

STARPOWER

SEMICONDUCTOR™

FRED

FD100HFE170C1S

Molding Type Module**1700V/100A 2 in one-package**

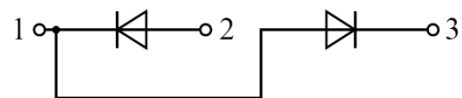
General Description

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



Equivalent Circuit Schematic

Typical Applications

- SMPS
- PFC
- Electric welders
- DC choppers

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

Symbol	Description	FD100HFE170C1S	Units
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V
I_F	Continuous Forward Current @ $T_C=80^{\circ}\text{C}$	100	A
I_{FRM}	Repetitive Peak Forward Current	200	A
I_{FSM}	Surge Forward Current $t_p=10\text{ms}$	540	A
T_{jmax}	Maximum Junction Temperature	150	$^{\circ}\text{C}$
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
Mounting Torque	Power Terminal Screw:M5 Mounting Screw:M6	2.5 to 5.0 3.0 to 5.0	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 =100A	T _j =25°C		1.80	2.20	V
			T _j =125°C		1.90		
I _R	Diode Reverse Current	V _R =V _{RRM}	T _j =125°C			5.0	mA
Q _r	Recovered Charge	I _F =100A V _R =900V di/dt=-2450A/μs	T _j =25°C		29.0		μC
			T _j =125°C		48.5		
I _{RM}	Peak Reverse Recovery Current		T _j =25°C		155		A
			T _j =125°C		165		
E _{rec}	Reverse Recovery Energy		T _j =25°C		15.5		mJ
			T _j =125°C		27.5		
L _{CE}	Stray Inductance					30	nH
R _{CC'+EE'}	Module Lead Resistance, Terminal To Chip	T _C =25°C			0.75		mΩ

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per DIODE)		0.38	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.05		K/W
Weight	Weight of Module	150		g

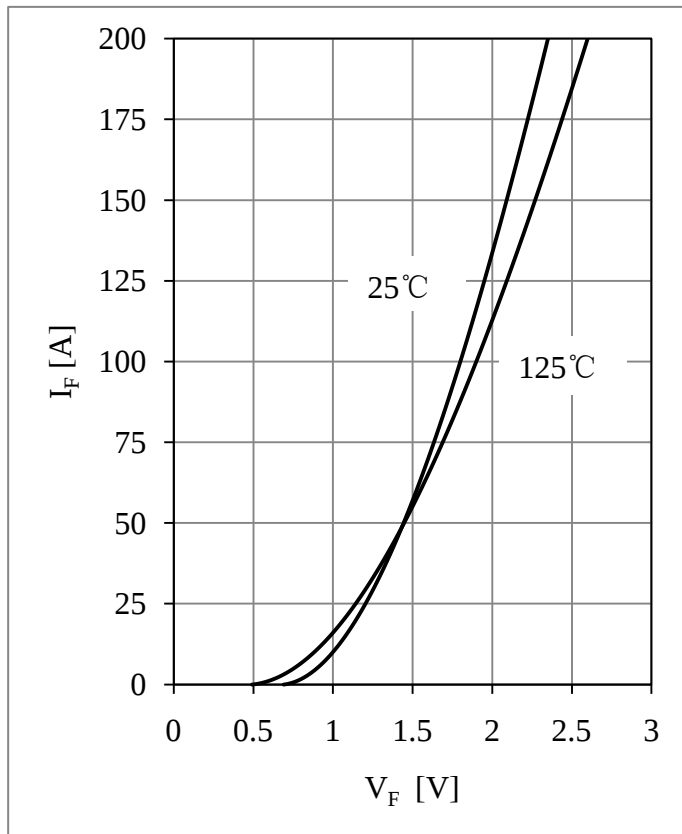


Fig 1. Diode Forward Characteristics

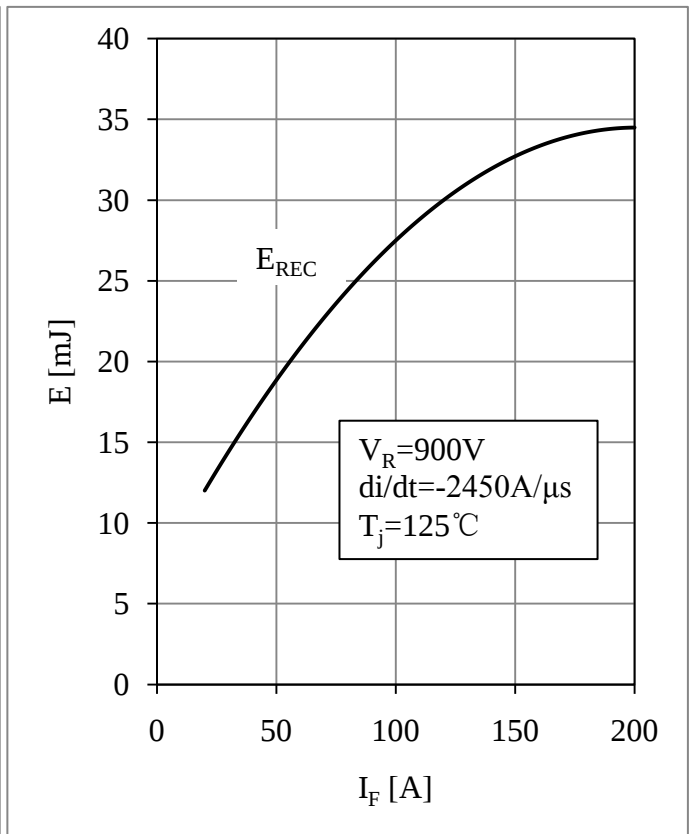
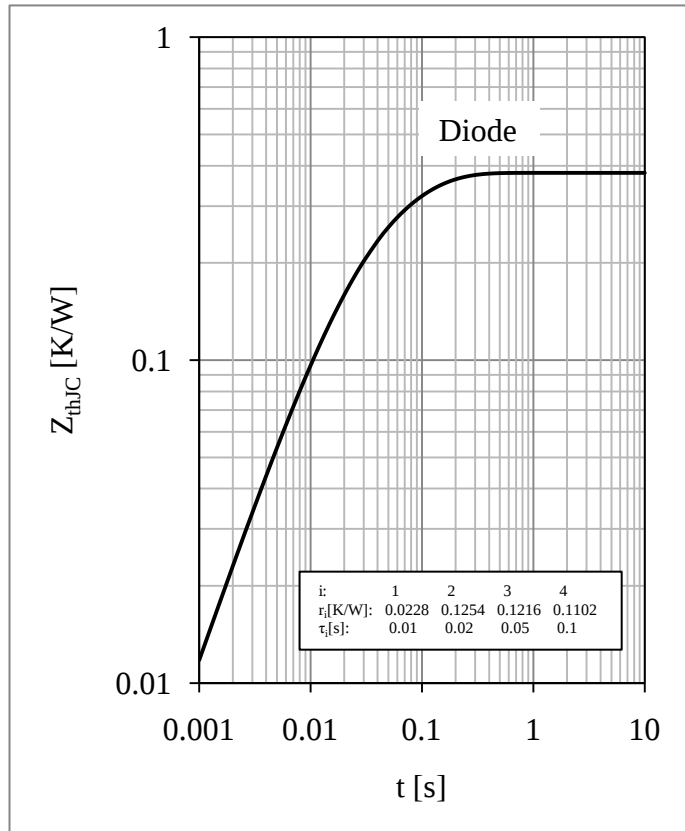
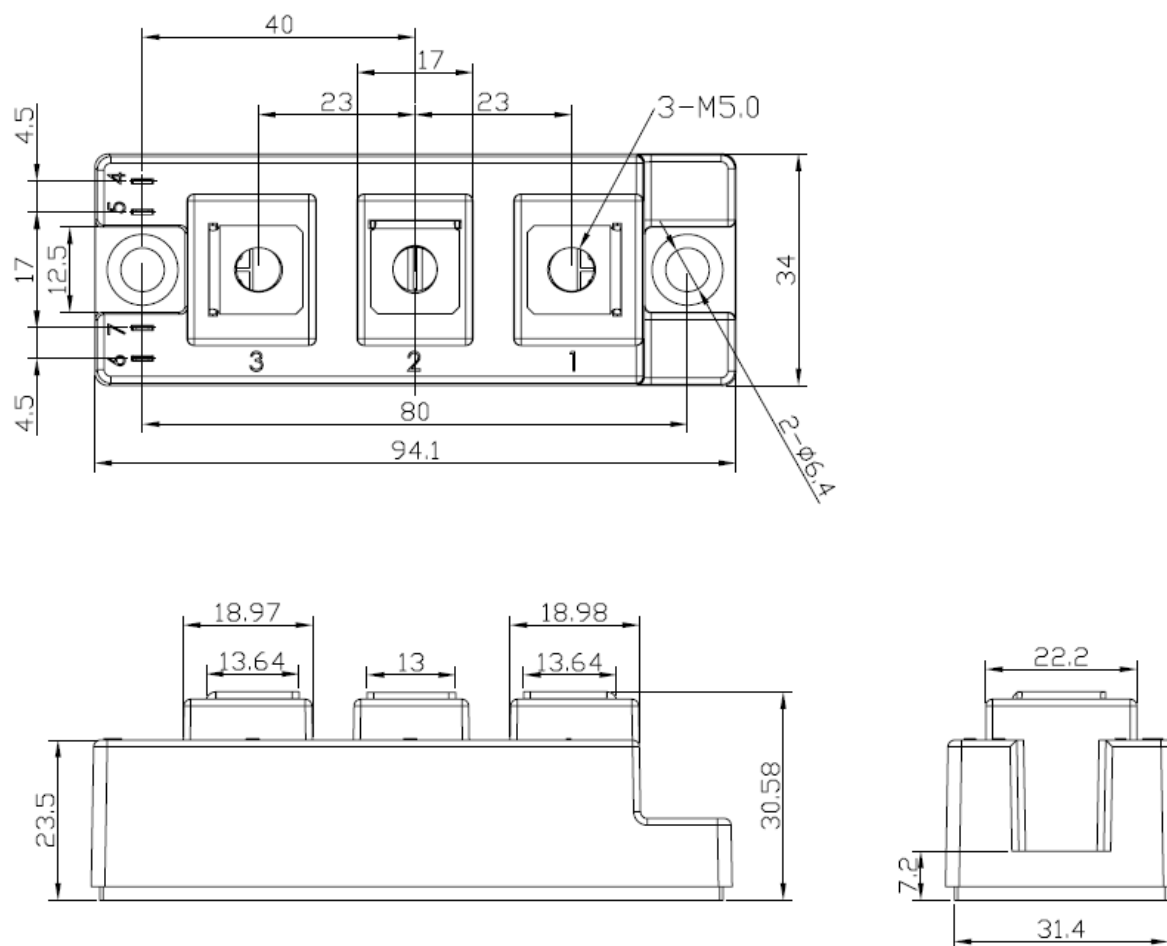
Fig 2. Diode Switching Loss vs. I_F 

Fig 3. Diode Transient Thermal Impedance

Package Dimension

Dimensions in Millimeters



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