STARPOWER

SEMICONDUCTOR™

FRED

FD300HFS120C2S

Molding Type Module

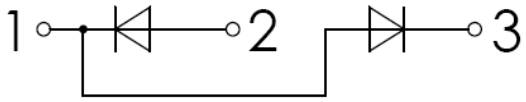
1200V/300A 2 in one-package

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



Equivalent Circuit Schematic

Typical Applications

- SMPS
- PFC
- Electric welders
- DC choppers

Absolute Maximum Ratings T_C=25℃ unless otherwise noted

Symbol	Description	FD300HFS120C2S	Units
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V
I_F	Continuous Forward Current @ T_C=80℃	300	A
$I_{F\,RM}$	Repetitive Peak Forward Current	600	A
I_{FSM}	Surge Forward Current T_j=45℃,V_R=0V	3000	A
T_j	Maximum Junction Temperature	150	℃
T_{STG}	Storage Temperature Range	-40 to +125	℃
I^2t-value,Diode	V_R=0V,t=10ms,T_j=125℃	19000	A^2s
V_{ISO}	Isolation Voltage RMS,f=50Hz,t=1min	2500	V
Mounting Torque	Power Terminal Screw:M5	2.5 to 5.0	N.m
	Mounting Screw:M6	3.0 to 5.0	N.m

Notes:

(1) Repetitive rating: Pulse width limited by max. junction temperature

Characteristics Values

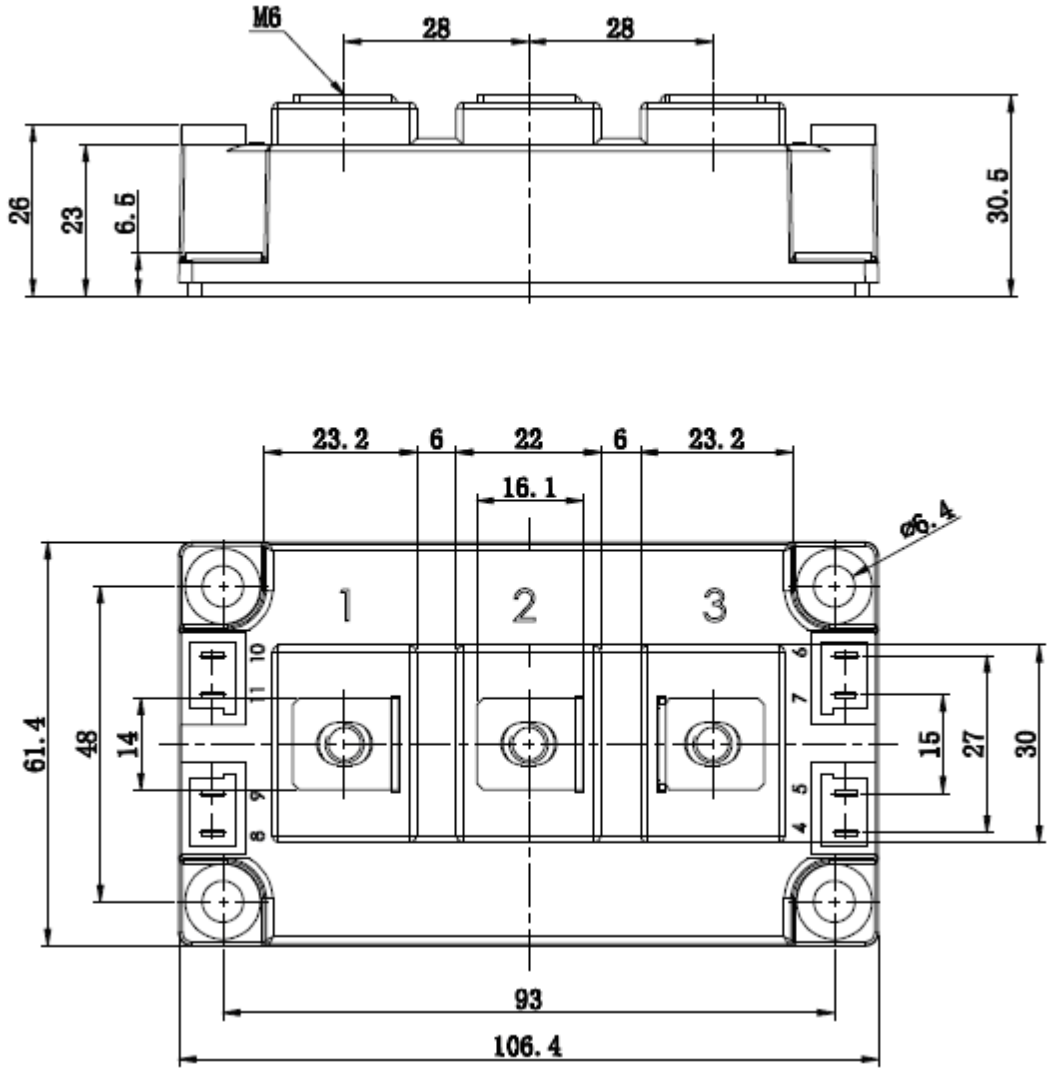
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	I_F=300A,V_{GE}=0V	T_j=25℃		1.95	2.20	V
			T_j=125℃		1.85		
I_R	Diode Reverse Current	V_R=V_{RRM}	T_j=125℃			3.0	mA
Q_r	Recovered Charge	I_F=300A, V_R=600V, di/dt=-3300A/μs,	T_j=25℃		17.2		nC
			T_j=125℃		36.0		
I_{RM}	Peak Reverse Recovery Current		T_j=25℃		120		A
			T_j=125℃		180		
E_{rec}	Reverse Recovery Energy		T_j=25℃		5.8		mJ
			T_j=125℃		13.2		
L_{CE}	Stray Inductance					20	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal To Chip	T_C=25℃			0.35		mΩ

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (DIODE Part,per 1/2 Module)		0.11	K/W
$R_{\theta CS}$	Case-to-Sink (conductive grease applied,per Module)	0.038		K/W
Weight	Weight of Module	300		g

Package Dimension

Dimensions in Millimeters



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