

STARPOWER

SEMICONDUCTOR

Rectifier Diode

RD30HFJ180C9S

Molding Type Module

1800V/30A 2 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

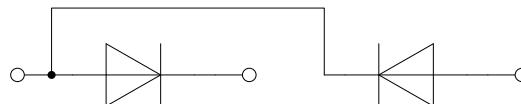
- Low forward voltage drop
- Small temperature coefficient
- High Surge Capacity
- Low inductance
- Isolated Copper Baseplate Using DBC Technology



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 $T_C=90^\circ\text{C}$ | 30 | A |
| I_{FSM} | Surge Forward Current $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=10\text{ms}, T_j=125^\circ\text{C}$ | 578 | A |
| | | 504 | |
| I^2t | I^2t -value $V_R=0\text{V}, t_p=10\text{ms}, T_j=25^\circ\text{C}$ $V_R=0\text{V}, t_p=10\text{ms}, T_j=125^\circ\text{C}$ | 1670 | A^2s |
| | | 1270 | |

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 |

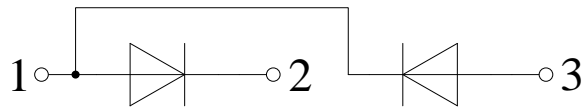
Electrical Characteristics of Diode $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------|-----------------------|------------------|-------------------------|------|------|------|
| V_F | Diode Forward Voltage | $I_F=75\text{A}$ | $T_j=25^\circ\text{C}$ | | 1.30 | V |
| | | | $T_j=125^\circ\text{C}$ | | 1.25 | |
| I_R | Diode Reverse Current | $V_R=V_{RRM}$ | | | 3.00 | mA |

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

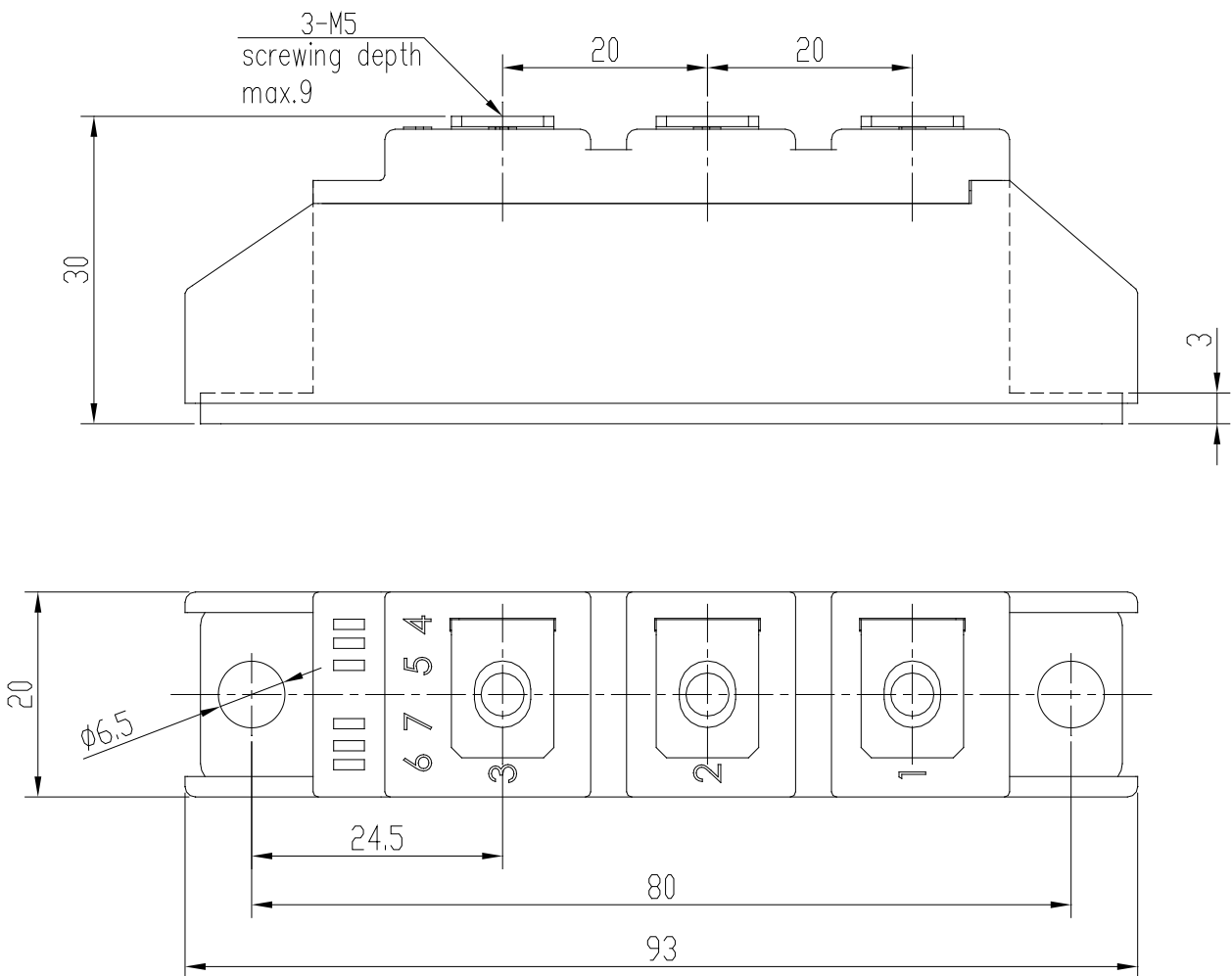
| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|------------|--------------------------------------|------|------|-------|------|
| R_{thJC} | Junction-to-Case (per Diode) | | | 0.741 | K/W |
| R_{thCH} | Case-to-Heatsink (per Module) | | 0.1 | | K/W |
| M | Terminal Connection Torque, Screw M5 | 2.5 | | 5.0 | N.m |
| | Mounting Torque, Screw M6 | 3.0 | | 5.0 | |
| G | Weight of Module | | 95 | | g |

Circuit Schematic



Package Dimensions

Dimensions in Millimeters



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