SB2F100P60S

600V FRD Module

Features

- Repetitive Reverse Voltage: V_{RRM} = 600V
- Low Forward Voltage: V_F(typ.) = 1.3V @ I_F=100A
- Average Forward Current: $I_{F(AV)}$ =100A @ T_C=100℃
- Ultrafast Reverse Recovery Time: t_{rr}(typ.) = 140ns
- Extensive Characterization of Recovery Parameters
- Reduced EMI and RFI
- Isolation Type Package
- 150℃ Operating Junction Temperature
- Built-in Dual FRD Construction

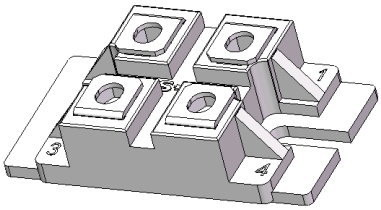
Applications

- High Speed & High Power Converters, Inverter Welders
- Various Switching and Telecommunication Power Supply
- Cutting Machine

Description

The Fast Recovery Diode module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems.
The Fast Recovery Diode module is ideally suited for power converters, inverter welders, motor drives and other applications where switching losses are significant portion of the total losses.

Package Type & Internal Circuit



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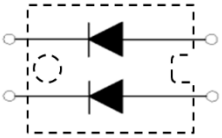


Equivalent Circuit

Absolute Maximum Ratings (Per diode at T_C=25 ℃ unless otherwise noted)

Symbol	Parameter		Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
V_R	DC Blocking Voltage		480	V
$I_{F(AV)}$	Average Rectified Forward Current	T_C = 25℃	200	A
		T_C = 100℃	100	
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-sine Wave		1800	A
I^2t	I^2t For Fusing 60Hz Sine Wave		13.4* 10^3	A^2S
P_D	Maximum Power Dissipation		420	W
V_{iso}	Isolation Voltage @AC 1 Minutes		2500	V
T_J	Junction Temperature		-55 ~ +150	℃
T_{STG}	Storage Temperature		-55 ~ +150	℃
	Mounting Torque (M4)		1.45	N.m
	Terminal Torque (M4)		1.45	N.m
	Weight		32.5	g

Electrical Characteristics (Per diode @T_C=25 ℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage Drop	I_F=100A	-	1.3	1.6	V
		I_F=100A, T_C=100℃	-	1.1	-	V
I_{RM}	Reverse Leakage Current	V_R=600V	-	-	0.5	mA
		V_R=600V, T_C=100℃	-	-	1	mA
t_{rr}	Reverse Recovery Time	I_F=1A, di/dt=-200A/us	-	35	-	ns
t_{rr}	Reverse Recovery Time	I_F=100A, di/dt=-200A/us	-	140	170	ns
I_{rr}	Reverse Recovery Current		-	14.6	-	A
t_{rr}	Reverse Recovery Time	I_F=100A, di/dt=-200A/us, T_C=100℃	-	300	-	ns
I_{rr}	Reverse Recovery Current		-	28.6	-	A

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th\ (J-C)}$	Thermal Resistance, Junction to case	0.30	℃/W

Typical Performance Characteristics

Fig. 1. Typical Characteristics: V_F vs. I_F

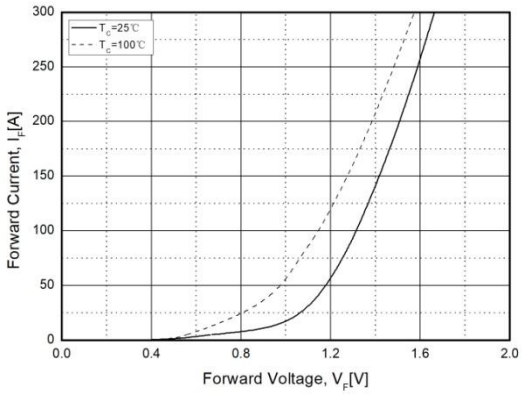


Fig. 2. Typical Reverse Recovery Time vs. di/dt

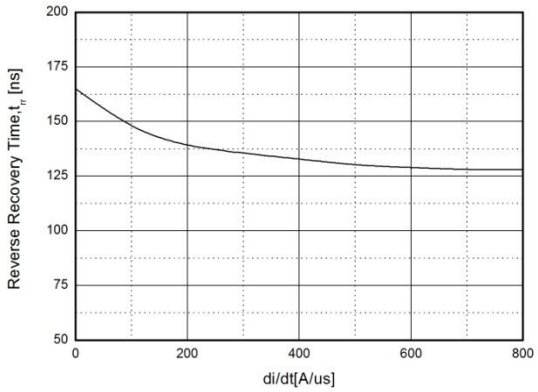


Fig. 3. Transient Thermal Impedance Characteristics ($R_{th(J-C)}$)

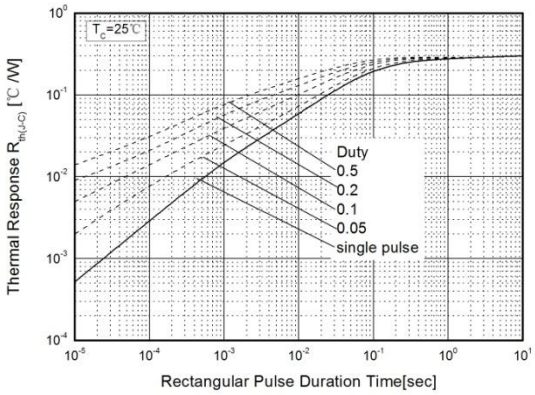
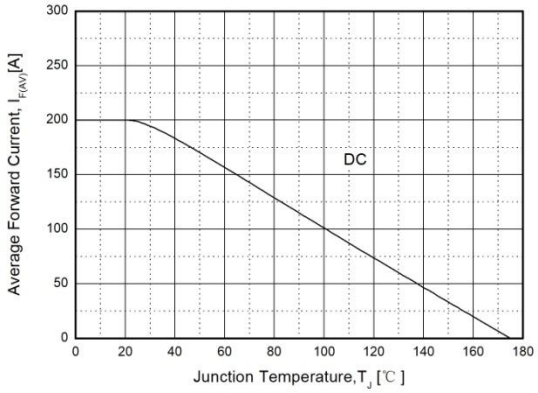


Fig. 4. Forward Current Derating Curve



Package Dimensions

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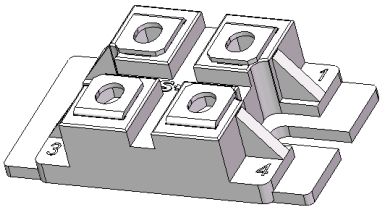
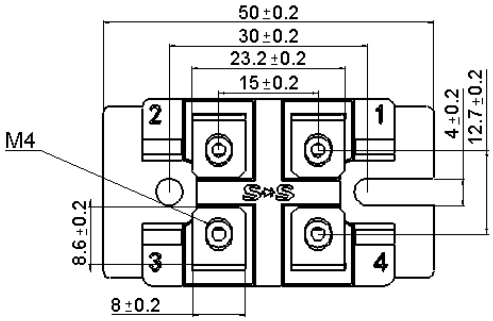
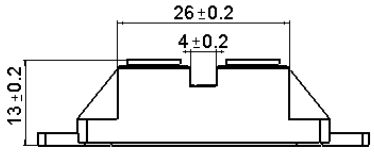
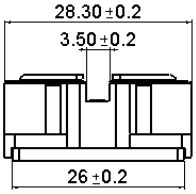


(Dimensions in Millimeters)







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