

STARPOWER

SEMICONDUCTOR

Rectifier Diode

RD300HFS160C1S

Molding Type Module

1600V/300A 2 in one-package

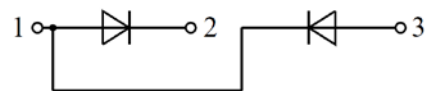
General Description

STARPOWER Rectifier Diode Power Module provides ultra low conduction loss. They are designed for the applications such as SMPS.



Features

- Planar Passivated Chips
- High Surge Capacity
- Dual Diodes Cascaded Circuit
- Isolated Copper Baseplate Using DBC Technology



Equivalent Circuit Schematic

Typical Applications

- Input bridge rectifier
- AC/DC motor control
- Power supply

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

Symbol	Description	RD300HFS160C1S	Units
V_{RRM}	Repetitive Peak Reverse Voltage	1600	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	1700	V
$I_{F(AV)}$	Average On-state Current @ $T_C=100^\circ\text{C}$	300	A
I_{FSM}	Surge Current $t_p=10\text{ms}, T_j=45^\circ\text{C}, \text{sine}$	4500	A
I^2t -value	$t_p=10\text{ms}, T_j=45^\circ\text{C}, \text{sine}$	101280	A^2s
T_{jmax}	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{jop}	Operating Junction Temperature	-40 to +125	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-40 to +125	$^\circ\text{C}$
V_{ISO}	Isolation Voltage RMS, $f=50\text{Hz}, t=1\text{min}$	2500	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	$I_F=600\text{A}$	$T_j=25^\circ\text{C}$		1.31	V
			$T_j=150^\circ\text{C}$		1.28	
I_R	Diode Reverse Current	$V_R=V_{RRM}$			8.0	mA
L_{CE}	Stray Inductance				30	nH
$R_{CC'+EE'}$	Module Lead Resistance, Terminal To Chip	$T_C=25^\circ\text{C}$		0.75		$\text{m}\Omega$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.135	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.05		K/W
Weight	Weight of Module	150		g

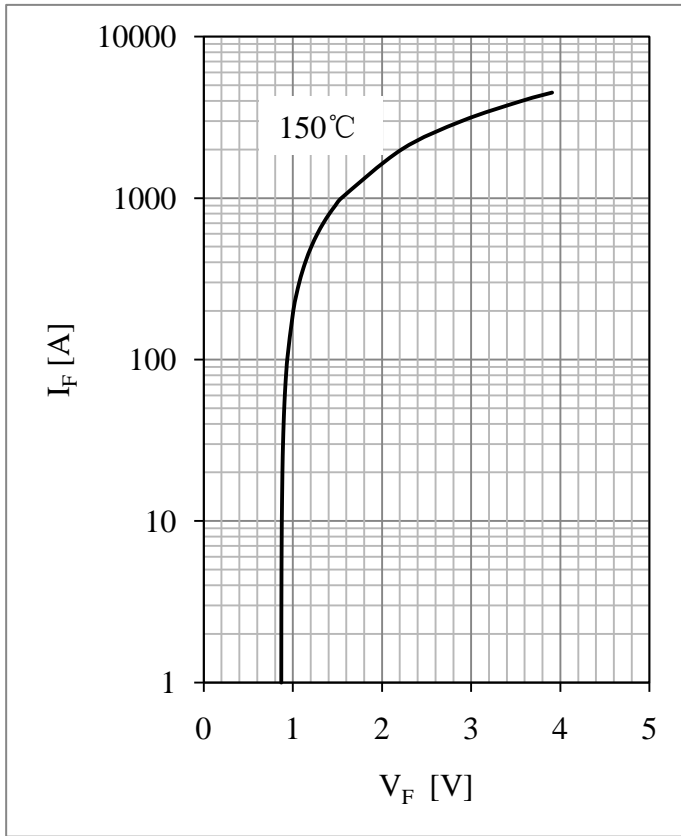


Fig 1. Diode Forward Characteristic

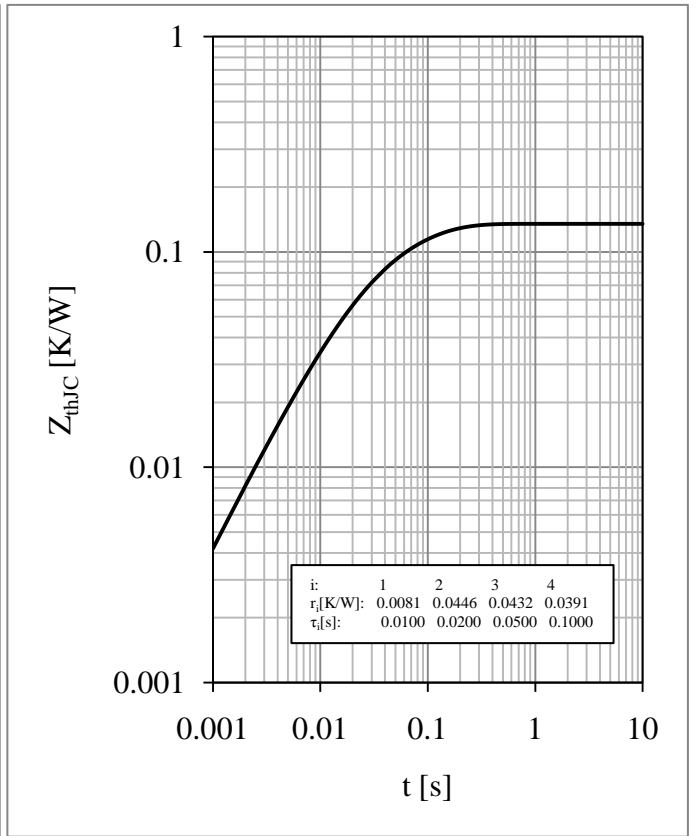


Fig 2. Diode Transient Thermal Impedance

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