

CURRENT 200 Ampere
VOLTAGE RANG 200 to 600 Volts

MFK200-40 THRU MFK200-60

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.

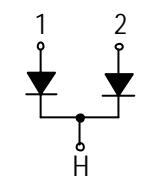

Features

- ☞ Repetitive Reverse Voltage : $V_{RRM} = 400V-600V$
- ☞ 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 : $t_{rr}(\text{typ.}) = 100 \text{ ns}$
- ☞ 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
 <p>(Common Heat Sink)</p>
Package : 3DM - 2NI Series
 <p>Non Isolation Type</p>

Please see the package Out line information

Ordering Information

Device Name	MFK200-40
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		400/600	V
$V_{R(DC)}$	Reverse DC Voltage		320/460	V
$I_{F(AV)}$	Average Forward Current	Resistive Load	400 200	A A
I_{FSM}	Surge(non-repetitive) Forward Current	One Half Cycle at 60Hz, Peak Value	3200	A
I^2_t	I^2t for Fusing	Value for One Cycle Current, $t_w = 8.3ms, T_j = 25^\circ C$ Start	$37.5 * 10^3$	A^2s
T_j	Junction Temperature		-40 ~ 175	$^\circ C$
T_{stg}	Storage Temperature		-40 ~ 150	$^\circ C$
-	Mounting Torque(M6)		4.0	N.m
-	Terminal Torque(M6)	Typical Including Screws	3.0	N.m
-	Weight		95	g

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Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance(Non Isolation Type)	Junction to Case	-	-	0.23	°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	-	-	1.0	mA	
T_{rr}	Reverse Recovery Time	$I_{FM} = 150\text{A}, V_R = 200\text{V}, di/dt = -100\text{A}/\mu\text{s}$	$T_C = 25^\circ\text{C}$	-	100	130	ns
			$T_C = 100^\circ\text{C}$	-	130	-	ns

Performance Curves

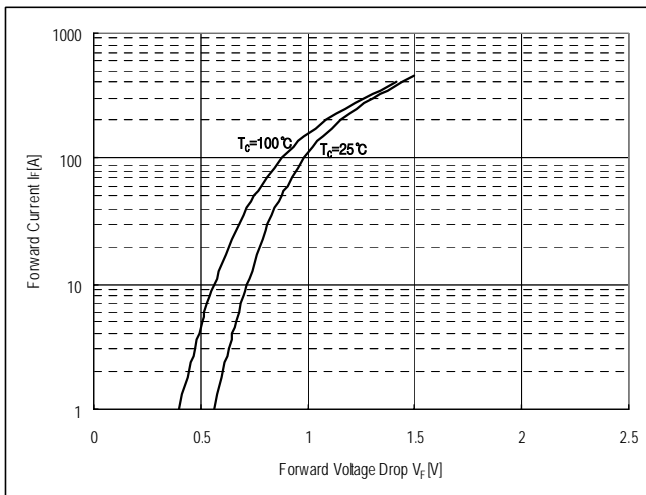


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Current

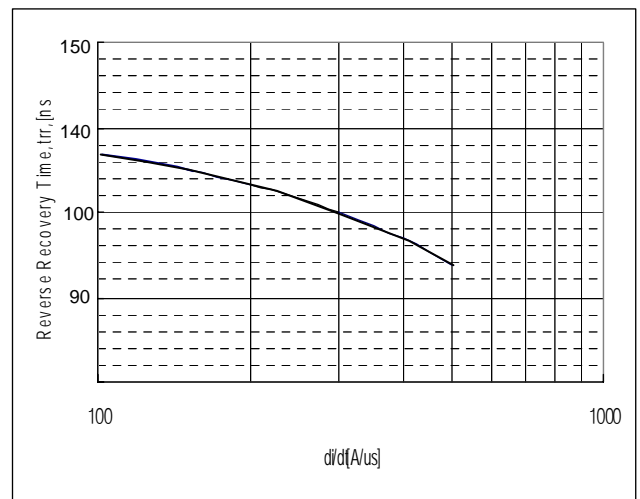


Fig. 2 : Typical Reverse Recovery Time vs. $-di/dt$

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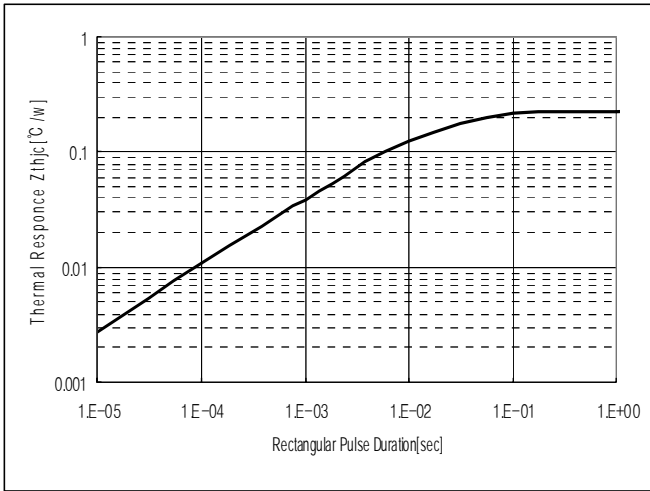


Fig. 3 : Transient Thermal Impedance(Z_{thjc}) Characteristics

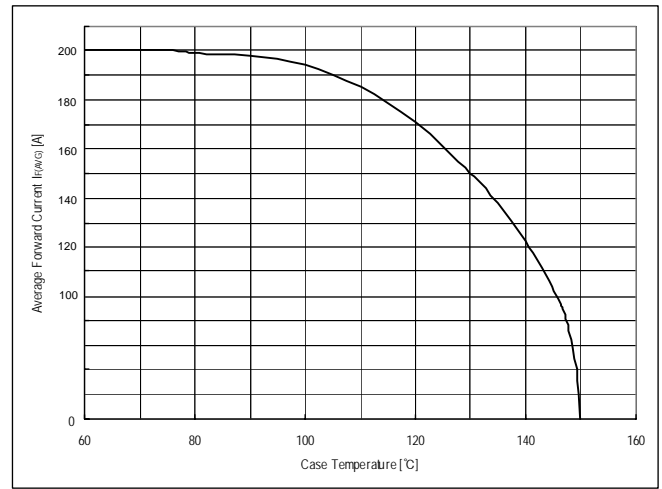


Fig. 4 : Forward Current Derating Curve

Package Out Line Information

3DM-2NI Series

