



浙江芯芯电子有限公司
ZHEJIANG XINXIN ELECTIRICAL CO., LTD.

产品规格书

Specification of Products

产品名称：快恢复二极管

产品型号：MBDK400100

浙江芯芯电子有限公司

ZHEJIANG XINXIN ELECTIRICAL CO., LTD.

地址：浙江省缙云县壶镇镇浙江丽缙五金科技产业园苍山区块内

电话：13857067071

邮编：321404

E-mail:247145749@qq.com

<http://www.zjxxdz1.com>

拟制	审核	核准
丁国盛	李园利	麻伟阳

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Ultra-Fast Soft Recovery Diode Module

MBDK400100

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

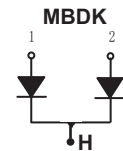
- ☞ Repetitive Reverse Voltage : $V_{RRM} = 100V$
- ☞ Low Forward Voltage Drop : $V_F(\text{typ.}) = 0.8V$
- ☞ Average Forward Current : $I_F(\text{AV.}) = 400A$ @ $T_c = 100^\circ C$
- ☞ Ultra-Fast Reverse Recovery Time : $t_{rr}(\text{typ.}) = 95 \text{ ns}$
- ☞ Extensive Characterization of Recovery Parameters
- ☞ Reduced EMI and RFI
- ☞ Non Isolation Type Package

Applications

Motor Drives, Free wheel use, High Power Converters, Welders, Various Switching and Telecommunication Power Supply.

Equivalent Circuit and Package

Equivalent Circuit



Package



Please see the package Out line information

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

Symbol	Parameter	Conditions	Ratings	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		100	V
$V_R(\text{DC})$	Reverse DC Voltage		50	V
$I_F(\text{AV})$	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_t^2	I^2t for Fusing	Value for One Cycle Current, $t_w = 8.3\text{ms}$, $T_j = 25^\circ C$ Start	45.0×10^3	A^2s
T_j	Junction Temperature		$-40 \sim 125$	$^\circ C$
T_{sta}	Storage Temperature		$-40 \sim 125$	$^\circ C$
P_d	Maximum Power Dissipation		700	W
—	Mounting Torque		4.0	N.m
—	Terminal Torque		3.0	N.m



Thermal Characteristics

Symbol	Parameter	Conditions	Values			Unit
			Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance	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	$I_R = 100\mu\text{A}$		100	-	-	V
V_{FM}	Maximum Forward Voltage	$I_{FM} = 200\text{A}, T_c = 25^{\circ}\text{C}$		-	0.9	1.0	V
		$I_{FM} = 200\text{A}, T_c = 100^{\circ}\text{C}$		-	0.7	0.8	V
I_{RRM}	Repetitive Peak Reverse Current	$T_C = 100^{\circ}\text{C}, V_{RRM}$ applied		-	-	8.5	mA
T_{rr}	Reverse Recovery Time	$I_{FM} = 200\text{A}, V_R = 300\text{V}$ $di/dt = -100\text{A}/\mu\text{s}$	$T_C = 25^{\circ}\text{C}$	-	95	110	ns
			$T_C = 100^{\circ}\text{C}$	-	160	-	ns

Performance Curves

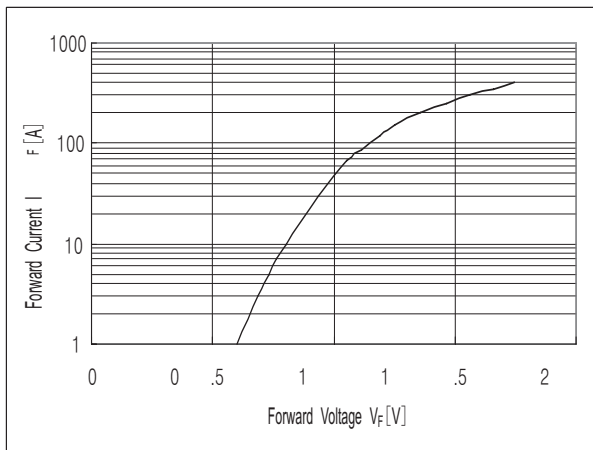


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Current

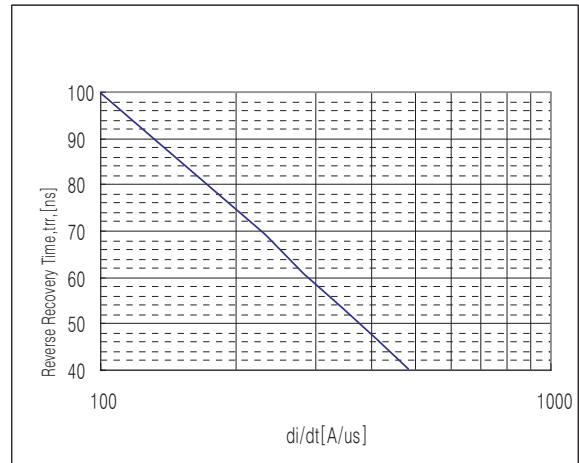


Fig. 2 : Typical Reverse Recovery Time vs. $-di/dt$

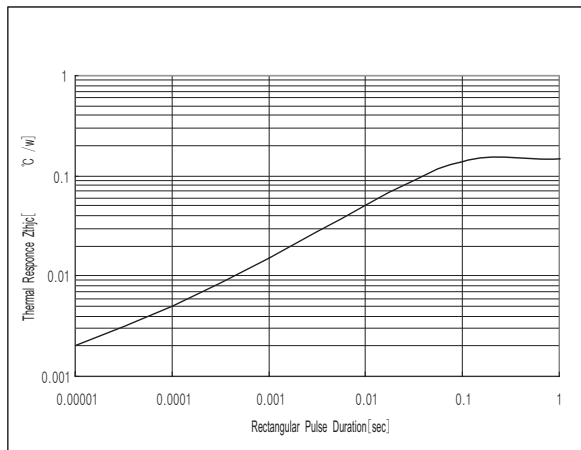


Fig. 3 : Transient Thermal Impedance (Z_{thjc}) Characteristics

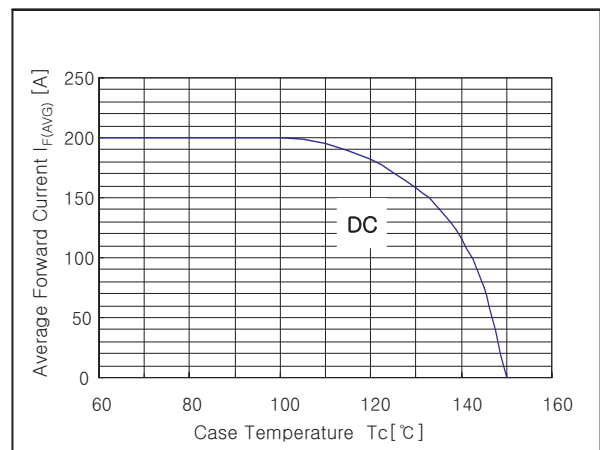


Fig. 4 : Forward Current Derating Curve

Outside Dimension

