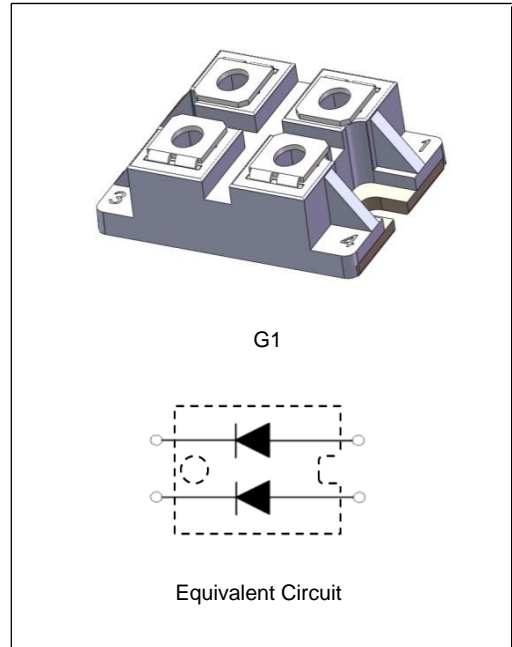# 75A 1200V FRD Module

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.

Features

- Repetitive Reverse Voltage: V_{RRM} = 1200V
- Low Forward Voltage: V_F(typ.) = 2.3V @ I_F=75A
- Average Forward Current: $I_{F(AV)}$ =75A @ T_C=100℃
- Ultrafast Reverse Recovery Time: t_{rr}(typ.) = 135ns
- 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

G1

Equivalent Circuit

Absolute Maximum Ratings (T_C=25 ℃, unless otherwise noted)

Symbol	Parameter				Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage				1200	V
V_R	DC Blocking Voltage				960	V
$I_{F(AV)}$	Average Rectified Forward Current	Per Diode	T_C = 25℃		150	A
			T_C = 100℃		75	
		Per Package	T_C = 25℃		300	
			T_C = 100℃		150	
I_{FSM}	Non-repetitive Peak Surge Current (Per Diode) 60Hz Single Half-sine Wave				960	A
I^2t	I²t For Fusing 60Hz Sine Wave				3.8 * 10³	A²S
P_D	Maximum Power Dissipation				240	W
V_{iso}	Isolation Voltage @AC 1 Minutes				2500	V
T_J	Junction Temperature				-55 ~ +150	℃
T_{STG}	Storage Temperature Range				-55 ~ +150	℃
	Mounting Torque (M4)				1.45	N.m
	Terminal Torque (M4)				1.45	N.m
	Weight				32.2	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=75A	-	2.3	2.5	V
		I_F=75A, T_C=100℃	-	2.0	-	V
I_{RM}	Reverse Leakage Current	V_R=1200V	-	-	0.5	mA
		V_R=1200V, T_C=100℃	-	-	1	mA
t_{rr}	Reverse Recovery Time	I_F=1A, di/dt=-200A/us	-	45	-	ns
t_{rr}	Reverse Recovery Time	I_F=75A, di/dt=-200A/us	-	135	170	ns
I_{rr}	Reverse Recovery Current		-	21	-	A
t_{rr}	Reverse Recovery Time	I_F=75A, di/dt=-200A/us, T_C=100℃	-	490	-	ns
I_{rr}	Reverse Recovery Current		-	31	-	A

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th (J-C)}$	Thermal Resistance, Junction to case	0.52	℃/W

Typical Performance Characteristics
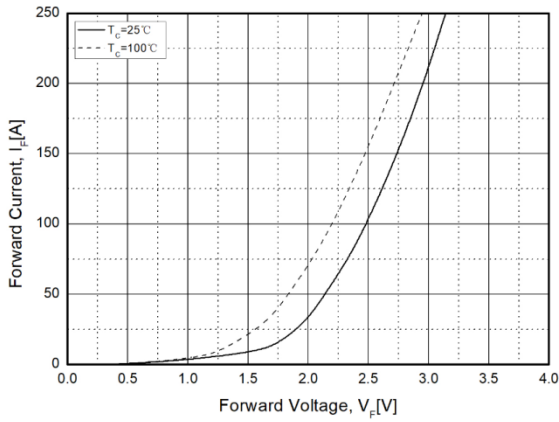
Fig. 1. Typical Characteristics: V_F vs. I_F

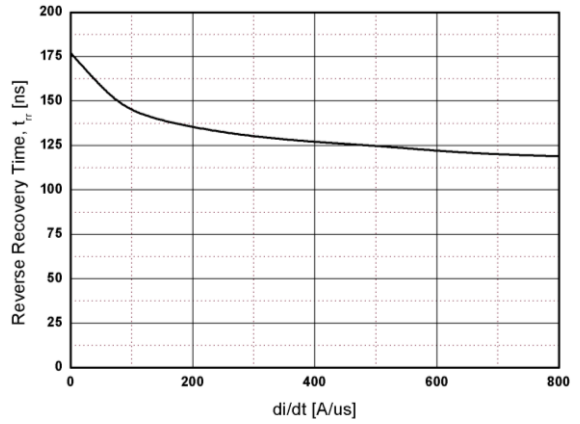Fig. 2. Typical Reverse Recovery Time vs. di/dt

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

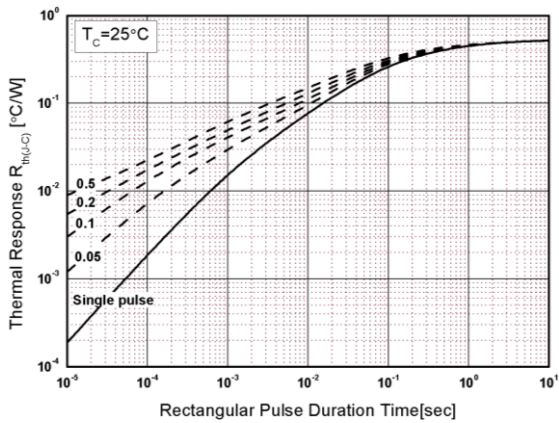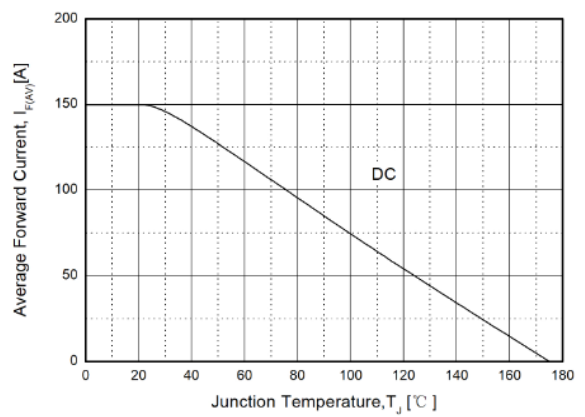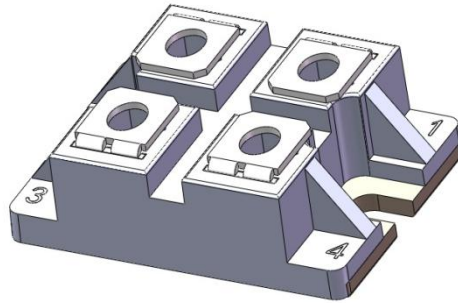Fig. 4. Forward Current Derating Curve

Package Dimensions

G1

(Dimensions in Millimeters)