

STARPOWER

SEMICONDUCTOR

FRED

FD300CCH60D1S

Molding Type Module

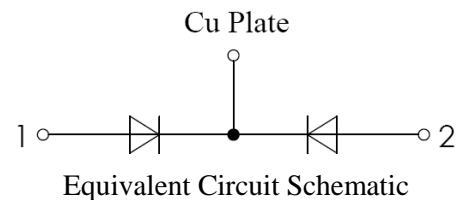
600V/300A in one-package

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



Typical Applications

- SMPS
- PFC
- Electric welders
- DC choppers

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

Symbol	Description	FD300CCH60D1S	Units
V_{RRM}	Repetitive Peak Reverse Voltage	600	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	600	V
I_{FAV}	Average Forward Current $T_C=100^\circ\text{C}$, Diode $T_C=100^\circ\text{C}$, Module	150	A
		300	
I_{FSM}	Surge Forward Current $V_R=0\text{V}$, $t_p=10\text{ms}$, $T_j=25^\circ\text{C}$ $V_R=0\text{V}$, $t_p=8.3\text{ms}$, $T_j=25^\circ\text{C}$	2400	A
		2640	
I^2t	I^2t -value $V_R=0\text{V}$, $t_p=10\text{ms}$, $T_j=25^\circ\text{C}$ $V_R=0\text{V}$, $t_p=8.3\text{ms}$, $T_j=25^\circ\text{C}$	28800	A^2s
		29040	
P_D	Maximum Power Dissipation @ $T_j=150^\circ\text{C}$	801	W
T_j	Junction Temperature	-40 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40 to +125	$^\circ\text{C}$
M	Terminal Connection Torque, Screw M6	3.0 to 4.7	N.m
	Mounting Torque, Screw M4	1.0 to 1.5	
	Mounting Torque, Screw M6	3.0 to 4.7	

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

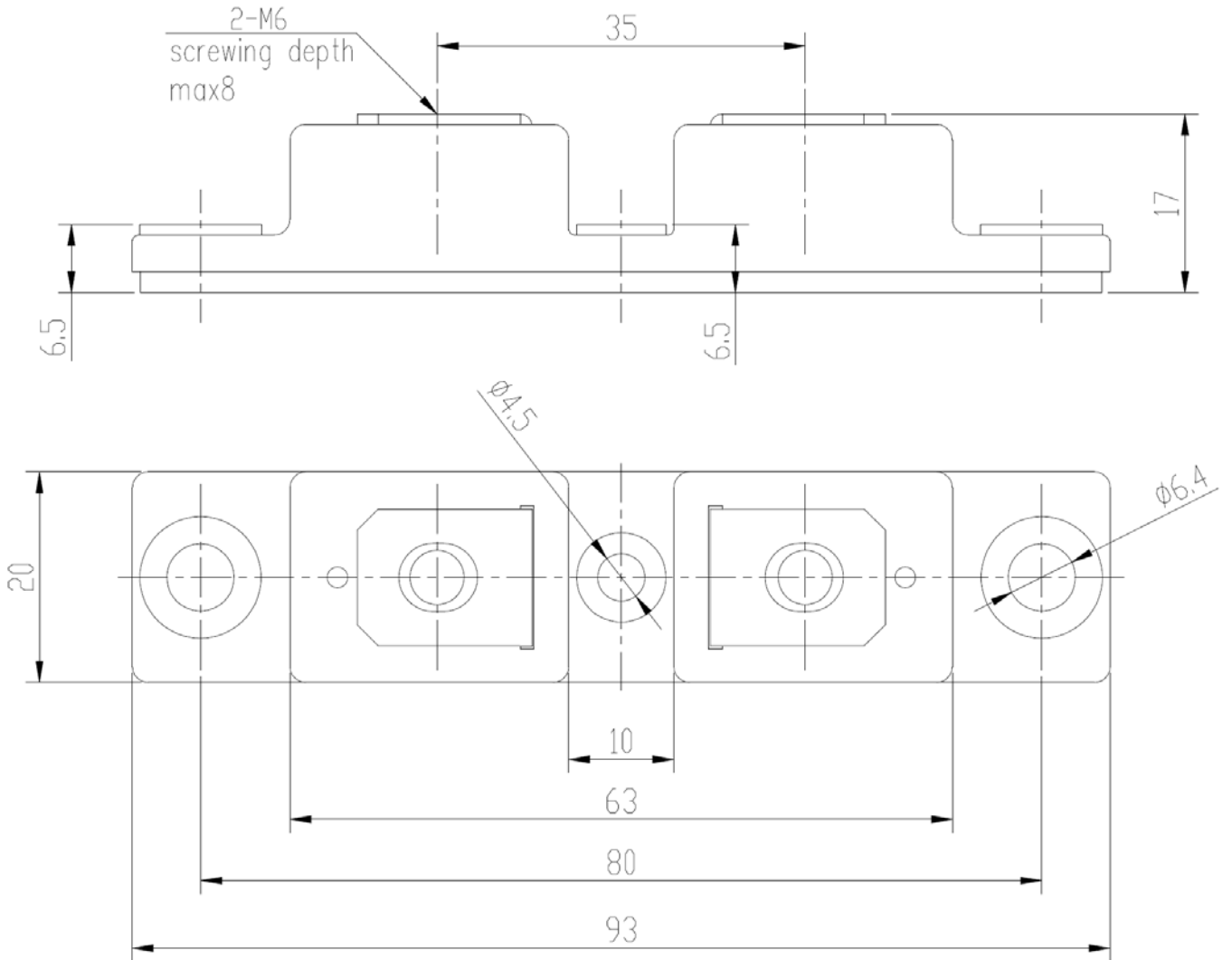
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	$I_F=150\text{A}$	$T_j=25^\circ\text{C}$	1.35	1.55	V
			$T_j=125^\circ\text{C}$	1.30	1.50	
I_R	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.5	mA
			$T_j=125^\circ\text{C}$		1.0	
t_{rr}	Reverse Recovery Time	$I_F=150\text{A}$ $V_R=300\text{V}$ $di/dt=-200\text{A}/\mu\text{s}$	$T_j=25^\circ\text{C}$	80		ns
			$T_j=125^\circ\text{C}$	150		
I_{RM}	Peak Reverse Recovery Current	$I_F=150\text{A}$ $V_R=300\text{V}$ $di/dt=-200\text{A}/\mu\text{s}$	$T_j=25^\circ\text{C}$	12.0		A
			$T_j=125^\circ\text{C}$	22.0		
Q_r	Reverse Recovery Charge	$I_F=150\text{A}$ $V_R=300\text{V}$ $di/dt=-200\text{A}/\mu\text{s}$	$T_j=25^\circ\text{C}$	450		nC
			$T_j=125^\circ\text{C}$	1540		

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case		0.156	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.06		K/W
Weight	Weight of Module	70		g

Package Dimensions

Dimensions in Millimeters



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This product data sheet is describing the characteristics of this product for which a warranty is granted. Any such warranty is granted exclusively pursuant the terms and conditions of the supply agreement. There will be no guarantee of any kind for the product and its characteristics.

Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of our product, please contact the sales office, which is responsible for you (see www.powersemi.cc), For those that are specifically interested we may provide application notes.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the Product in aviation applications, in health or live endangering or life support applications, please notify.

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