

STARPOWER

SEMICONDUCTOR

FRED

FD400HCH60C8S

600V/400A 4 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

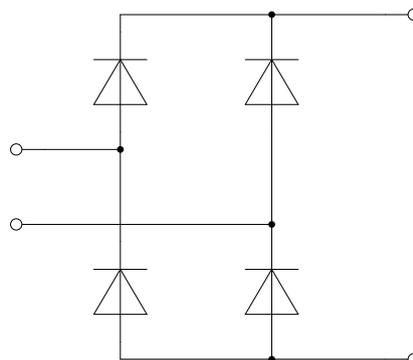
- Fast soft diode
- Low forward voltage drop
- Small temperature coefficient
- Low reverse recovery losses
- High ruggedness
- Low inductance
- Isolated copper baseplate using DBC technology



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	400	A
P_D	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	706	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	$I_F=400\text{A}, T_j=25^{\circ}\text{C}$		1.38	1.80	V
		$I_F=400\text{A}, T_j=125^{\circ}\text{C}$		1.41		
Q_r	Recovered Charge	$V_R=300\text{V}, I_F=400\text{A},$ $-di/dt=7000\text{A}/\mu\text{s}, T_j=25^{\circ}\text{C}$		15.5		μC
I_{RM}	Peak Reverse Recovery Current			265		A
E_{rec}	Reverse Recovery Energy			3.5		mJ
Q_r	Recovered Charge	$V_R=300\text{V}, I_F=400\text{A},$ $-di/dt=7000\text{A}/\mu\text{s}, T_j=125^{\circ}\text{C}$		28.5		μC
			I_{RM}	Peak Reverse Recovery Current		335
E_{rec}	Reverse Recovery Energy			7.5		mJ

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

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Junction-to-Case			0.177	K/W
R_{thCH}	Case-to-Heatsink		0.046		K/W
M	Terminal Connection Torque, Screw M5	2.5		5.0	N.m
	Mounting Torque, Screw M6	3.0		5.0	
G	Weight of Module		200		g

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