

# STARPOWER

SEMICONDUCTOR

**FRED**

## FD400HFH60C2S

Molding Type Module

**600V/400A 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

- 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
- Electric welders
- DC choppers

**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
$I_{FRM}$	Repetitive Peak Forward Current	800	A
$P_D$	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	791	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=50Hz, t=1min	2500	V

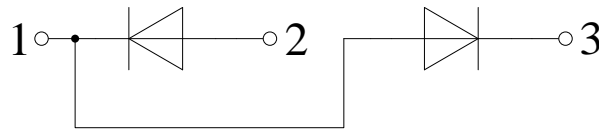
**Diode Characteristics**  $T_C=25^{\circ}\text{C}$  unless otherwise noted

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		$\mu\text{C}$
$I_{RM}$	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		$\mu\text{C}$
			$I_{RM}$	Peak Reverse Recovery Current		335
$E_{rec}$	Reverse Recovery Energy			7.5		mJ

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

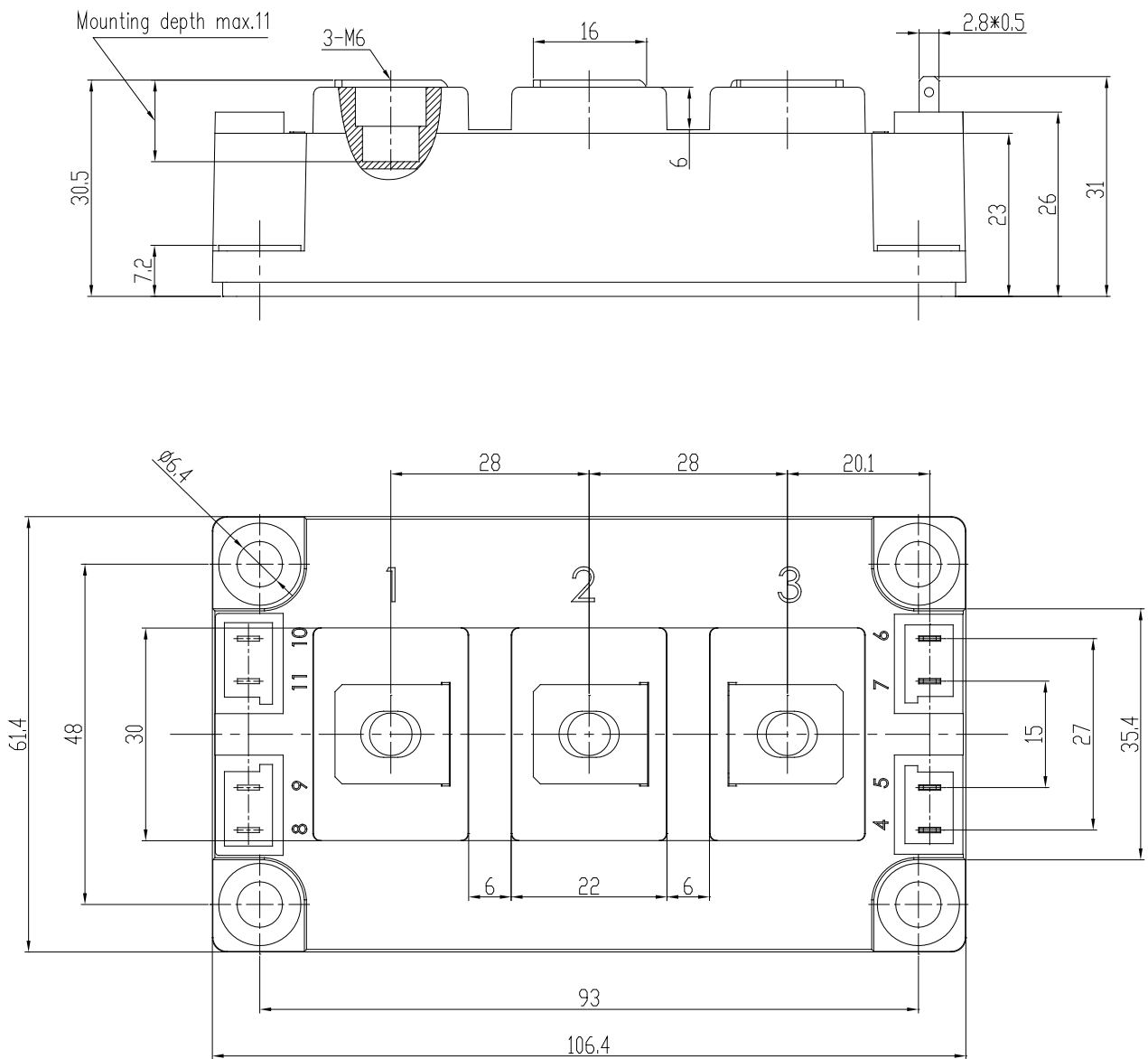
Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{thJC}$	Junction-to-Case			0.158	K/W
$R_{thCH}$	Case-to-Heatsink		0.035		K/W
M	Terminal Connection Torque, Screw M6	2.5		5.0	N.m
	Mounting Torque, Screw M6	3.0		5.0	
G	Weight of Module		300		g

### Equivalent Circuit Schematic



### Package Dimensions

Dimensions in Millimeters



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