

# STARPOWER

SEMICONDUCTOR

**FRED**

## FD300HFH120C2S

Molding Type Module

1200V/300A 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.



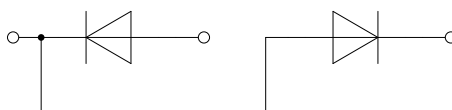
### Features

- 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

### Equivalent Circuit Schematic



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

Symbol	Description	Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage	1200	V
$I_F$	Continuous Forward Current	300	A
$I_{FRM}$	Repetitive Peak Forward Current	600	A
$P_D$	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	1275	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, $f=50\text{Hz}, t=1\text{min}$	2500	V

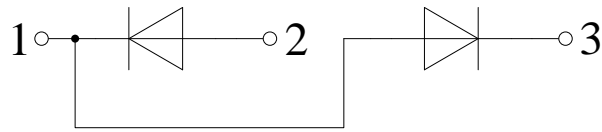
**Electrical Characteristics of Diode**  $T_C=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_F$	Diode Forward Voltage	$I_F=300\text{A}, T_j=25^{\circ}\text{C}$		1.82	2.27	V
		$I_F=300\text{A}, T_j=125^{\circ}\text{C}$		1.95		
$Q_r$	Recovered Charge	$I_F=300\text{A}, V_R=600\text{V}$ $-di/dt=4800\text{A}/\mu\text{s}$ $T_j=25^{\circ}\text{C}$		25.8		$\mu\text{C}$
$I_{RM}$	Peak Reverse Recovery Current			294		A
$E_{rec}$	Reverse Recovery Energy			12.7		mJ
$Q_r$	Recovered Charge	$I_F=300\text{A}, V_R=600\text{V}$ $-di/dt=4800\text{A}/\mu\text{s}$ $T_j=125^{\circ}\text{C}$		50.4		$\mu\text{C}$
			$I_{RM}$	Peak Reverse Recovery Current		354
$E_{rec}$	Reverse Recovery Energy			21.8		mJ

**Thermal Characteristics**

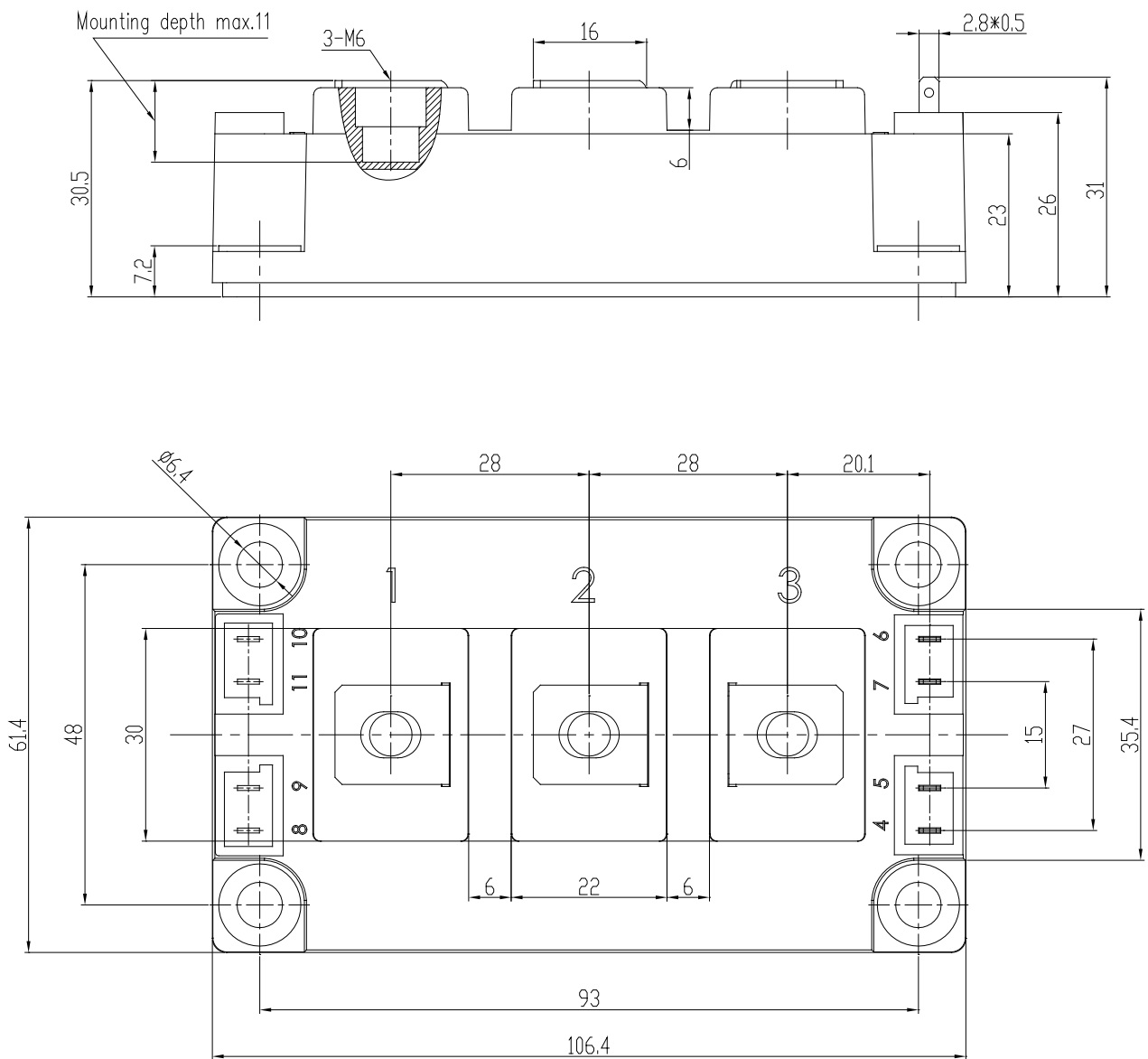
Symbol	Parameter	Min.	Typ.	Max.	Unit
$L_{CE}$	Stray Inductance			20	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal to Chip		0.35		m $\Omega$
$R_{thJC}$	Junction-to-Case (per Diode)			0.098	K/W
$R_{thCH}$	Case-to-Heatsink (per Module)		0.035		K/W
M	Terminal Connection Torque, Screw M6	2.5		5.0	N.m
	Mounting Torque, Screw M6	3.0		5.0	
G	Weight of Module		300		g

**Equivalent Circuit Schematic**



**Package Dimensions**

Dimensions in Millimeters



## Terms and Conditions of Usage

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