

STARPOWER

SEMICONDUCTOR

FRED

FD100DGC120D6S

1200V/50A 2 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

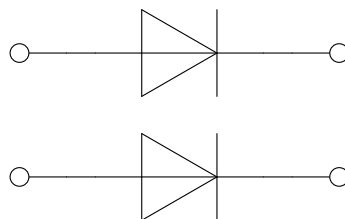
- SiC Schottky diode
- Positive temperature coefficient
- Essentially no reverse or forward recovery
- High ruggedness
- Low inductance
- Isolated copper baseplate using DBC technology



Typical Applications

- SMPS
- Power converters
- Industrial motor drives
- Power factor correction modules

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	1200	V
I_F	Diode Continuous Forward Current $T_C=125^{\circ}\text{C}$	50	A
I_{FSM}	Surge Forward Current $V_R=0\text{V}, t_p=8.3\text{ms}$	400	A
P_D	Maximum Power Dissipation @ $T_j=175^{\circ}\text{C}$	488	W

Module

Symbol	Description	Value	Unit
T_{jmax}	Maximum Junction Temperature	175	$^{\circ}\text{C}$
T_{jop}	Operating Junction Temperature	-40 to +150	$^{\circ}\text{C}$
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

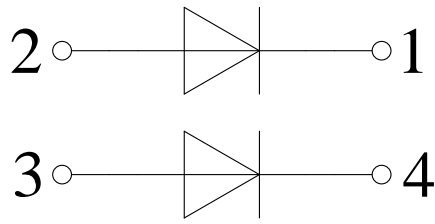
Diode Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=50\text{A}, T_j=25^{\circ}\text{C}$		1.50	1.70	V
		$I_F=50\text{A}, T_j=175^{\circ}\text{C}$		2.50		
I_R	Diode Reverse Current	$V_R=V_{RRM}, T_j=25^{\circ}\text{C}$		20	600	μA
		$V_R=V_{RRM}, T_j=175^{\circ}\text{C}$		100	1800	
Q_C	Total Capacitive Charge	$V_R=600\text{V}, I_F=30\text{A},$ $di/dt=480\text{A}/\mu\text{s}$		158		nC

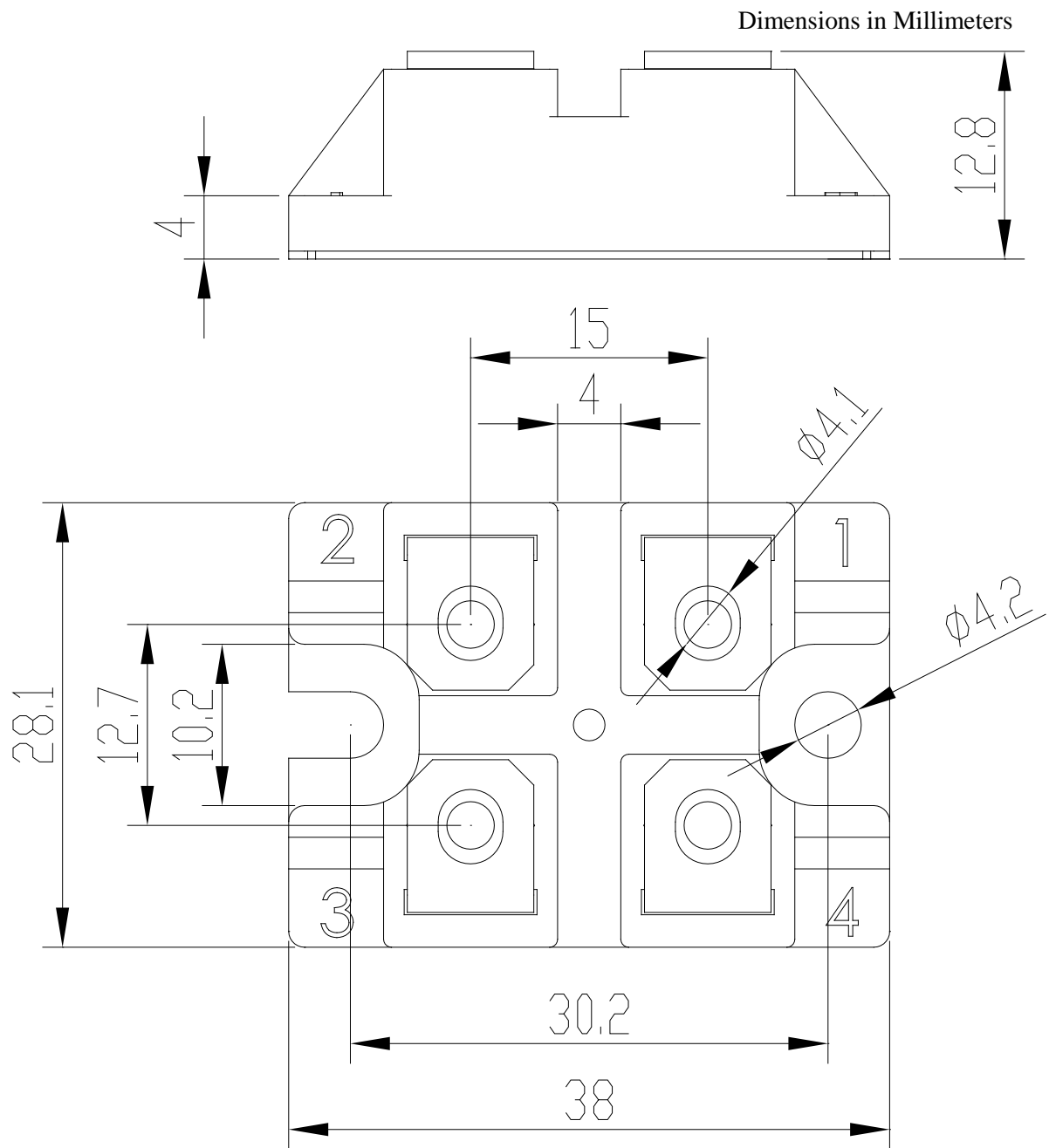
Module Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Junction-to-Case (per Diode)			0.307	K/W
R_{thCH}	Case-to-Heatsink (per Module)		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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