

Pb Free Plating Product

## F60SB60DS



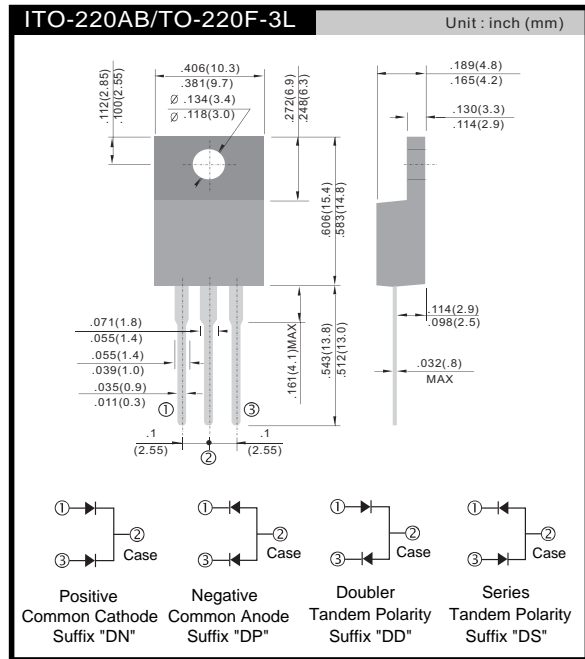
8Amperes,600Volts Insulated Dual Series Connection Ultra Fast Soft Recovery Rectifiers

### 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
- 150 Operating Junction Temperature
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



### General Description

F60SB60DS using ThinkiSemi latest FRED FAB process(planar passivation pellet) with ultrafast soft recovery characteristics.

### Absolute Maximum Ratings $T_C = 25$ unless otherwise noted

Symbol	Parameter	Ratings	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	600	V
$V_{RWM}$	Working Peak Reverse Voltage	600	V
$V_R$	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100$	4	A
$I_{FSM}$	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	40	A
$T_J, T_{STG}$	Operating and Storage Temperature Range	-65 to +150	

### Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	8.7	/W

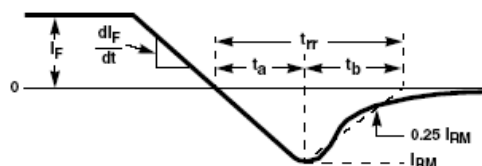
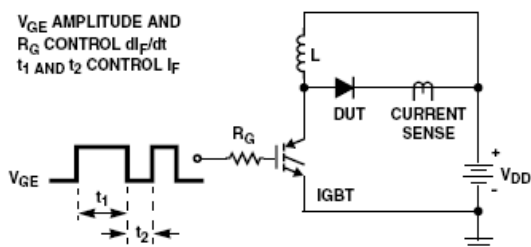
## Electrical Characteristics $T_C = 25$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Units
$V_{FM1}$	$I_F = 4A$	-	2.2	2.6	V
	$I_F = 4A$	-	1.7	-	
$I_{RM1}$	$V_R = 600V$	-	-	100	$\mu A$
	$V_R = 600V$	-	-	500	
$t_{rr}$	$I_F = 1A, di/dt = 100A/\mu s, V_R = 30V$	-	16	23	ns
$t_{rr}$ $I_{rr}$ S factor $Q_{rr}$	$I_F = 4A, di/dt = 200A/\mu s, V_R = 390V$	-	18	25	ns
		-	2	-	A
		-	0.7	-	-
		-	18	-	nC
$t_{rr}$ $I_{rr}$ S factor $Q_{rr}$	$I_F = 4A, di/dt = 200A/\mu s, V_R = 390V$	-	45	-	ns
		-	2.8	-	A
		-	1.8	-	-
		-	64	-	nC
$W_{AVL}$	Avalanche Energy ( $L = 40mH$ )	5	-	-	mJ

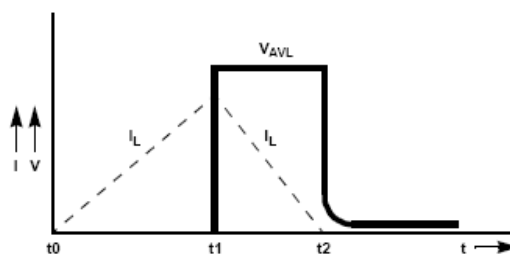
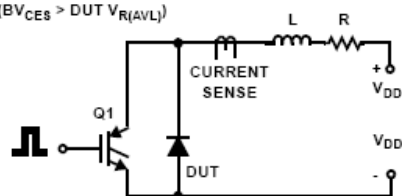
**Notes:**

1: Pulse: Test Pulse width = 300 $\mu s$ , Duty Cycle = 2%

## Test Circuit and Waveforms



$L = 40mH$   
 $R < 0.1\Omega$   
 $V_{DD} = 50V$   
 $E_{AVL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$   
 $Q1 = IGBT (BV_{CES} > DUT V_{R(AVL)})$



## Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

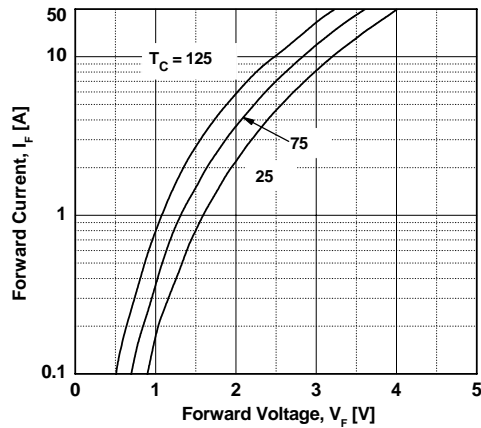


Figure 2. Typical Reverse Current vs. Reverse Voltage

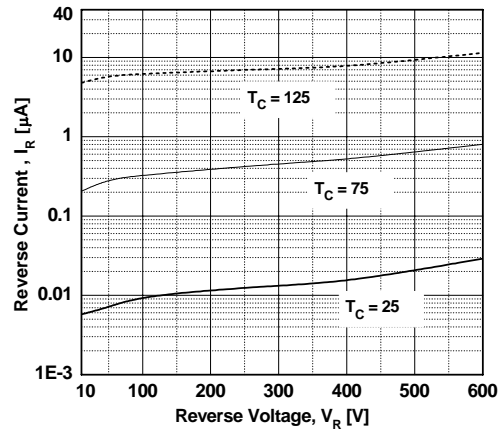


Figure 3. Typical Junction Capacitance

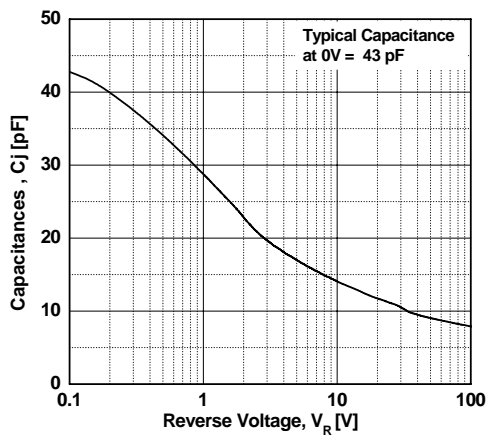


Figure 4. Typical Reverse Recovery Time vs. di/dt

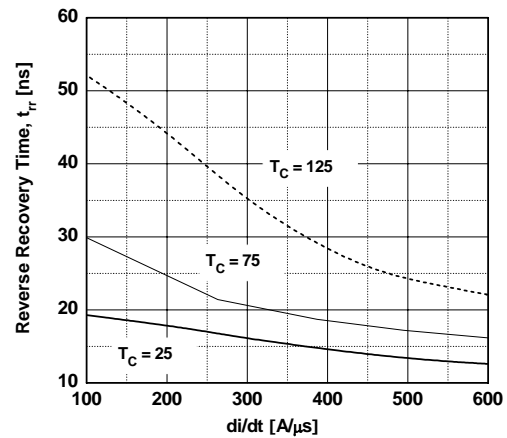


Figure 5. Typical Reverse Recovery Current vs. di/dt

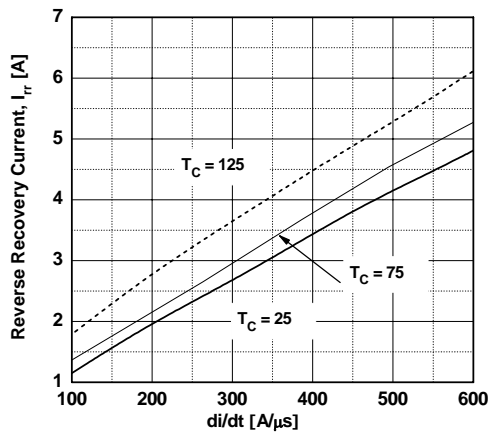


Figure 6. Forward Current Derating Curve

