



RD160HF180A9H

Rectifier Diode Module

Preliminary Data

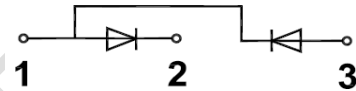
Features:

- Blocking Voltage:1800V
- Heat Transfer Through Aluminum Oxide DBC Ceramic Isolated Metal Baseplate
- Glass Passivated Chip
- Low Forward Voltage



Applications:

- Non-Controllable Rectifiers for AC/AC Converters
- Line Rectifiers for Transistorized AC Motor Controllers
- Field Supply for DC Motors



Maximum Rated

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V_{RSM}	Non-Repetitive Reverse Blocking Voltage	$T_{VJ}=25^{\circ}\text{C}$	1900			V
V_{RRM}	Repetitive Peak Reverse Voltage	$T_{VJ}=25^{\circ}\text{C}$	1800			V
I_{FAV}	Average Forward Current	$T_C=85^{\circ}\text{C}$			160	A
$I_{F(RMS)}$	RMS Forward Current	180° sine			250	A
I_{FSM}	Surge Current @ $t_p=10$ ms	$t_p=10\text{ms}$, sine, $T_{VJ}=45^{\circ}\text{C}$			4700	A
I^2t	I^2t - value	$t_p=10\text{ms}$, sine, $T_{VJ}=45^{\circ}\text{C}$			110500	A^2s
P_{tot}	Total Power Dissipation	$T_{VJ}=25^{\circ}\text{C}$			650	W



Electrical Characteristics

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V_F	Forward Voltage	$I_F=160A, T_{VJ}=25^{\circ}C$			1.12	V
		$I_F=160A, T_{VJ}=125^{\circ}C$			1.08	V
		$I_F=160A, T_{VJ}=150^{\circ}C$			1.06	V
I_R	Reverse Current	$V_{RD}=1800V, T_{VJ}=25^{\circ}C$			100	μA
		$V_{RD}=1800V, T_{VJ}=125^{\circ}C$			2	mA
		$V_{RD}=1800V, T_{VJ}=150^{\circ}C$			9	mA

Thermal Characteristics

Symbol	Description	Min.	Typ.	Max.	Units
$R_{th(j-c)}$	Diode Thermal Resistance: Junction-to-Case			0.19	$^{\circ}C/W$
$R_{th(c-s)}$	Case-to-Sink Thermally(Conductive Grease Applied)			0.12	$^{\circ}C/W$

Module

Symbol	Description	Min.	Typ.	Max.	Units
V_{ISOL}	Isolation Voltage (All Terminals Shorted)	AC 50Hz, RMS,1min, $I_{ISOL} \leq 1mA$		4000	V
Internal Isolation			Al_2O_3		
d_{creep}	Creepage Distance on Surface	terminal to terminal	9.7		mm
		terminal to backside	16.0		mm
T_{VJ}	Junction Temperature Range	-40		150	$^{\circ}C$
T_{OP}	Operating Temperature	-40		125	$^{\circ}C$
T_{stg}	Storage Temperature	-40		125	$^{\circ}C$
T	Power Terminal Screw:M5	2.5		4.0	N·m
T	Mounting Screw:M6	2.5		4.0	N·m
G	Weight		90		g



Ordering Information Table

Device code	RD	160	HF	180	A9	H
	①	②	③	④	⑤	⑥

- ① - Rectifier Module
- ② - Rated Current (160=160A)
- ③ - Circuit Configuration (Half Bridge)
- ④ - Rated Voltage (180=1800V)
- ⑤ - Package Type
- ⑥ - Test Level (Pass the Important Reliability Test-Industrial Grade)

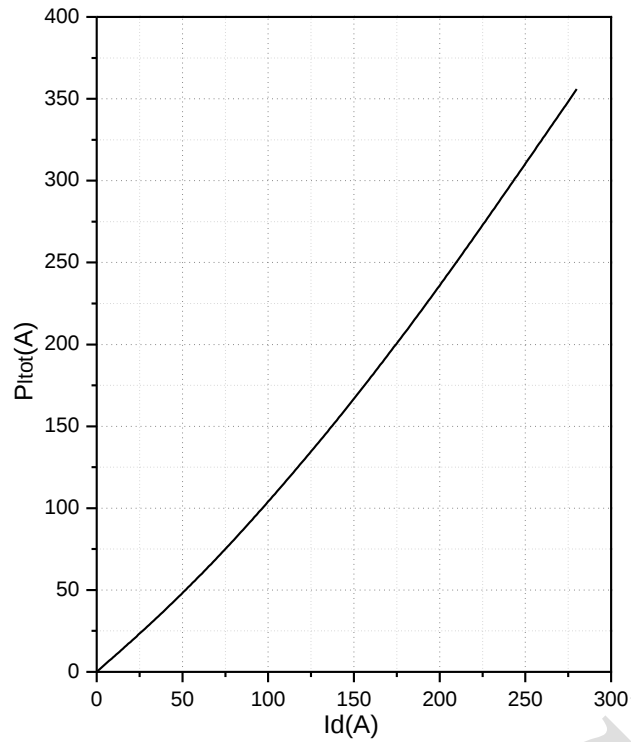


Fig.1 Power Dissipation

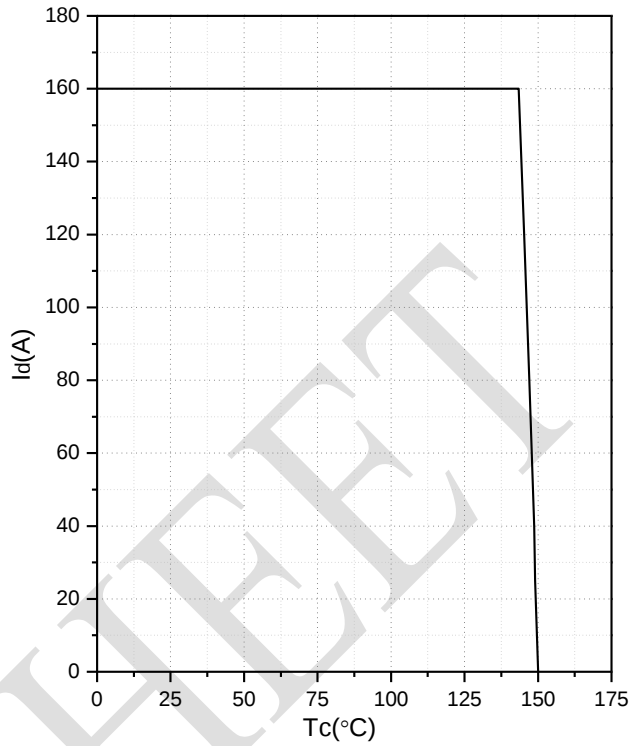


Fig.2 Forward Current Derating Curve

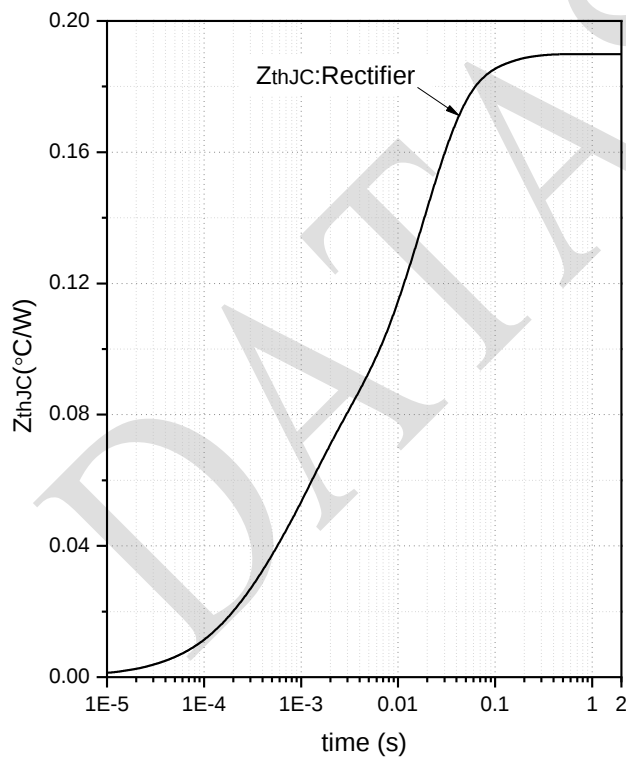


Fig.3 Transient thermal impedance

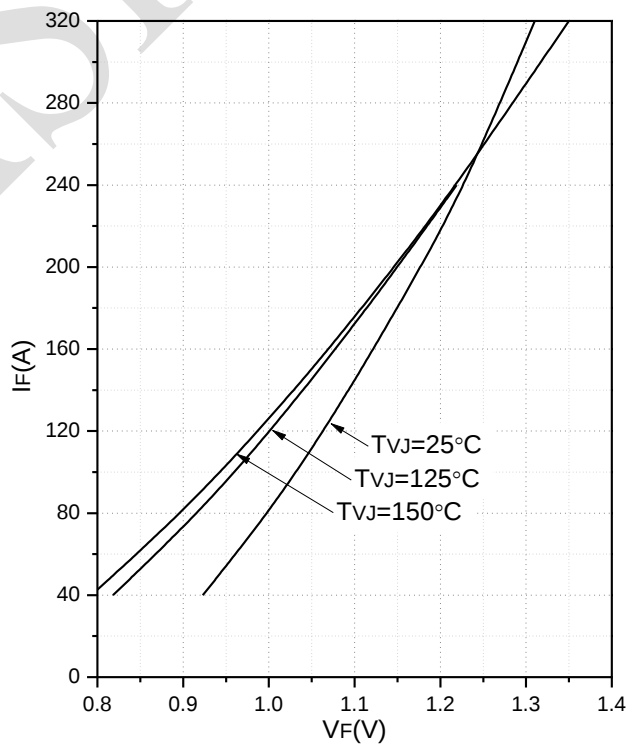
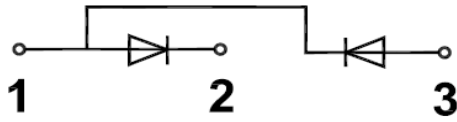


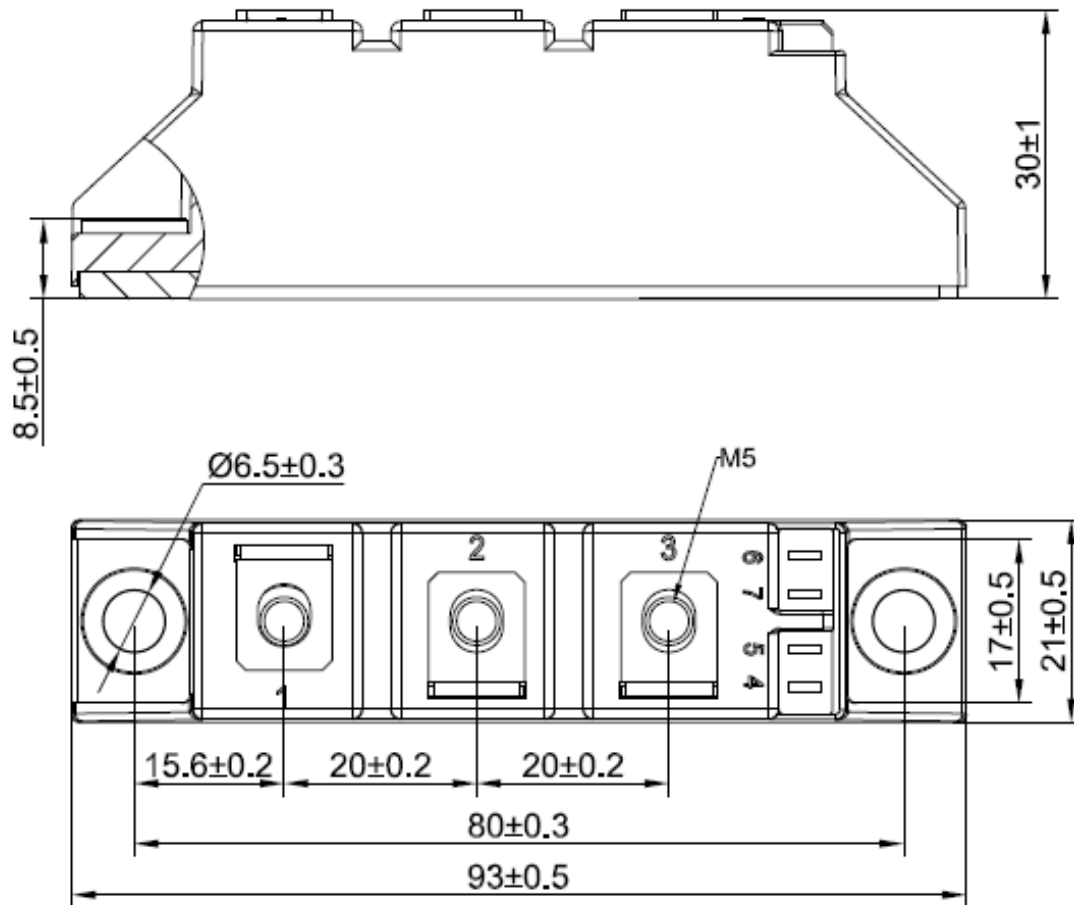
Fig.4 Forward Characteristics



Internal Circuit



Package Outline Information (Unit: mm):





Date	Revision	Notes
05/14/2021	01	Initial Release

Announcement

Information in this document is believed to be accurate and reliable. However, NJSME does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to Make Changes

NJSME reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

The datasheet with “REV.” + “Arabic numerals” is based on engineering data for initial reference purpose only.

The released datasheet would be issued with “REV.” + “alphabet characters”.