STARPOWER

SEMICONDUCTOR **FRED**

FD300HFE170C2S

Molding Type Module

1700V/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.

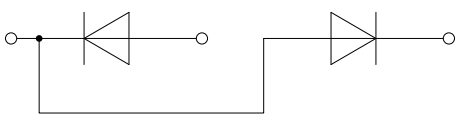
Features

- 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°C unless otherwise noted

Symbol	Description	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V
I_F	Continuous Forward Current	300	A
I_{FRM}	Repetitive Peak Forward Current	600	A
P_D	Maximum Power Dissipation @ T_j=175°C	943	W
T_{jmax}	Maximum Junction Temperature	175	°C
T_{jop}	Operating Junction Temperature	-40 to +150	°C
T_{STG}	Storage Temperature Range	-40 to +125	°C
V_{ISO}	Isolation Voltage RMS,f=50Hz,t=1min	4000	V

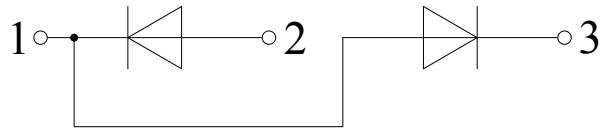
Electrical Characteristics of Diode T_C=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	I_F=300A,T_j=25°C		1.80	2.25	V
		I_F=300A,T_j=125°C		1.90		
		I_F=300A,T_j=150°C		1.95		
Q_r	Recovered Charge	I_F=300A,V_R=900V -di/dt=3600A/µs T_j=25°C		78		µC
I_{RM}	Peak Reverse Recovery Current			350		A
E_{rec}	Reverse Recovery Energy			40.0		mJ
Q_r	Recovered Charge	I_F=300A,V_R=900V -di/dt=3600A/µs T_j=125°C		130		µC
I_{RM}	Peak Reverse Recovery Current			380		A
E_{rec}	Reverse Recovery Energy			72.0		mJ
Q_r	Recovered Charge	I_F=300A,V_R=900V -di/dt=3600A/µs T_j=150°C		143		µC
I_{RM}	Peak Reverse Recovery Current			395		A
E_{rec}	Reverse Recovery Energy			80.5		mJ

Thermal Characteristics

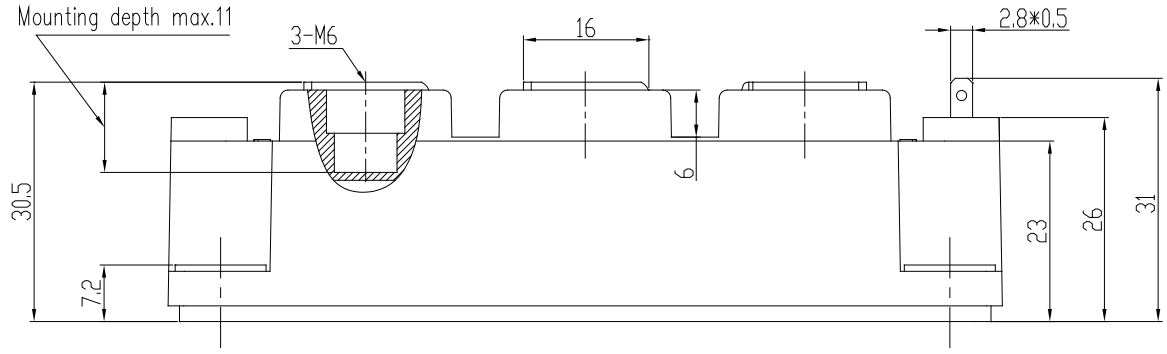
Symbol	Parameter	Min.	Typ.	Max.	Unit
L_{CE}	Stray Inductance			20	nH
$R_{CC'+EE'}$	Module Lead Resistance,Terminal to Chip		0.35		mΩ
R_{thJC}	Junction-to-Case (per Diode)			0.159	K/W
R_{thCH}	Case-to-Heatsink (per Module)		0.035		K/W
M	Terminal Connection Torque, Screw M6 Mounting Torque, Screw M6	2.5 3.0		5.0 5.0	N.m
G	Weight of Module		300		g

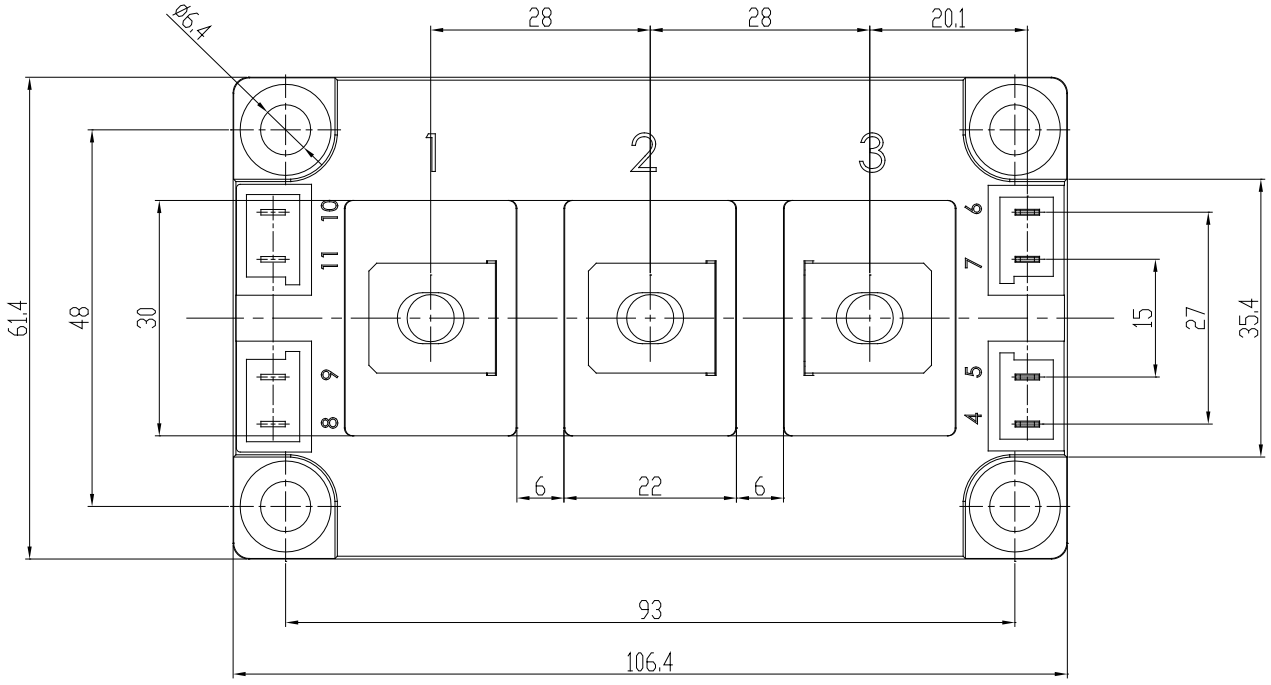
Equivalent Circuit Schematic



Package Dimensions

Dimensions in Millimeters





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