

# STARPOWER

SEMICONDUCTOR

## Rectifier Diode

### RD160FFS180K2S

Molding Type Module

1800V/160A 6 in one-package

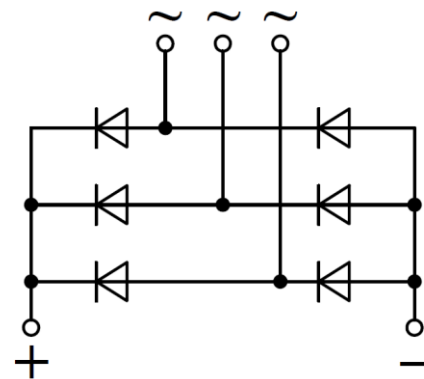


### General Description

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

### Features

- Low forward voltage drop
- Small temperature coefficient
- High Surge Capacity
- Low inductance
- 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	RD160FFS180K2S	Units
$V_{RRM}$	Repetitive Peak Reverse Voltage	1800	V
$V_{RSM}$	Non-repetitive Peak Reverse Voltage	1800	V
$I_{FAV}$	Average Forward Current $T_C=100^\circ\text{C}$	160	A
$I_{FSM}$	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	1800	A
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	1850	
$I^2t$	$I^2t$ -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	16200	$\text{A}^2\text{s}$
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	14260	
$P_D$	Maximum Power Dissipation @ $T_j=150^\circ\text{C}$	286	W
$T_j$	Junction Temperature	-40 to +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
M	Terminal Connection Torque, Screw M6	2.5 to 5.0	N.m
	Mounting Torque, Screw M6	3.0 to 5.0	

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

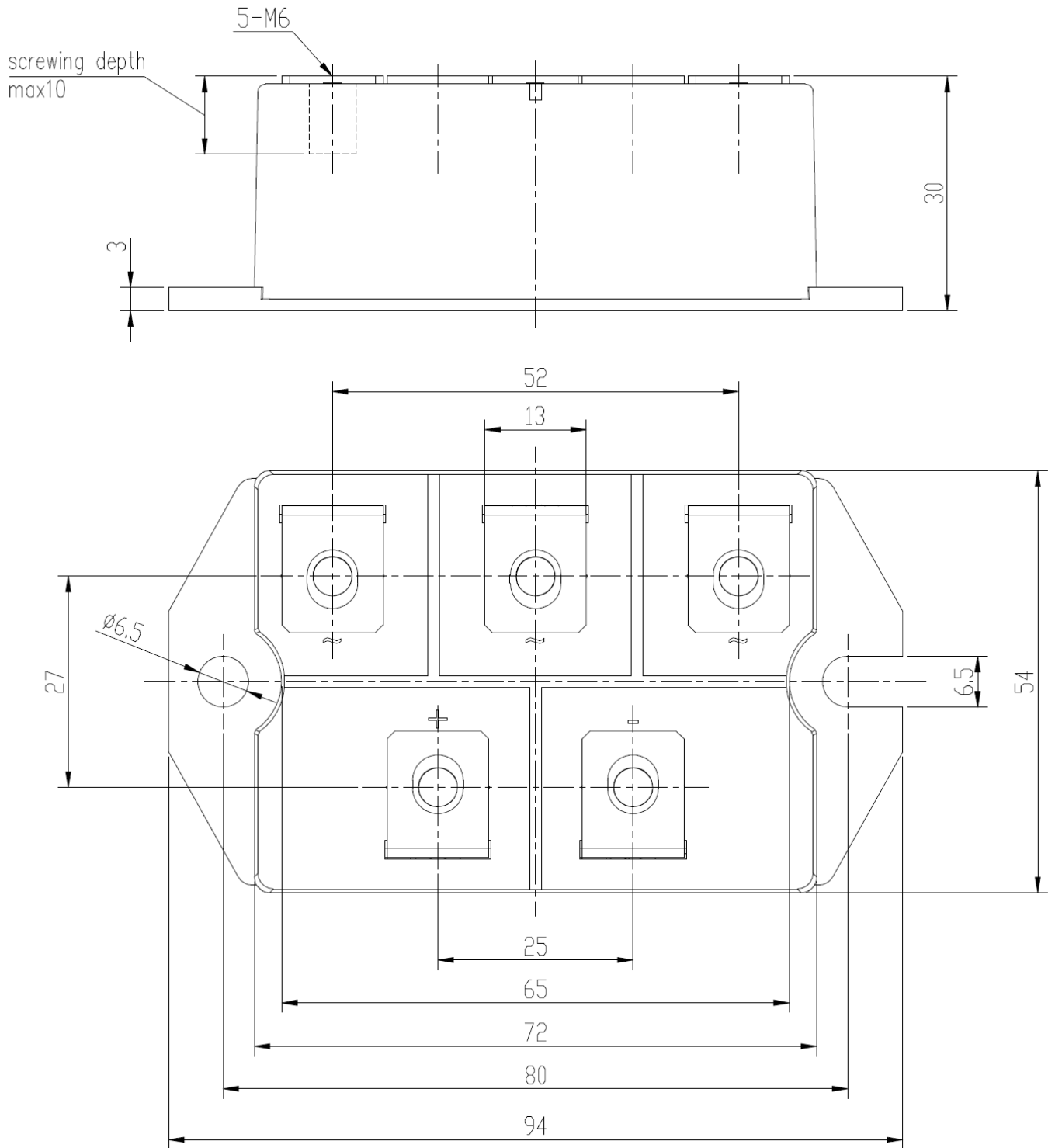
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_F$	Diode Forward Voltage	$I_F=200\text{A}$	$T_j=25^\circ\text{C}$		1.25	V
			$T_j=150^\circ\text{C}$		1.20	
$V_F$	Threshold Voltage	$T_j=150^\circ\text{C}$			0.86	V
$r_T$	Forward Slope Resistance	$T_j=150^\circ\text{C}$			1.7	$\text{m}\Omega$
$I_R$	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.05	mA
			$T_j=150^\circ\text{C}$		2.00	

**Thermal Characteristics**

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.437	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.03		K/W
Weight	Weight of Module	270		g

**Package Dimensions**

Dimensions in Millimeters



## Terms and Conditions of Usage

The data contained in this product datasheet is exclusively intended for technically trained staff. you and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application.

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](http://www.powersemi.cc)), For those that are specifically interested we may provide application notes.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the Product in aviation applications, in health or live endangering or life support applications, please notify.

If and to the extent necessary, please forward equivalent notices to your customers.  
Changes of this product data sheet are reserved.