

STARPOWER

SEMICONDUCTOR

FRED

FD300CCH40D3S

Molding Type Module

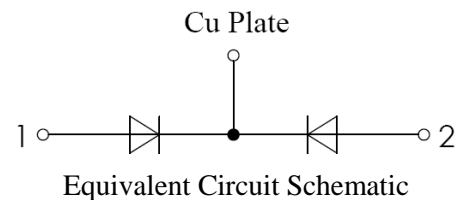
400V/300A in one-package

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	FD300CCH40D1S	Units
V_{RRM}	Repetitive Peak Reverse Voltage	400	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	400	V
I_{FAV}	Average Forward Current $T_C=100^\circ\text{C}$, Diode $T_C=100^\circ\text{C}$, Module	150 300	A
I_{FSM}	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=8.3\text{ms}, T_j=25^\circ\text{C}$	3000 3300	A
I^2t	I^2t -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=8.3\text{ms}, T_j=25^\circ\text{C}$	45000 45375	A^2s
P_D	Maximum Power Dissipation @ $T_j=175^\circ\text{C}$	893	W
T_j	Junction Temperature	-40 to +175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40 to +125	$^\circ\text{C}$
M	Terminal Connection Torque, Screw M6 Mounting Torque, Screw M6	3.0 to 4.7 3.0 to 4.7	N.m

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

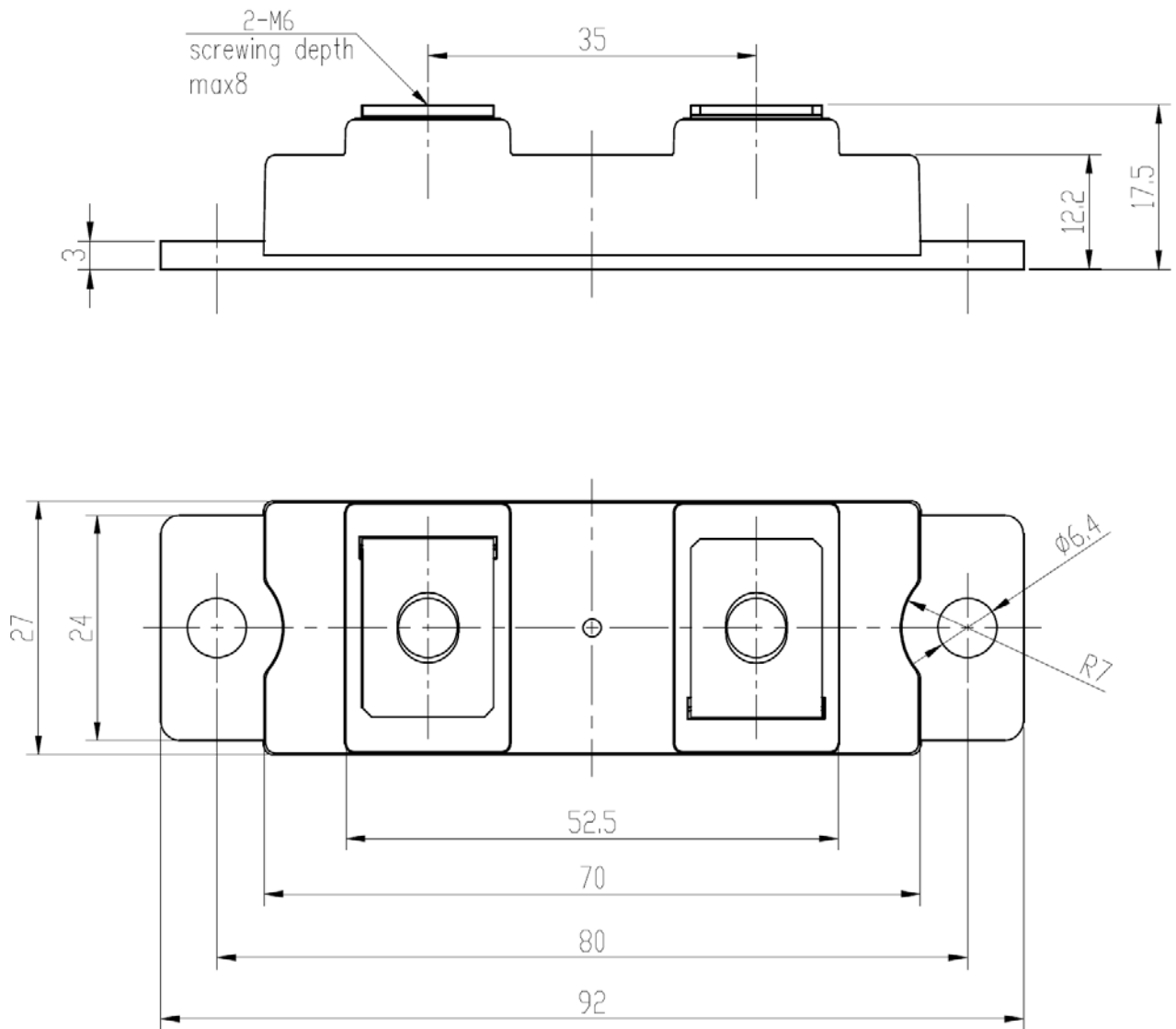
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_F	Diode Forward Voltage	$I_F=150\text{A}$	$T_j=25^\circ\text{C}$	1.05	1.25	V
			$T_j=125^\circ\text{C}$	0.95	1.15	
I_R	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.5	mA
			$T_j=125^\circ\text{C}$		1.0	
t_{rr}	Reverse Recovery Time		$T_j=25^\circ\text{C}$	93		ns
			$T_j=125^\circ\text{C}$	172		
I_{RM}	Peak Reverse Recovery Current	$I_F=150\text{A}$ $V_R=200\text{V}$ $di/dt=-200\text{A}/\mu\text{s}$	$T_j=25^\circ\text{C}$	11.0		A
			$T_j=125^\circ\text{C}$	20.0		
Q_r	Reverse Recovery Charge		$T_j=25^\circ\text{C}$	490		nC
			$T_j=125^\circ\text{C}$	1740		

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case		0.168	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.06		K/W
Weight	Weight of Module	95		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.

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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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