RoHS Compliant
HALOGEN-FREE

MagnaChip

MPSC2N100U120
1200V FRD Module

General 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}=1200V
- Low Forward Voltage : V_F(typ.) = 2.2V
- Average Forward Current : I_F(Av.)=100A @T_C=100℃
- Ultra-Fast Reverse Recovery Time : t_{rr}(typ.) = 40ns
- Extensive Characterization of Recovery Parameters
- Reduced EMI and RFI
- Isolation Type Package

Applications

- High Speed & High Power converters, Welders
- Various Switching and Telecommunication Power Supply

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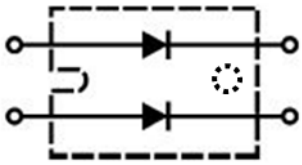

Equivalent Circuit

Absolute Maximum Ratings @Tc = 25°C (Per Leg)

Characteristics		Conditions	Symbol	Rating	Unit
Repetitive Peak Reverse Voltage			V_{RRM}	1200	V
Reverse DC Voltage			$V_{R(DC)}$	960	V
Average Forward Current	T_C=25°C	Resistive Load	$I_{F(AV)}$	200	A
	T_C=100°C			100	A
Surge(non-repetitive) Forward Current		One Half Cycle at 60Hz, Peak Value	I_{FSM}	1400	A
I^2t for Fusing		Value for One Cycle Current, t_w = 8.3ms, T_j= 25℃ Start	I^2t	8.13* 10^3	A^2s
Junction Temperature			T_J	-40 ~ 150	℃
Maximum Power Dissipation			P_D	270	W
Isolation Voltage		@AC 1 minutes	V_{isol}	2500	V
Storage Temperature			T_{stg}	-40 ~ 125	℃
Mounting Torque			-	1.45	N.m
Terminal Torque		Typical Including Screws	-	1.45	N.m
Weight			-	30	g

Electrical Characteristics @Tc = 25°C(unless otherwise specified)

Characteristics	Conditions		Symbol	Min.	Typ.	Max.	Unit
Cathode Anode Breakdown Voltage	I_R=100uA		V_R	1200	-	-	V
Diode Maximum Forward Voltage	I_F=100A	T_C=25℃	V_{FM}	-	2.2	2.8	V
		T_C=100℃		-	2.0	-	
Diode Peak Reverse Recovery Current	T_c=100℃, V_{RRM} applied	T_C=100℃	I_{RRM}	-	-	1.0	mA
Diode Reverse Recovery Time	I_F =1A,V_R=30V di/dt = -200A/uS	T_C=25℃	t_{rr}	-	40	60	ns
Diode Reverse Recovery Time	I_F =100A,V_R=600V di/dt = -200A/uS	T_C=25℃	t_{rr}	-	110	-	ns
		T_C=100℃		-	180	-	

Thermal Characteristics

Characteristics	Conditions	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance(Isolation Type)	Junction to Case	$R_{th(j-c)}$	-	-	0.46	℃/W

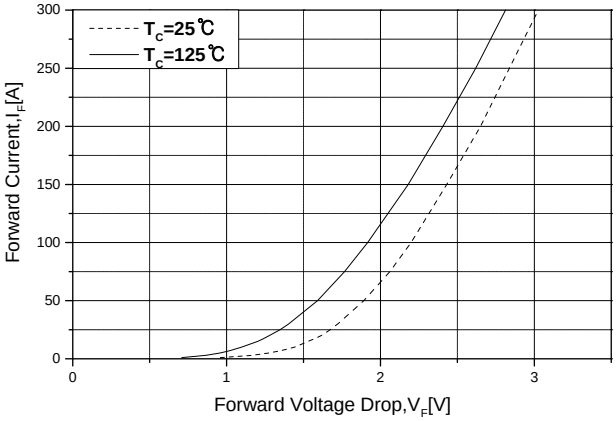

Fig.1 Typical Forward Voltage Drop vs. Instantaneous Forward Current

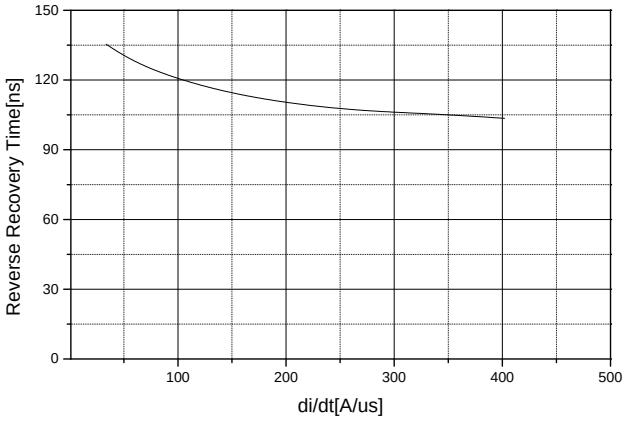

Fig.2 Typical Reverse Recovery Time Vs. –di/dt

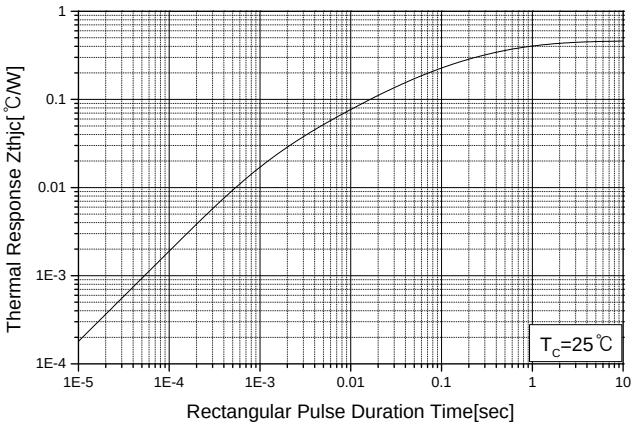

Fig.3 Transient Thermal Impedance(Zthjc) Characteristics

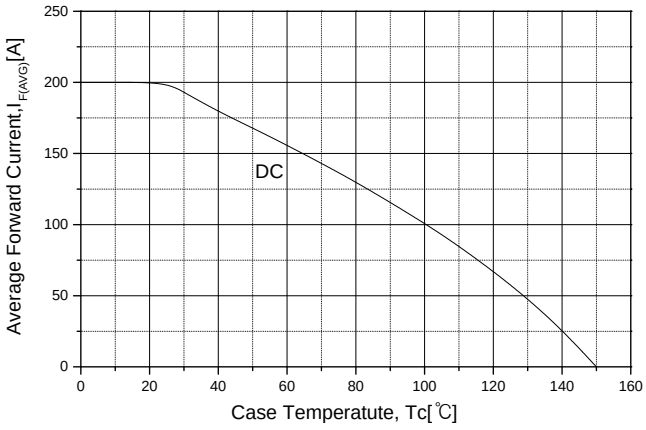

Fig.4 Forward Current Derating Curve

Package Dimension

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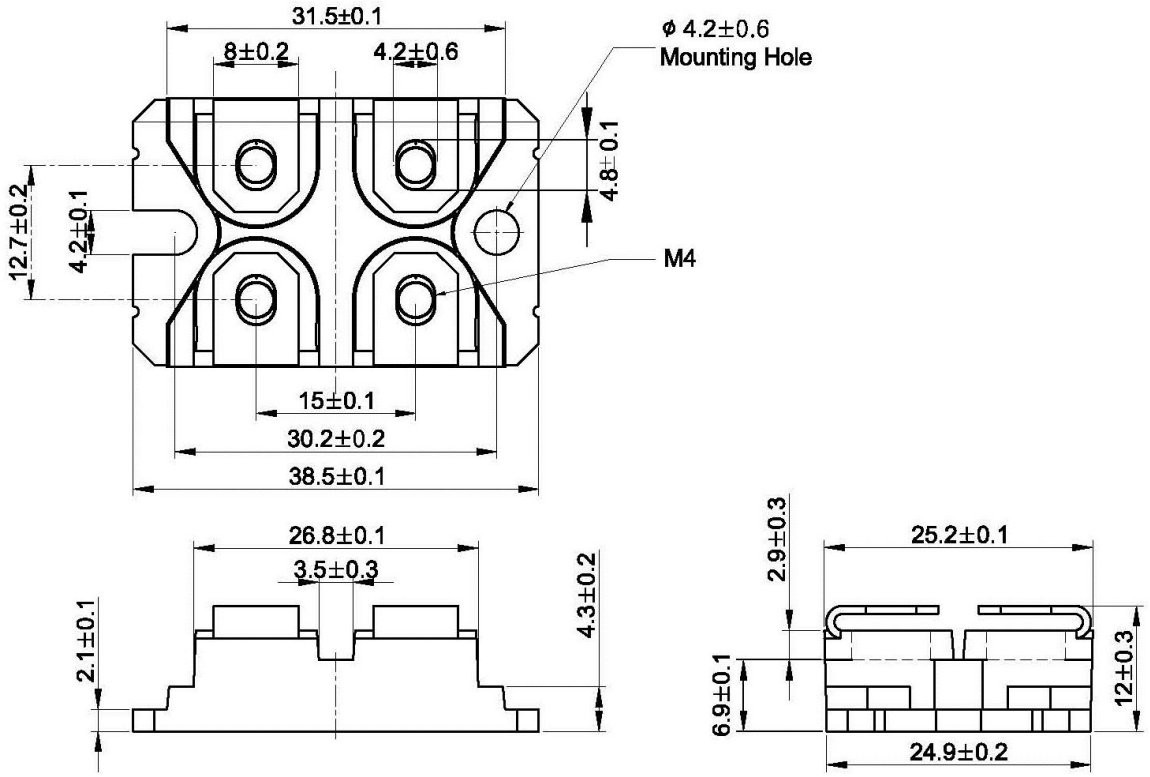
Dimensions are in millimeters, unless otherwise specified



DISCLAIMER:

The Products are not designed for use in hostile environments, including, without limitation, aircraft, nuclear power generation, medical appliances, and devices or systems in which malfunction of any Product can reasonably be expected to result in a personal injury. Seller's customers using or selling Seller's products for use in such applications do so at their own risk and agree to fully defend and indemnify Seller.