

STARPOWER

SEMICONDUCTOR

FRED

FD300CCH60C1S

Molding Type Module

600V/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

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

Symbol	Description	FD300CCH60C1S	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	600	V
I_F	Continuous Forward Current	300	A
I_{FRM}	Repetitive Peak Forward Current	600	A
P_D	Maximum Power Dissipation @ $T_j=150^{\circ}\text{C}$	598	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 M5 Mounting Torque, Screw M6	2.5 to 5.0 3.0 to 5.0	N.m
G	Weight of Module	150	g

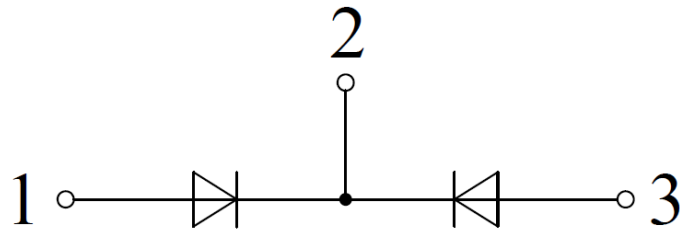
Electrical Characteristics of Diode $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=300\text{A}$	$T_j=25^{\circ}\text{C}$	1.40	1.80	V
			$T_j=125^{\circ}\text{C}$	1.45		
I_R	Diode Reverse Current	$V_R=V_{RRM}$			1.0	mA
Q_r	Recovered Charge	$I_F=300\text{A}$ $V_R=300\text{V}$ $di/dt=-5500\text{A}/\mu\text{s}$	$T_j=25^{\circ}\text{C}$	16.4		μC
			$T_j=125^{\circ}\text{C}$	22.0		
I_{RM}	Peak Reverse Recovery Current	$I_F=300\text{A}$ $V_R=300\text{V}$ $di/dt=-5500\text{A}/\mu\text{s}$	$T_j=25^{\circ}\text{C}$	205		A
			$T_j=125^{\circ}\text{C}$	265		
E_{rec}	Reverse Recovery Energy	$I_F=300\text{A}$ $V_R=300\text{V}$ $di/dt=-5500\text{A}/\mu\text{s}$	$T_j=25^{\circ}\text{C}$	2.66		mJ
			$T_j=125^{\circ}\text{C}$	5.12		
L_{CE}	Stray Inductance				30	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal To Chip	$T_C=25^{\circ}\text{C}$		0.75		$\text{m}\Omega$

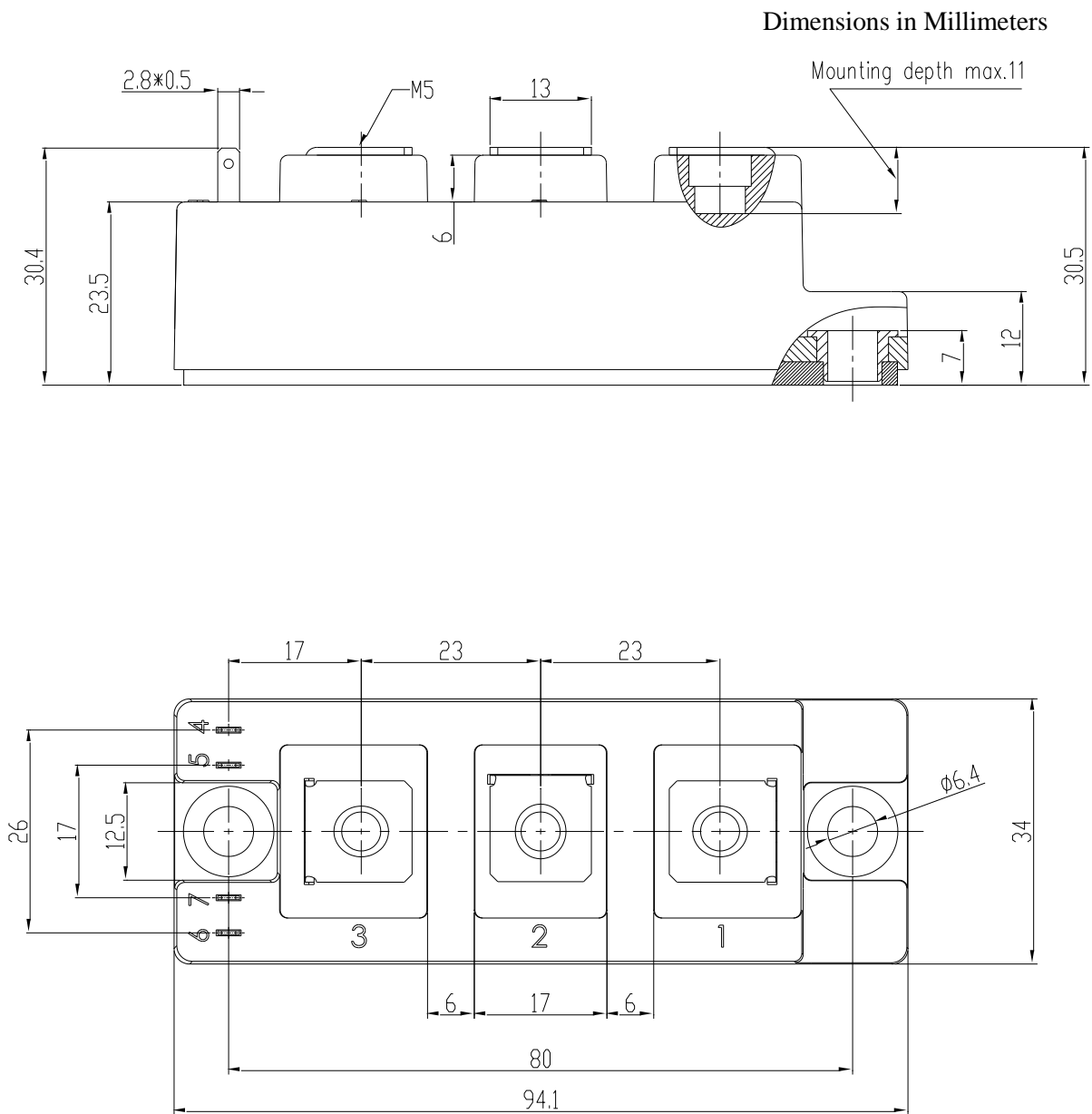
Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.209	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.05		K/W

Equivalent Circuit Schematic



Package Dimensions



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