

# STARPOWER

SEMICONDUCTOR

## Rectifier Diode

### RD160SGS180C1S

Molding Type Module

1800V/160A 1 in one-package

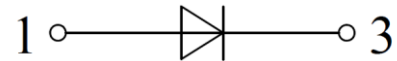


### General Description

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	RD160SGS180C1S	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 @ $T_j=150^\circ\text{C}$	372	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

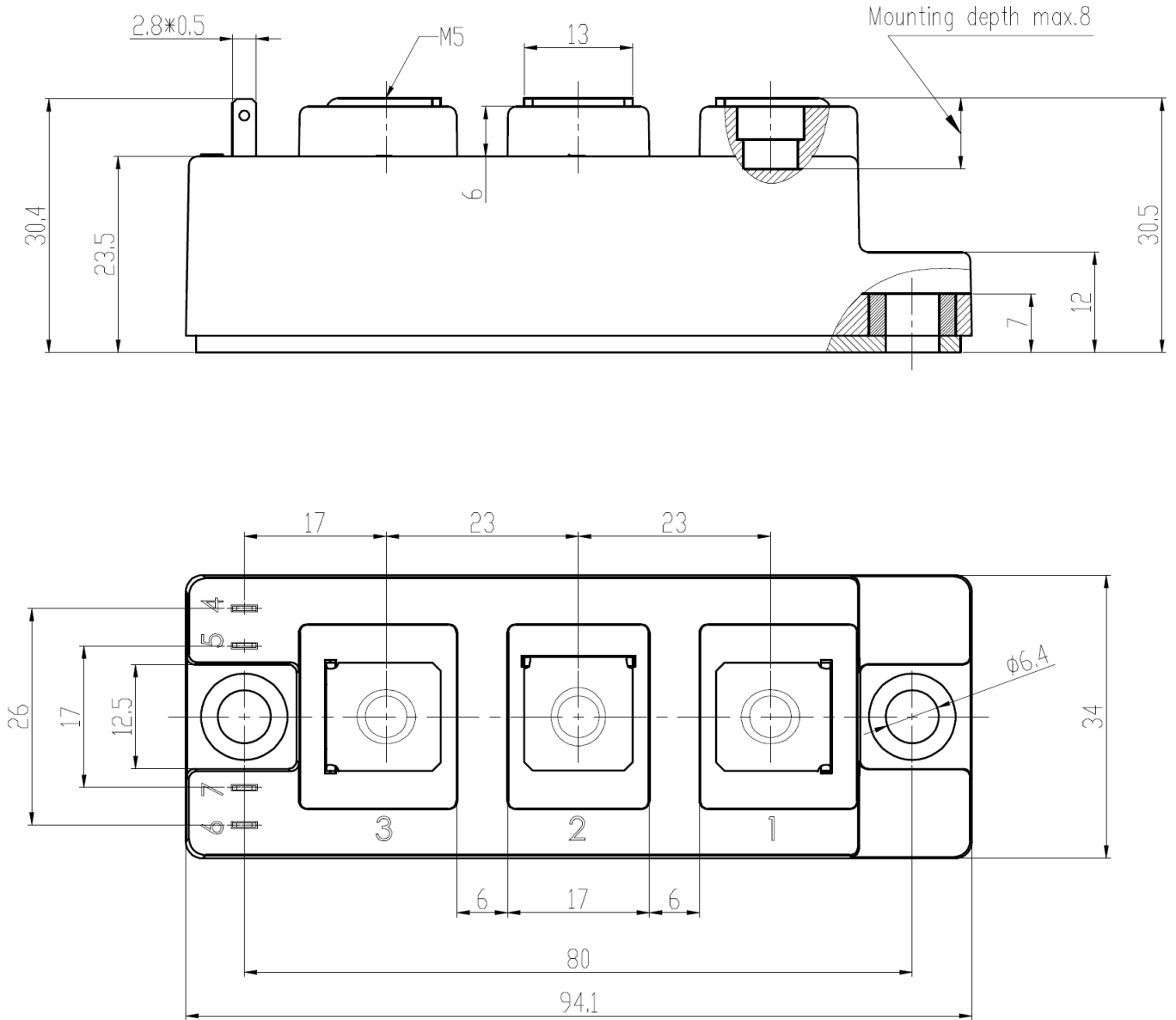
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$V_F$	Diode Forward Voltage	$I_F=200\text{A}$	$T_j=25^\circ\text{C}$		1.25	V
			$T_j=150^\circ\text{C}$		1.20	
$I_R$	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.05	mA
			$T_j=150^\circ\text{C}$		2.00	

**Thermal Characteristics**

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.336	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.05		K/W
Weight	Weight of Module	150		g

**Package Dimensions**

Dimensions in Millimeters



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