

# STARPOWER

SEMICONDUCTOR

**FRED**

## FD600HFH60C2S

Molding Type Module

**600V/600A 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

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

Symbol	Description	FD600HFH60C2S	Units
$V_{RRM}$	Repetitive Peak Reverse Voltage	600	V
$I_F$	Continuous Forward Current	600	A
$I_{FRM}$	Repetitive Peak Forward Current	1200	A
$P_D$	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	1190	W
$T_{jmax}$	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, $f=50\text{Hz}$ , $t=1\text{min}$	4000	V
M	Terminal Connection Torque, Screw M6 Mounting Torque, Screw M6	2.5 to 5.0 3.0 to 5.0	N.m
G	Weight of Module	300	g

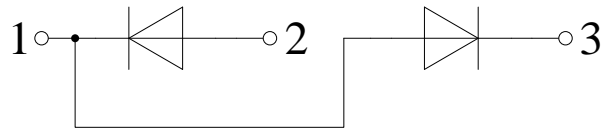
**Electrical Characteristics of Diode**  $T_C=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_F$	Diode Forward Voltage	$I_F=600\text{A}$	$T_j=25^{\circ}\text{C}$		1.40	1.80	V
			$T_j=125^{\circ}\text{C}$		1.45		
$I_R$	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$			1.0	mA
$Q_r$	Recovered Charge	$I_F=600\text{A}$	$T_j=25^{\circ}\text{C}$		32.8		$\mu\text{C}$
			$T_j=125^{\circ}\text{C}$		44.0		
$I_{RM}$	Peak Reverse Recovery Current	$V_R=300\text{V}$ $di/dt=-$	$T_j=25^{\circ}\text{C}$		410		A
			$T_j=125^{\circ}\text{C}$		530		
$E_{rec}$	Reverse Recovery Energy	11000A/ $\mu\text{s}$	$T_j=25^{\circ}\text{C}$		5.30		mJ
			$T_j=125^{\circ}\text{C}$		10.2		
$L_{CE}$	Stray Inductance					20	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal To Chip	$T_C=25^{\circ}\text{C}$			0.35		m $\Omega$

**Thermal Characteristics**

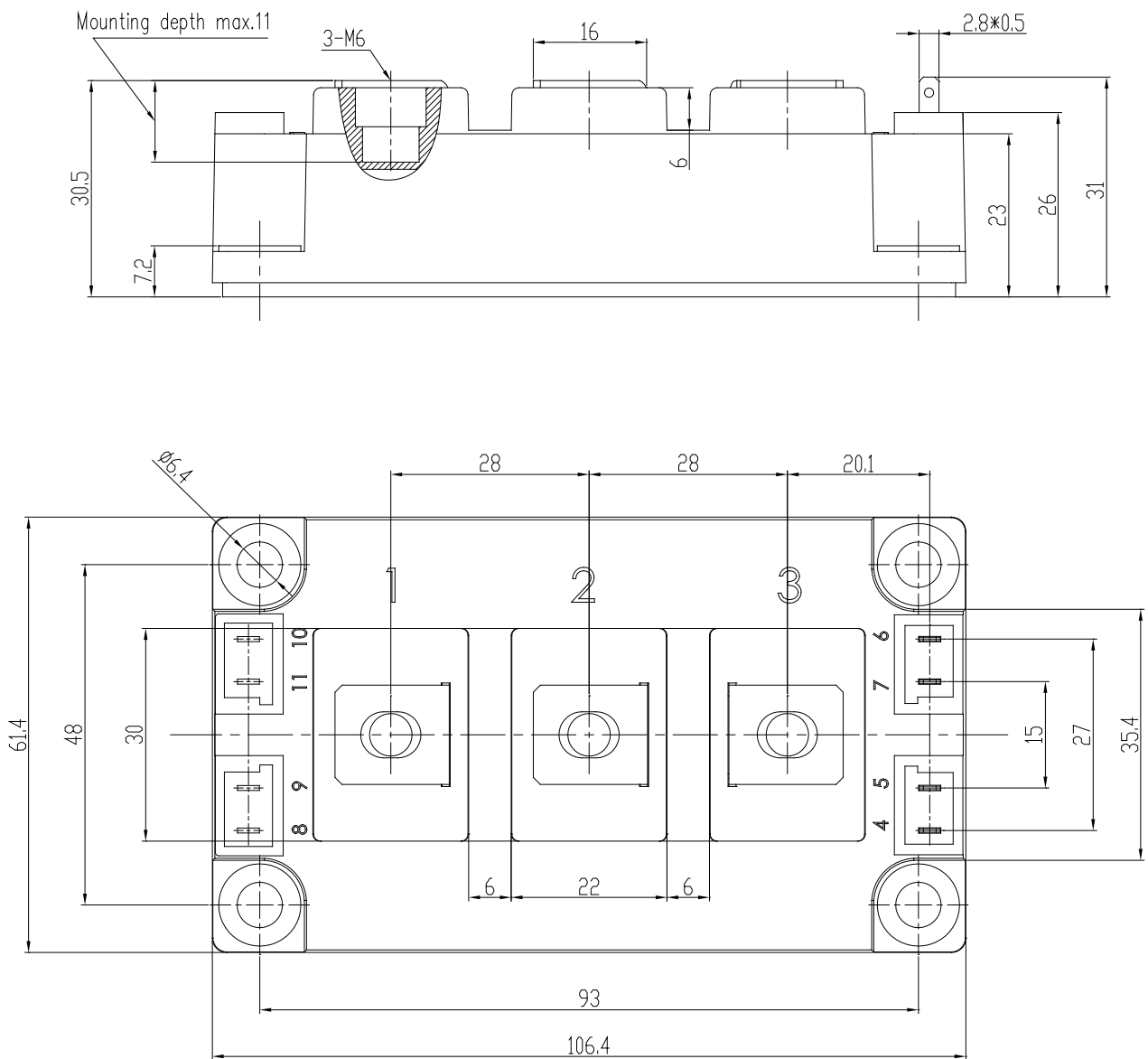
Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.105	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.035		K/W

### Equivalent Circuit Schematic



### Package Dimensions

Dimensions in Millimeters



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