

Ultra-Fast Soft Recovery Diode Module

Description

Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motors drives and other applications where switching losses are significant portion of the total losses.

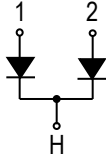
Features

- ☞ Repetitive Reverse Voltage : $V_{RRM} = 400V$
- ☞ Low Forward Voltage Drop : $V_F(\text{typ.}) = 1.05V$
- ☞ Average Forward Current : $I_F(\text{AV.}) = 200A$ @ $T_c = 100^\circ C$
- ☞ Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 150 \text{ ns}$
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Non Isolation Type Package and $175^\circ C$ Operating Junction Temperature
- ☞ Dual FRD Construction

Applications

High Speed & High Power Converters, Welders,
Various Switching and Telecommunication Power Supply.

Equivalent Circuit and Package

Equivalent Circuit
 (Common Heat Sink)
Package : 3DM - 2NI Series
 Non Isolation Type

Please see the package Out line information

Ordering Information

Device Name	DH2F200N4S
Optional Information	Common Heat Sink Non Isolation Type

Absolute Maximum Ratings @ $T_j = 25^\circ C$ (Per Leg)

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		400	V
$V_{R(DC)}$	Reverse DC Voltage		320	V
$I_{F(AV)}$	Average Forward Current @ $T_c = 25^\circ C$ @ $T_c = 100^\circ C$	Resistive Load	400 200	A A
I_{FSM}	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	3300	A
I^2t	I^2t for Fusing	Value for One Cycle Current, $t_w = 8.3ms$, $T_j = 25^\circ C$ Start	45.0×10^3	A^2s
T_j	Junction Temperature		$-40 \sim 175$	$^\circ C$
T_{stg}	Storage Temperature		$-40 \sim 150$	$^\circ C$
-	Mounting Torque(M6)		4.0	N.m
-	Terminal Torque(M6)	Typical Including Screws	3.0	N.m
-	Weight		95	g

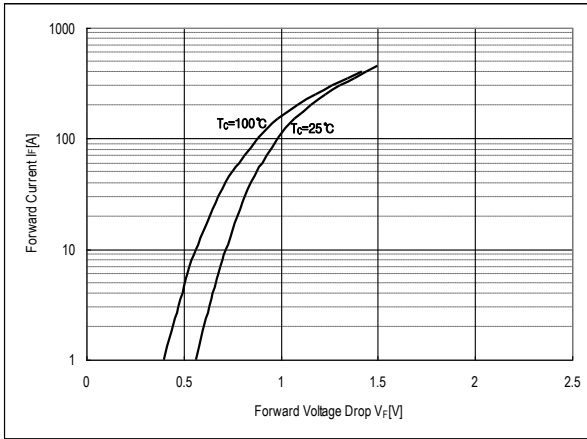
Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance(Non Isolation Type)	Junction to Case	-	-	0.15	°C/W

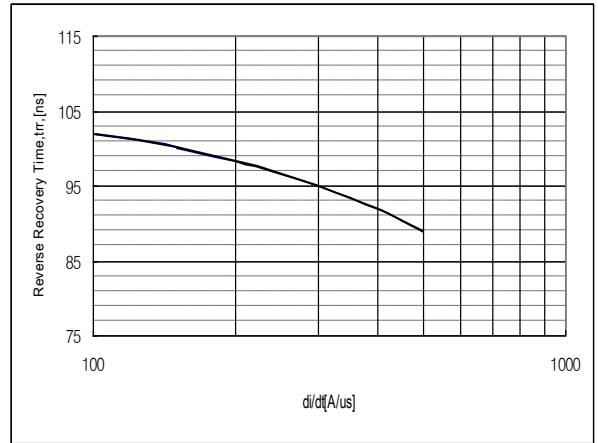
Electrical Characteristics @ $T_j=25^{\circ}\text{C}$ (unless otherwise specified)

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_R	Cathode Anode Breakdown Voltage	$I_R = 100\mu\text{A}$	400	-	-	V
V_{FM}	Maximum Forward Voltage	$I_{FM} = 150\text{A}, T_c = 25^{\circ}\text{C}$	-	1.05	1.3	V
		$I_{FM} = 150\text{A}, T_c = 100^{\circ}\text{C}$	-	0.95	1.1	V
I_{RRM}	Repetitive Peak Reverse Current	$T_c = 100^{\circ}\text{C}, V_{RRM}$ applied	-	-	2.0	mA
T_{rr}	Reverse Recovery Time	$I_{FM} = 150\text{A}, V_R = 200\text{V}, di/dt = -100\text{A}/\mu\text{s}$ $T_c = 25^{\circ}\text{C}$	-	150	220	ns
		$T_c = 100^{\circ}\text{C}$	-	220	-	ns

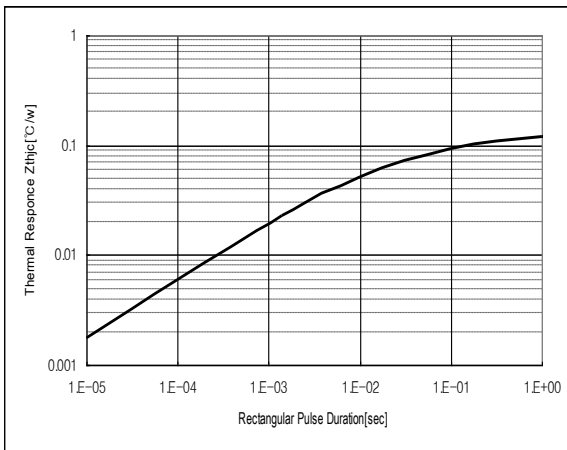
Performance Curves



**Fig. 1 : Typical Forward Voltage Drop
vs. Instantaneous Forward Current**



**Fig. 2 : Typical Reverse Recovery Time
vs. -di/dt**



**Fig. 3 : Transient Thermal Impedance(Z_{thjc})
Characteristics**

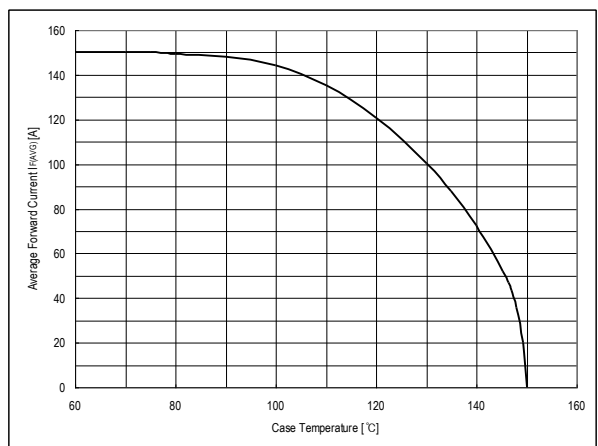


Fig. 4 : Forward Current Derating Curve

