



RD300HF180T1WHJ

RD300CA180T1WHJ

RD300CK180T1WHJ

Rectifier Diode Module

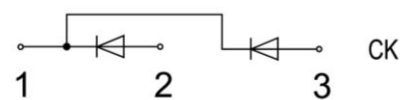
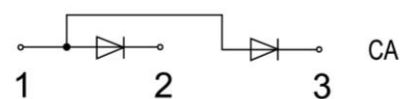
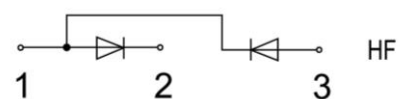
Features:

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

Applications:

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

Circuit Diagram



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	$T_{VJ}=25^{\circ}\text{C}$, $T_c=80^{\circ}\text{C}$			300	A
$I_{F(RMS)}$	RMS Forward Current	Single Phase, Half Wave 180° Conduction $T_c=97^{\circ}\text{C}$			470	A
I_{FSM}	Surge Current @ $t_p=10\text{ms}$	$t_p=10\text{ms}$, $\sin 180^{\circ}$, $T_{VJ}=25^{\circ}\text{C}$			7100	A
I^2t	I^2t - value	$t_p=10\text{ms}$, $\sin 180^{\circ}$, $T_{VJ}=25^{\circ}\text{C}$			252000	A^2s
P_{tot}	Total Power Dissipation	$T_{VJ}=25^{\circ}\text{C}$			1470	W



Electrical Characteristics

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V_F	Forward Voltage	$I_F=300A$, $T_{VJ}=25^{\circ}C$		1.10		V
		$I_F=300A$, $T_{VJ}=125^{\circ}C$			1.10	V
		$I_F=300A$, $T_{VJ}=150^{\circ}C$			1.10	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
		$V_{RD}=1800V$, $T_{VJ}=150^{\circ}C$			10	mA
V_{TO}	Threshold Voltage	$T_{VJ}=125^{\circ}C$			0.75	V
r_T	Slope Resistance	$T_{VJ}=125^{\circ}C$			1.1	m Ω
$R_{th(j-c)}$	Thermal Resistance: Junction-to-Case (per Diode)				0.077	$^{\circ}C/W$

Module

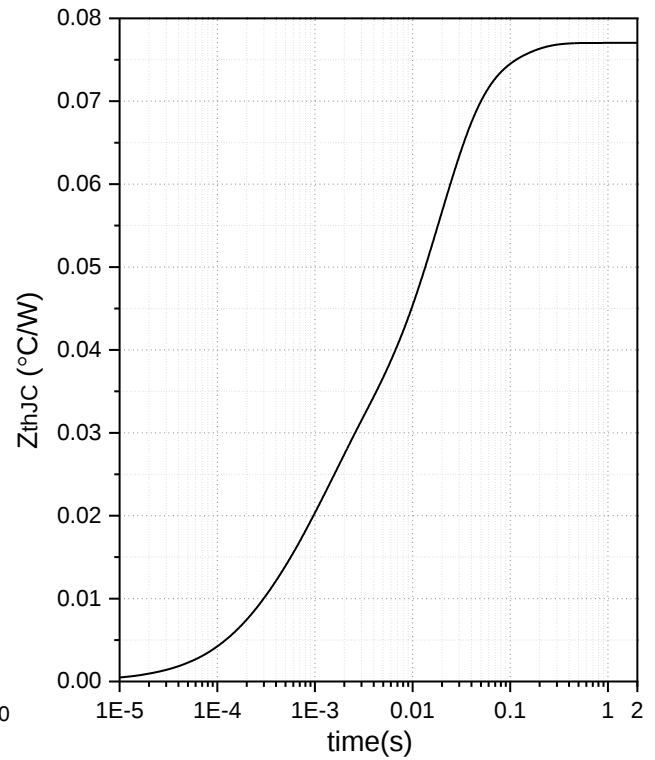
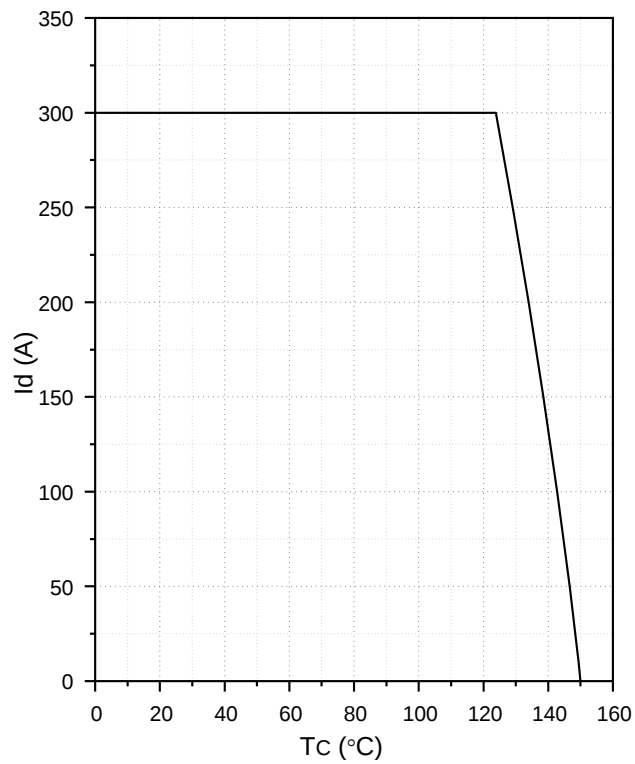
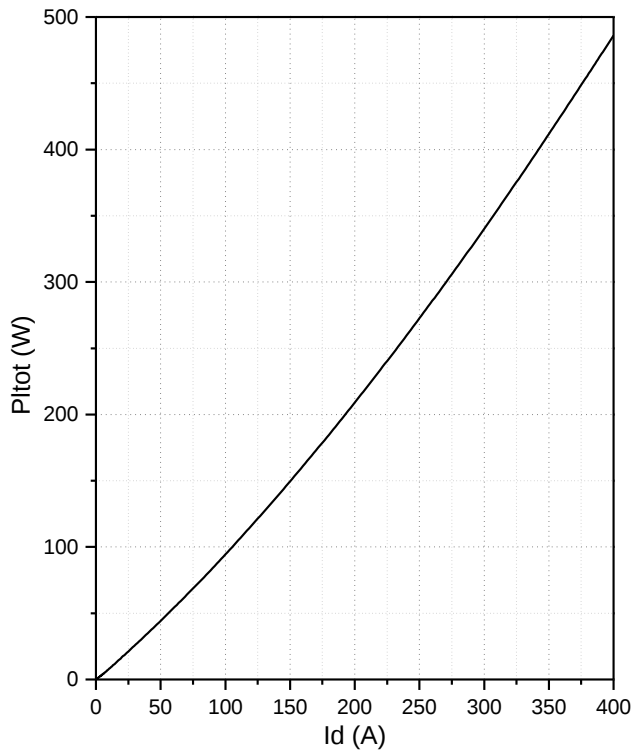
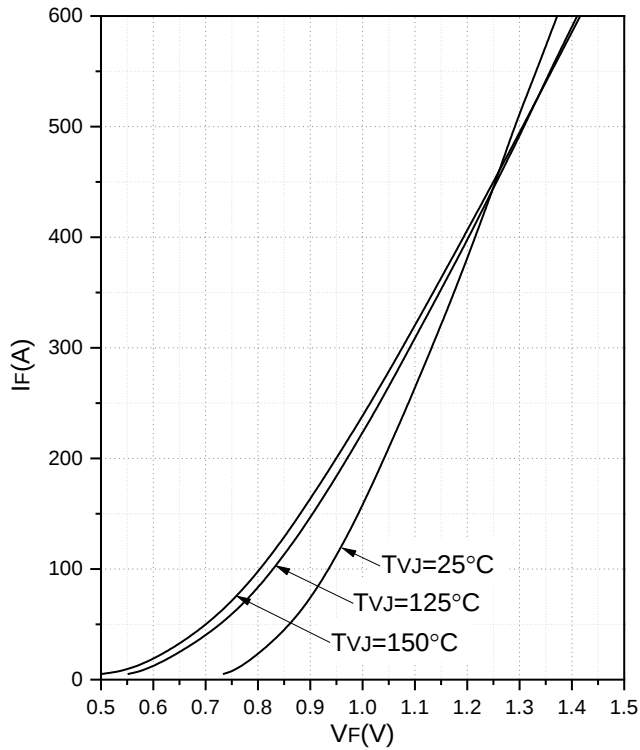
Symbol	Description		Min.	Typ.	Max.	Units
V_{ISOL}	Isolation Voltage (All Terminals Shorted)	50Hz, RMS, 1min, $I_{ISOL} \leq 1mA$	4000			V
Internal Isolation			Al_2O_3			
d_{creep}	Creepage Distance on Surface	terminal to terminal		17		mm
		terminal to backside		20		mm
T_{VJ}	Junction Temperature Range		-40		150	$^{\circ}C$
T_{OP}	Operating Temperature		-40		125	$^{\circ}C$
T_{stg}	Storage Temperature		-40		125	$^{\circ}C$
$R_{th(c-s)}$	Case-to-Sink Thermally (Conductive Grease Applied, $\lambda=1W/mK$)				0.07	$^{\circ}C/W$
T	Power Terminal Screw:M6		4.0		6.0	N·m
T	Mounting Screw:M6		4.0		6.0	N·m
G	Weight			155		g



Ordering Information Table

Device code	RD	300	HF	180	T1W	H	J
	①	②	③	④	⑤	⑥	⑦

- ① - Rectifier Module
- ② - Rated Current (300=300A)
- ③ - Circuit Configuration: HF (Half Bridge)
CA (Common Anode)
CK (Common Cathode)
- ④ - Rated Voltage (180=1800V)
- ⑤ - Package Type
- ⑥ - Test Level (Pass the Important Reliability Test-Industrial Grade)
- ⑦ - Internal Code



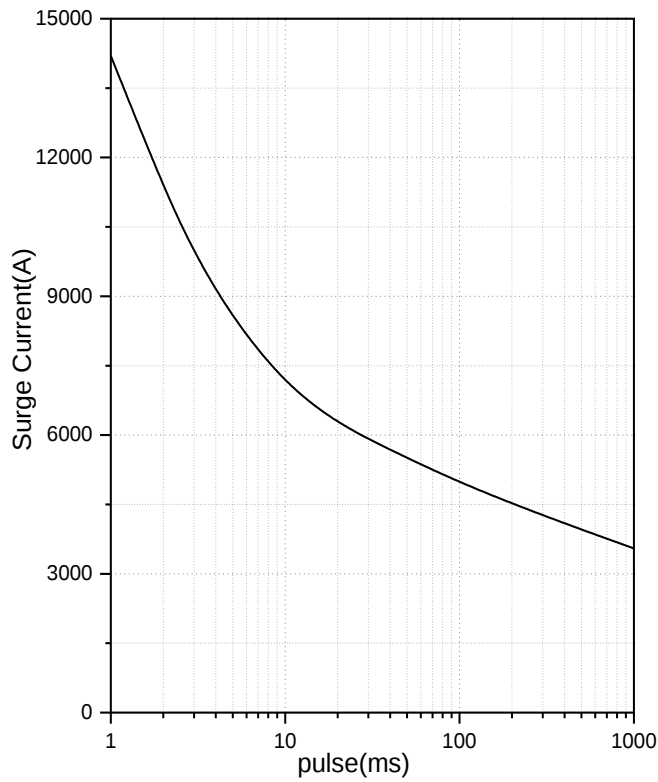


Fig.5 Max Non-Repetitive Forward Surge Current



Date	Revision	Notes
02/03/2021	01	Initial Release
04/14/2022	A	Final Version
09/30/2022	B	Modify 'Power Terminal Screw'
10/21/2022	C	Add Curve 'Fig5. Max Non-Repetitive Forward Surge Current'
10/25/2022	D	Add Thermal Resistance Description 'Thermal Conductivity'
10/31/2022	E	Add Thermal Resistance Description 'per chip'
11/02/2022	F	Add High temperature Characteristic Parameters at 150°C
04/23/2024	G	Update Package Outline
07/05/2024	H	Update Package Outline
10/14/2024	I	Update Package Outline

Announcement

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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".