

STARPOWER

SEMICONDUCTOR

Rectifier Diode

RD165SGJ180C1S

Molding Type Module

1800V/165A 1 in one-package

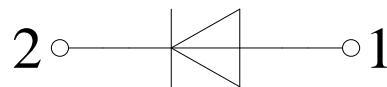


General Description

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	RD165SGJ180C1S	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1800	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	1900	V
I_{FAV}	Average Forward Current $T_C=105^\circ\text{C}$	165	A
I_{FSM}	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	6200	A
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	6700	
I^2t	I^2t -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	192200	A^2s
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	224450	
P_D	Maximum Power Dissipation @ $T_j=150^\circ\text{C}$	609	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

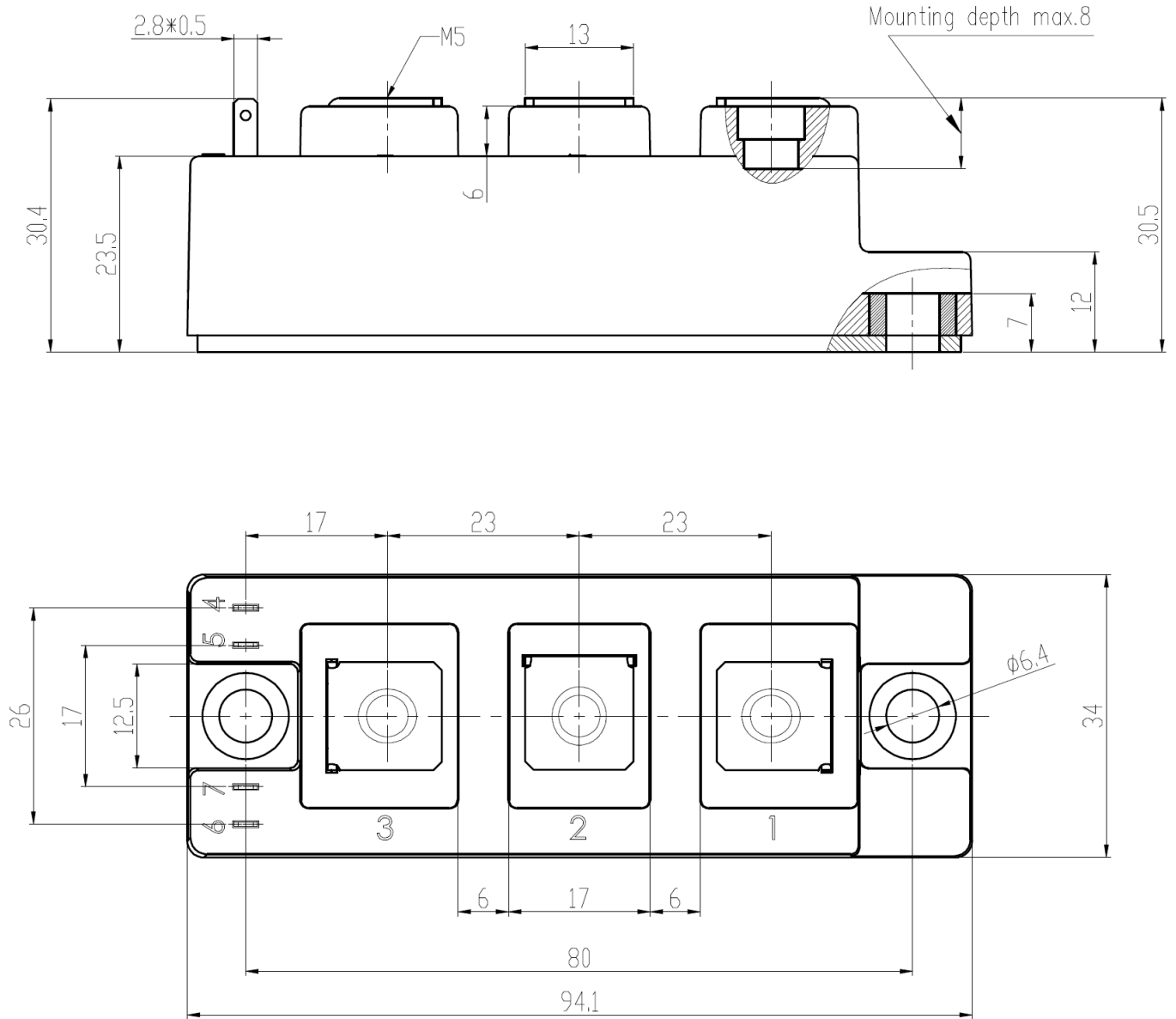
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units	
V_F	Diode Forward Voltage	$I_F=300\text{A}$	$T_j=25^\circ\text{C}$		1.15	1.35	V
			$T_j=150^\circ\text{C}$		1.05		
I_R	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$			1.00	mA
			$T_j=150^\circ\text{C}$			8.00	

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.205	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



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), 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.