

STARPOWER

SEMICONDUCTOR

Rectifier Diode

RD80FFJ180K1S

Molding Type Module

1800V/80A 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

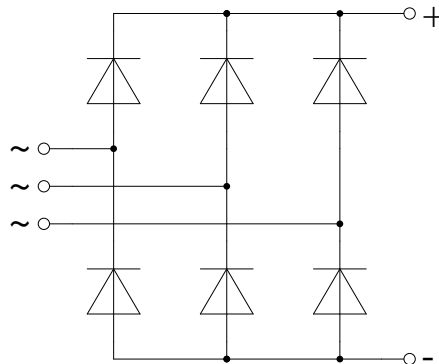
- Low forward voltage drop
- Small temperature coefficient
- High Surge Capacity
- Low inductance
- Isolated Copper Baseplate Using DBC Technology



Typical Applications

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

Equivalent Circuit Schematic



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

Symbol	Description	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	1800	V
V_{RSM}	Non-repetitive Peak Reverse Voltage	1900	V
I_{FAV}	Average Forward Current $T_C=110^{\circ}\text{C}$	80	A
I_{FSM}	Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^{\circ}\text{C}$ $V_R=0\text{V}, t_p=10\text{ms}, T_j=125^{\circ}\text{C}$	2625	A
		2100	
I^2t	I^2t -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^{\circ}\text{C}$ $V_R=0\text{V}, t_p=10\text{ms}, T_j=125^{\circ}\text{C}$	34453	A^2s
		22050	

Module

Symbol	Description	Value	Unit
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, $f=50\text{Hz}, t=1\text{min}$	4000	V

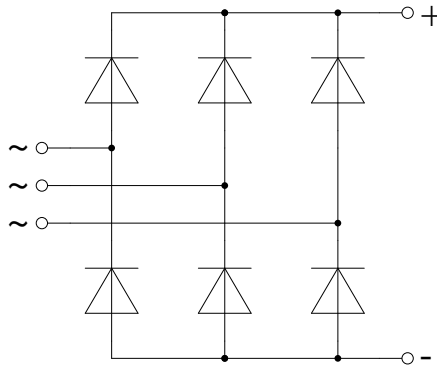
Electrical Characteristics of Diode $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_F	Diode Forward Voltage	$I_F=300\text{A}$	$T_j=25^{\circ}\text{C}$		1.55	V
			$T_j=125^{\circ}\text{C}$		1.50	
I_R	Diode Reverse Current	$V_R=V_{RRM}$			4.50	mA

Module Characteristics $T_C=25^{\circ}\text{C}$ unless otherwise noted

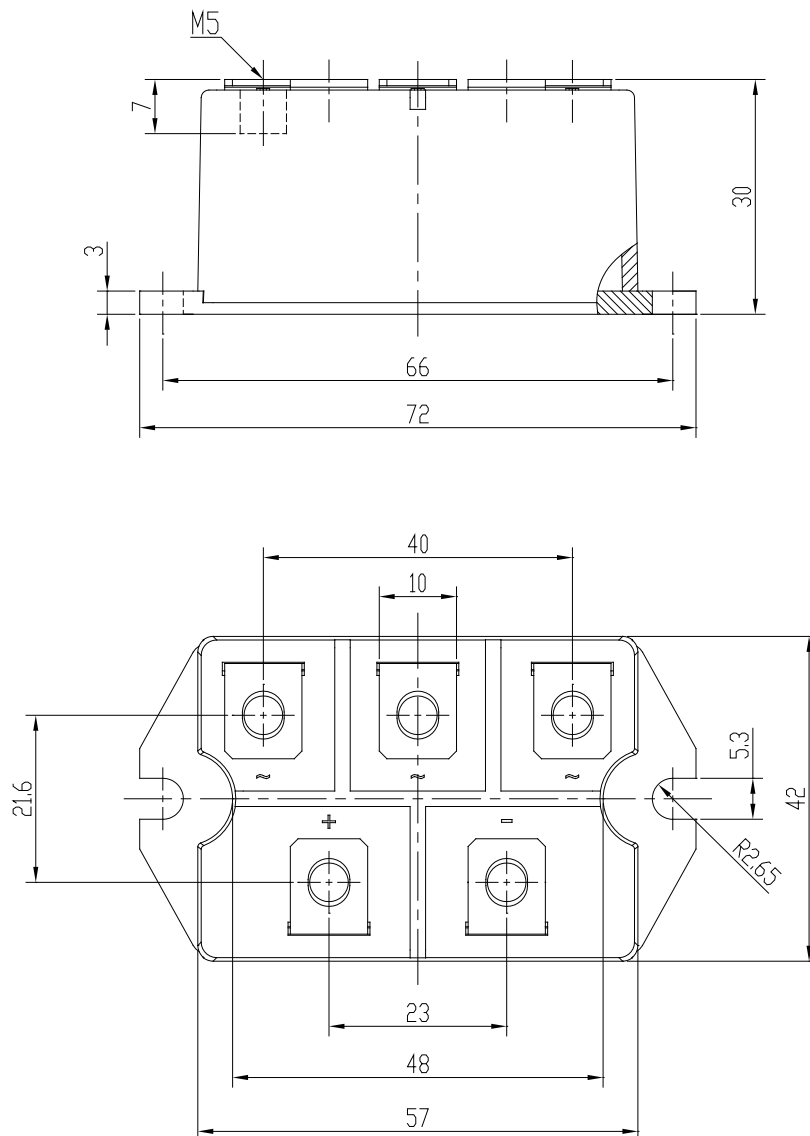
Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Junction-to-Case (per Diode)			0.569	K/W
R_{thCH}	Case-to-Heatsink (per Module)		0.07		K/W
M	Terminal Connection Torque, Screw M5	2.5		5.0	N.m
	Mounting Torque, Screw M5	3.0		5.0	
G	Weight of Module		165		g

Circuit Schematic



Package Dimensions

Dimensions in Millimeters



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