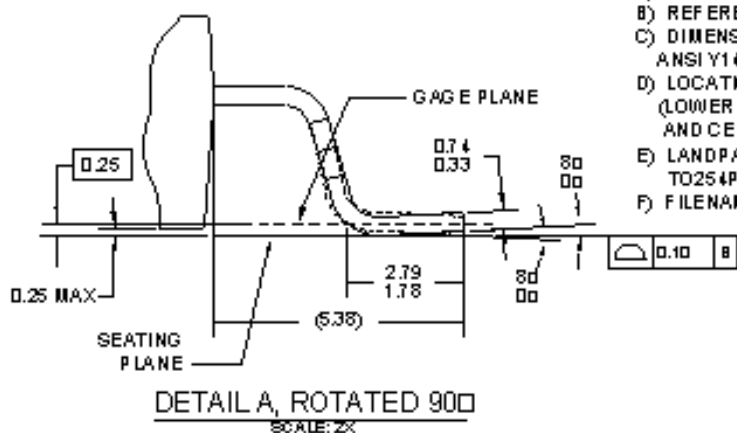
Mechanical Dimensions



LAND PATTERN RECOMMENDATION
UNLESS NOTED, ALL DIMS TYPICAL



- NOTES: UNLESS OTHERWISE SPECIFIED
A) ALL DIMENSIONS ARE IN MILLIMETERS.
B) REFERENCE JEDEC, TO-263, VARIATION AB.
C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5M - 1994.
D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE).
E) LANDPATTERN RECOMMENDATION PER IPC TO254P 1524X482-3N
F) FILENAME: TO263A02REV6



Dimensions in Millimeters



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