

STARPOWER

SEMICONDUCTOR

FRED

FD300CCS40D3S

Molding Type Module

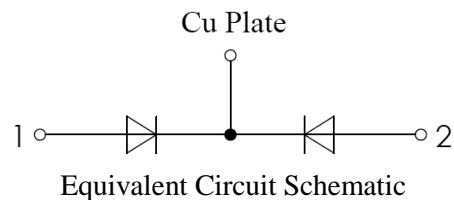
400V/300A in one-package

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	FD300CCS40D3S	Unit
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

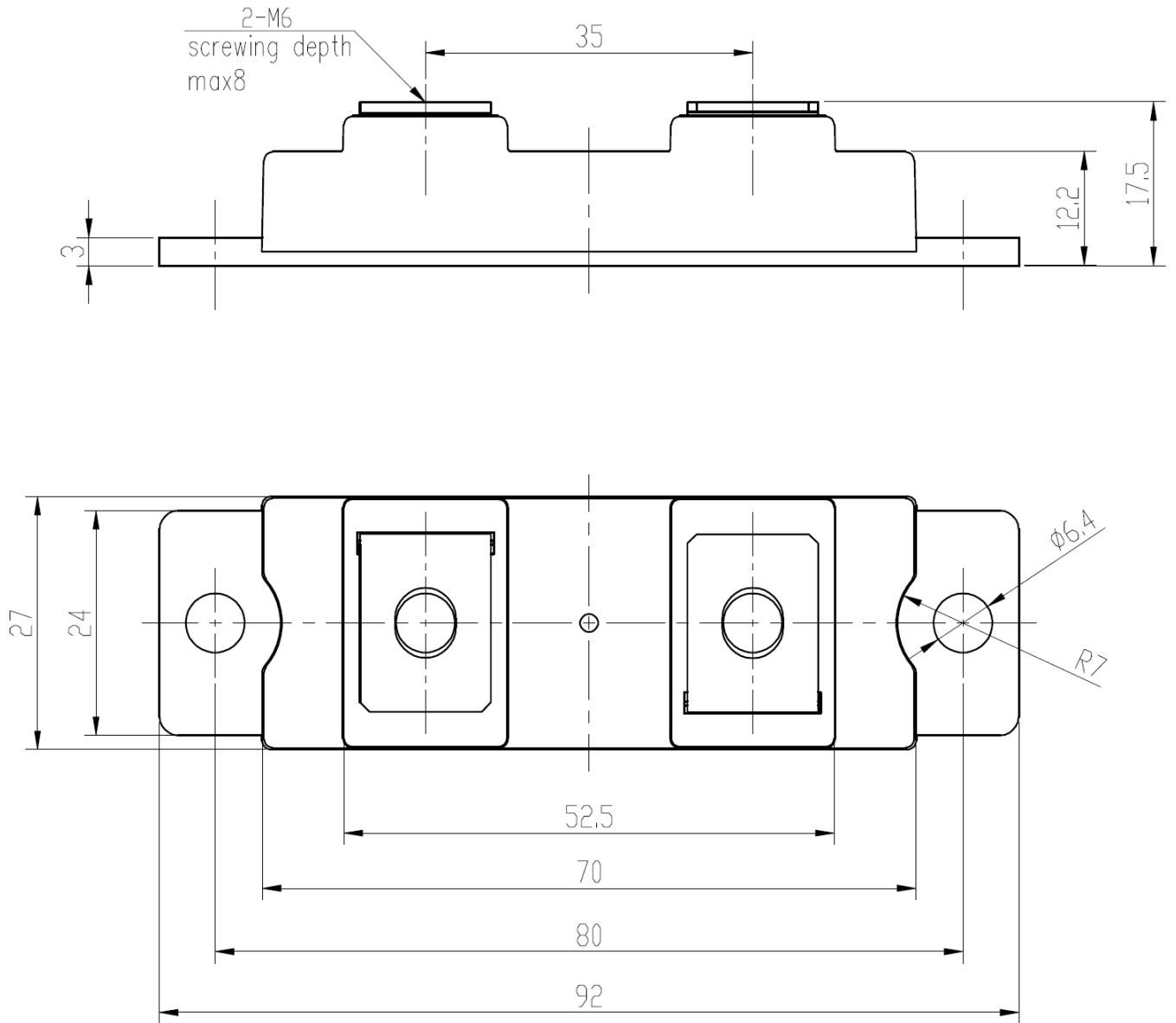
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=150\text{A}$	$T_j=25^\circ\text{C}$	1.05	1.25	V
			$T_j=125^\circ\text{C}$	0.95	1.15	
I_R	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.5	mA
			$T_j=125^\circ\text{C}$		1.0	
t_{rr}	Reverse Recovery Time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

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	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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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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