

STARPOWER

SEMICONDUCTOR

FRED

FD100DGH60D6S

600V/100A 1 in one-package

General Description

STARPOWER Diode Power Module provides low Forward voltage as well as low reverse recovery loss. They are designed for the applications such as SMPS.

Features

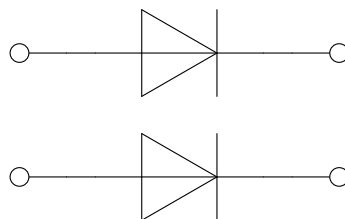
- Fast soft diode
- Low forward voltage drop
- Small temperature coefficient
- Low reverse recovery losse
- High ruggedness
- Low inductance
- Isolated copper baseplate using DBC technology



Typical Applications

- SMPS
- PFC
- Welding machine

Equivalent Circuit Schematic



Absolute Maximum Ratings $T_C=25^{\circ}\text{C}$ unless otherwise noted**Diode**

Symbol	Description	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	600	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	650	V
I_F	Diode Continuous Forward Current	100	A
P_D	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	248	W

Module

Symbol	Description	Value	Unit
T_{jmax}	Maximum Junction Temperature	150	$^{\circ}\text{C}$
T_{jop}	Operating Junction Temperature	-40 to +125	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-40 to +125	$^{\circ}\text{C}$
V_{ISO}	Isolation Voltage RMS, $f=50\text{Hz}, t=1\text{min}$	2500	V

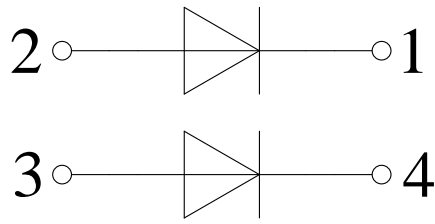
Diode Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=100\text{A}, T_j=25^{\circ}\text{C}$		1.40	1.85	V
		$I_F=100\text{A}, T_j=125^{\circ}\text{C}$		1.40		
Q_r	Recovered Charge	$V_R=300\text{V}, I_F=100\text{A},$ $-di/dt=1800\text{A}/\mu\text{s}, T_j=25^{\circ}\text{C}$		5.5		μC
I_{RM}	Peak Reverse Recovery Current			68		A
E_{rec}	Reverse Recovery Energy			0.89		mJ
Q_r	Recovered Charge	$V_R=300\text{V}, I_F=100\text{A},$ $-di/dt=1800\text{A}/\mu\text{s}, T_j=125^{\circ}\text{C}$		7.3		μC
I_{RM}	Peak Reverse Recovery Current			88		A
E_{rec}	Reverse Recovery Energy			1.71		mJ

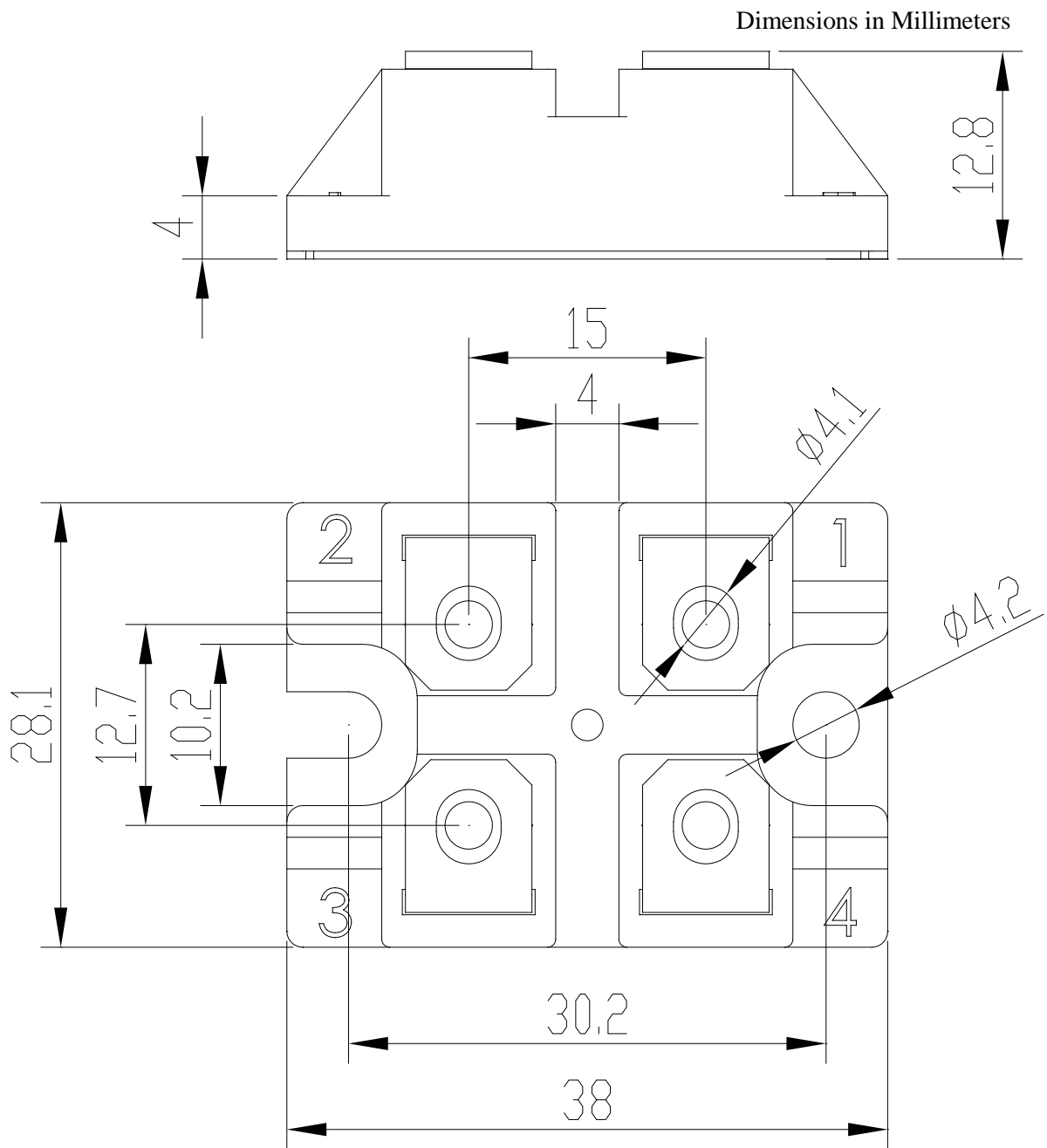
Module Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Junction-to-Case			0.503	K/W
R_{thCH}	Case-to-Heatsink		0.15		K/W
M	Terminal Connection Torque, Screw M3	2.5		5.0	N.m
	Mounting Torque, Screw M3	2.5		5.0	
G	Weight of Module		35		g

Circuit Schematic



Package Dimensions



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