

# STARPOWER

SEMICONDUCTOR

**FRED**

## FD300CCS60D3S

Molding Type Module

600V/300A in one-package

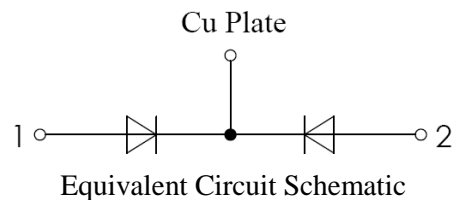


### General Description

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	FD300CCS60D3S	Unit
$V_{RRM}$	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	150 300	A
$I_{FSM}$	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=8.3\text{ms}, T_j=25^\circ\text{C}$	2400 2640	A
$I^2t$	$I^2t$ -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=8.3\text{ms}, T_j=25^\circ\text{C}$	28800 29040	$\text{A}^2\text{s}$
$P_D$	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 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

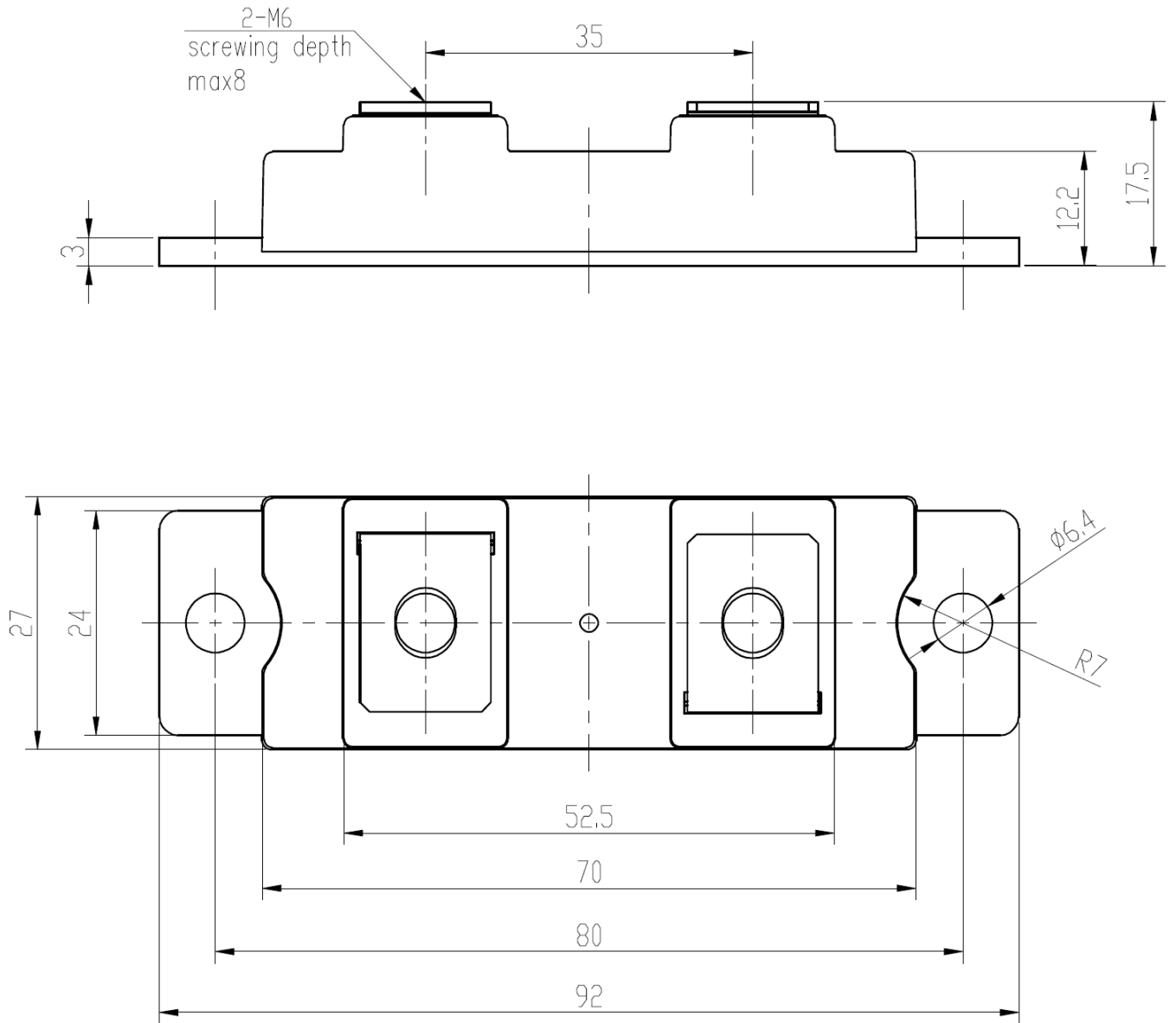
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_F$	Diode Forward Voltage	$I_F=150\text{A}$	$T_j=25^\circ\text{C}$	1.35	1.55	V
			$T_j=125^\circ\text{C}$	1.30	1.50	
$I_R$	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.5	mA
			$T_j=125^\circ\text{C}$		1.0	
$t_{rr}$	Reverse Recovery 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.	Unit
$R_{\theta JC}$	Junction-to-Case		0.156	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.06		K/W
Weight	Weight of Module	95		g

**Package Dimensions**

Dimensions in Millimeters



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