

STARPOWER

SEMICONDUCTOR

Rectifier Diode

RD300SGS180C2S

Molding Type Module

1800V/300A 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	RD300SGS180C2S	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1800	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	1800	V
I_{FAV}	Average Forward Current $T_C=100^\circ\text{C}$	300	A
I_{FSM}	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	6400	A
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	6900	
I^2t	I^2t -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=45^\circ\text{C}$	204800	A^2s
	$V_R=0\text{V}, t_p=8.3\text{ms}, T_j=45^\circ\text{C}$	198375	
P_D	Maximum Power Dissipation @ $T_j=150^\circ\text{C}$	1289	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

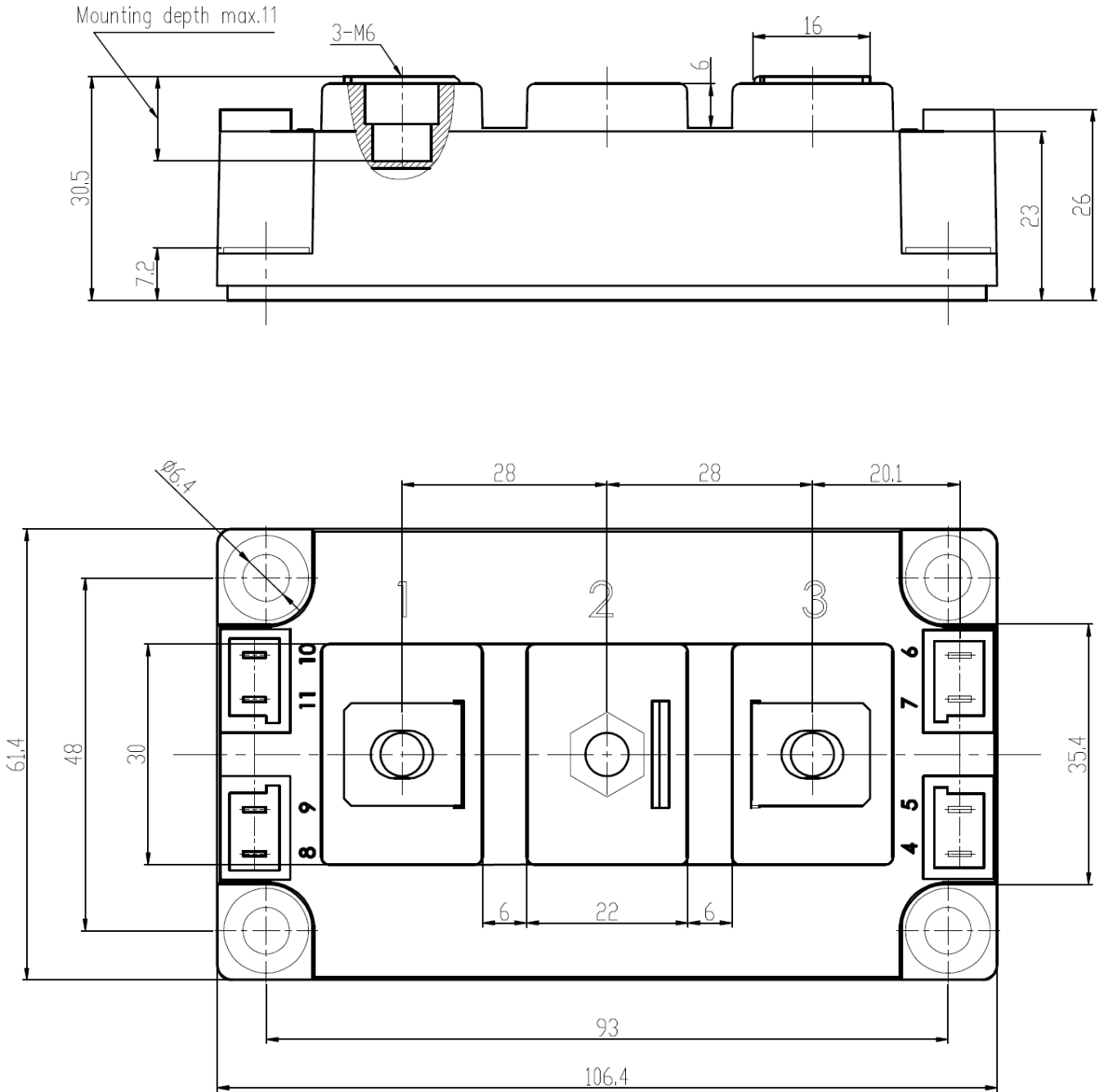
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=600\text{A}$	$T_j=25^\circ\text{C}$		1.18	V
			$T_j=150^\circ\text{C}$		1.18	
V_{F0}	Diode Threshold Voltage				0.83	V
r_F	Diode Forward Slope Resistance				0.4	m Ω
I_R	Diode Reverse Current	$V_R=V_{RRM}$	$T_j=25^\circ\text{C}$		0.20	mA
			$T_j=150^\circ\text{C}$		5.00	

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Junction-to-Case (per Diode)		0.097	K/W
$R_{\theta CS}$	Case-to-Sink (Conductive grease applied)	0.035		K/W
Weight	Weight of Module	300		g

Package Dimensions

Dimensions in Millimeters



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