

# FFB10UP20S

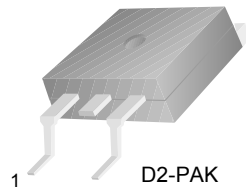
## Ultrafast Recovery Power Rectifier

### Features

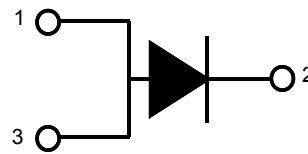
- Ultrafast with Soft Recovery : < 45ns
- High Reverse Voltage :  $V_{RRM} = 200V$
- Avalanche Energy Rated
- Planar Construction
- RoHS Compliant

### Applications

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



1.Anode 2.Cathode 3.Anode



1. Anode 2. Cathode 3. Anode

### Absolute Maximum Ratings (per diode) $T_a = 25^\circ C$ 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 @ $T_C = 120^\circ C$	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	$^\circ C$

### Thermal Characteristics $T_a = 25^\circ C$ unless otherwise noted

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.0	$^\circ C/W$

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

Symbol	Parameter	Min.	Typ.	Max.	Units	
$V_{FM}^*$	$I_F = 10\text{A}$ $I_F = 10\text{A}$	$T_C = 25^\circ\text{C}$	-	-	1.15	V
		$T_C = 150^\circ\text{C}$	-	-	1.0	V
$I_{RM}^*$	$V_R = 200\text{V}$ $V_R = 200\text{V}$	$T_C = 25^\circ\text{C}$	-	-	100	$\mu\text{A}$
		$T_C = 150^\circ\text{C}$	-	-	500	$\mu\text{A}$
$t_{rr}$	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$ $I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$	$T_C = 25^\circ\text{C}$	-	-	35	ns
		$T_C = 25^\circ\text{C}$	-	-	45	ns
$t_a$ $t_b$ $Q_{rr}$	$I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$	$T_C = 25^\circ\text{C}$	-	15	-	ns
		$T_C = 25^\circ\text{C}$	-	12	-	ns
		$T_C = 25^\circ\text{C}$	-	36	-	nC
$W_{AVL}$	Avalanche Energy (L = 20mH)	10	-	-	mJ	

\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

## Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

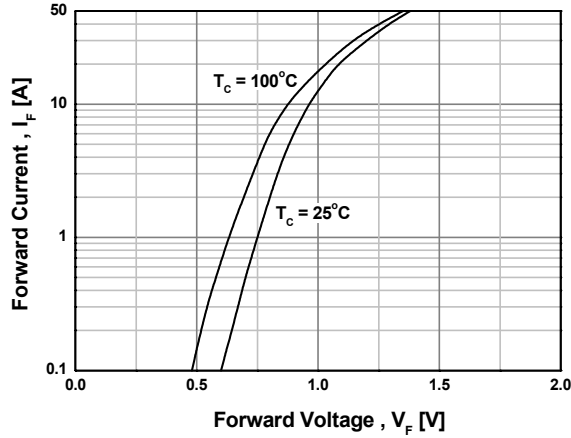


Figure 2. Typical Reverse Current

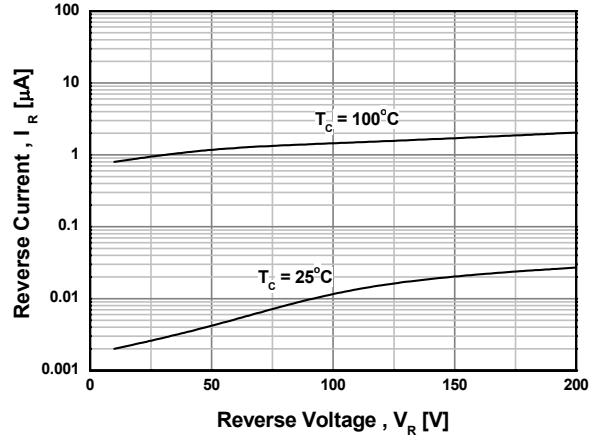


Figure 3. Typical Junction Capacitance

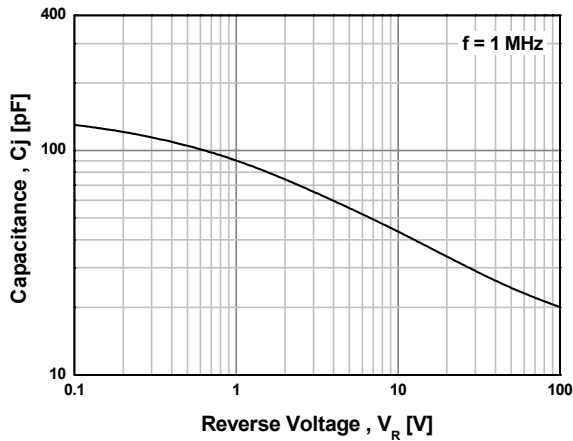


Figure 4. Typical Reverse Recovery Time

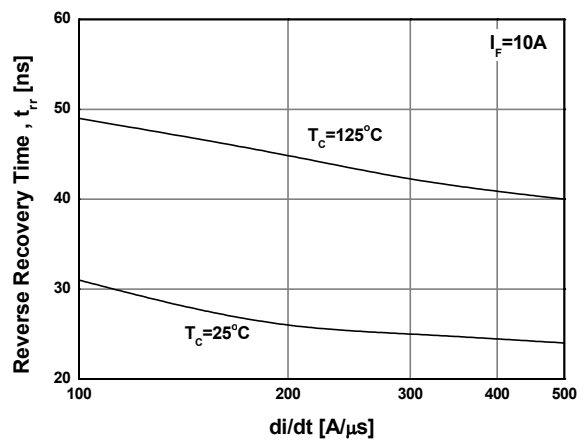


Figure 5. Typical Reverse Recovery Current

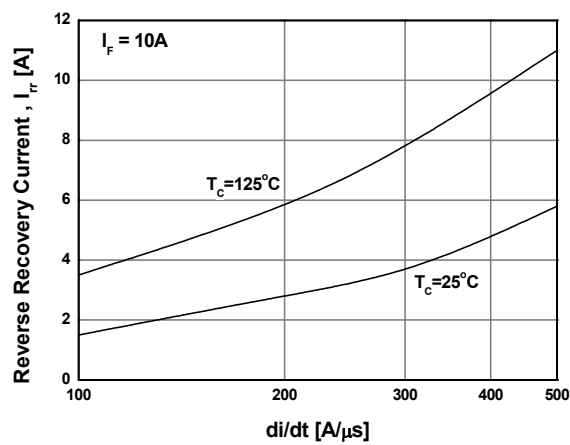
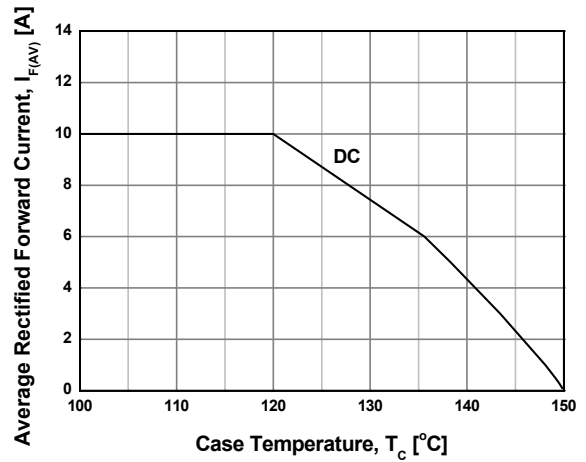
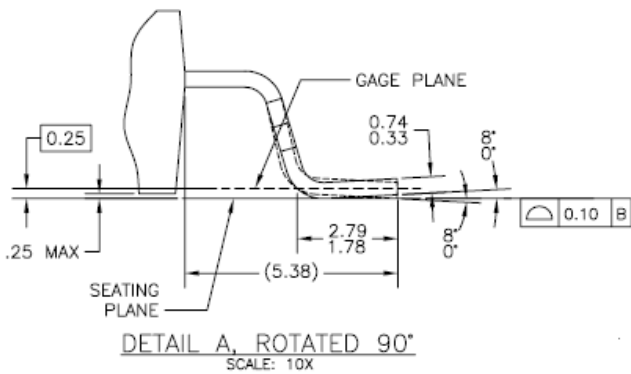
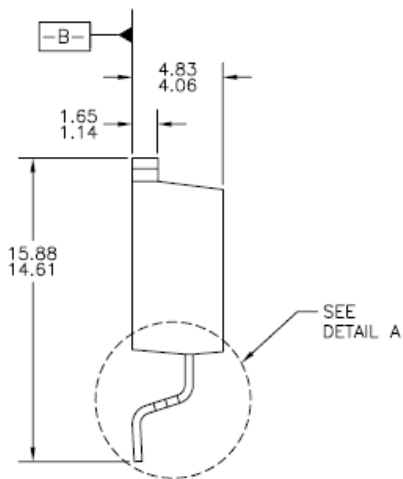
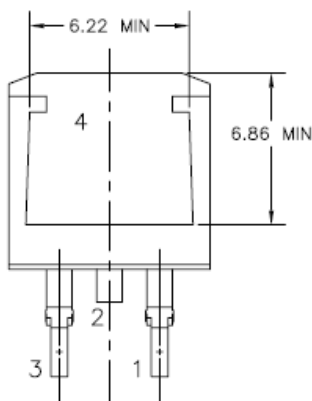
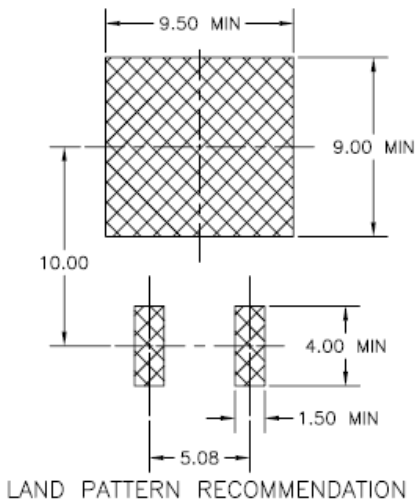
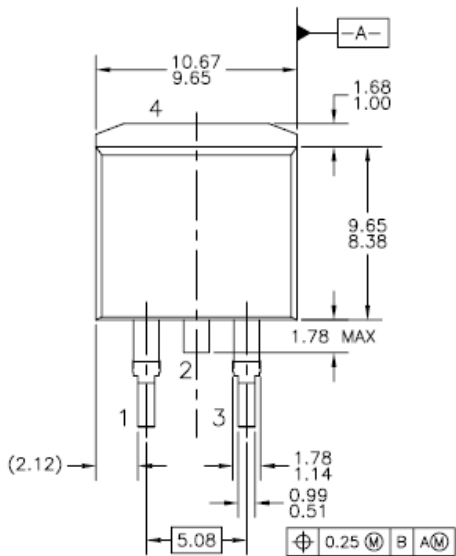


Figure 6. Forward Current Deration Curve



Mechanical Dimensions

D<sup>2</sup> - PAK



Dimensions in Millimeters


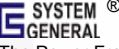


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