

产品规格书

Specifcation of products

产品名称:快恢复二极管

产品型号: MFDK400U2NK3

浙江世菱半导体有限公司
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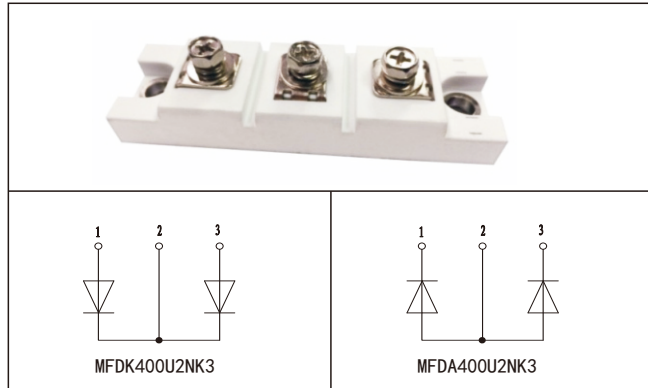
拟制	审核	核准
林益龙	曹剑龙	宗瑞

PRODUCT FEATURES

- ☑ Ultrafast Reverse Recovery Time
- ☑ Soft Reverse Recovery Characteristics
- ☑ Low Reverse Recovery Loss
- ☑ Low Forward Voltage
- ☑ High Surge Current Capability
- ☑ Low Inductance Package

APPLICATIONS

- ☑ Inversion Welder
- ☑ Uninterruptible Power Supply (UPS)
- ☑ Plating Power Supply
- ☑ Ultrasonic Cleaner and Welder
- ☑ Converter & Chopper
- ☑ Power Factor Correction (PFC) Circuit



ABSOLUTE MAXIMUM RATINGS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
V_R	Maximum D.C. Reverse Voltage		200	V
V_{RRM}	Maximum Repetitive Reverse Voltage		200	V
$I_{F(AV)}$	Average Forward Current	$T_C=100^{\circ}\text{C}$, Per Diode	200	A
		$T_C=100^{\circ}\text{C}$, Per Moudle	400	A
		$T_C=100^{\circ}\text{C}$, 20KHz, Per Moudle	300	A
$I_{F(RMS)}$	RMS Forward Current	$T_C=100^{\circ}\text{C}$, Per Diode	300	A
I_{FSM}	Non-Repetitive Surge Forward Current	1/2 Cycle, 50Hz, Sine	1800	A
		1/2 Cycle, 60Hz, Sine	2000	A
I^2t	I^2t (For Fusing)	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	16200	A^2s
		$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	20000	A^2s
P_D	Power Dissipation		625	W
T_J	Junction Temperature		-40 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-40 to +125	$^{\circ}\text{C}$
Torque	Module-to-Sink	Recommended (M5)	3~4.7	Nm
Torque	Module Electrodes	Recommended (M6)	3~4.7	Nm
$R_{\theta JC}$	Thermal Resistance	Junction-to-Case	0.20	$^{\circ}\text{C}/\text{W}$
Weight			100	g

ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{RM}	Reverse Leakage Current	V _R =200V	--	--	10	uA
		V _R =200V, T _J =125°C	--	--	1	mA
V _F	Forward Voltage	I _F =200A	--	1.00	--	V
		I _F =200A, T _J =125°C	--	--	0.80	V
t _{rr}	Reverse Recovery Time	I _F =1A, V _R =30V, di _F /dt=-200A/μs	--	45	--	ns
t _{rr}	Reverse Recovery Time	V _R =100V, I _F =200A	--	80	--	ns
I _R RM	Max. Reverse Recovery Current	di _F /dt=-100A/μs, T _J =25°C	--	5	--	A
t _{rr}	Reverse Recovery Time	V _R =100V, I _F =200A	--	100	--	ns
I _R RM	Max. Reverse Recovery Current	di _F /dt=-100A/μs, T _J =125°C	--	6.8	--	A

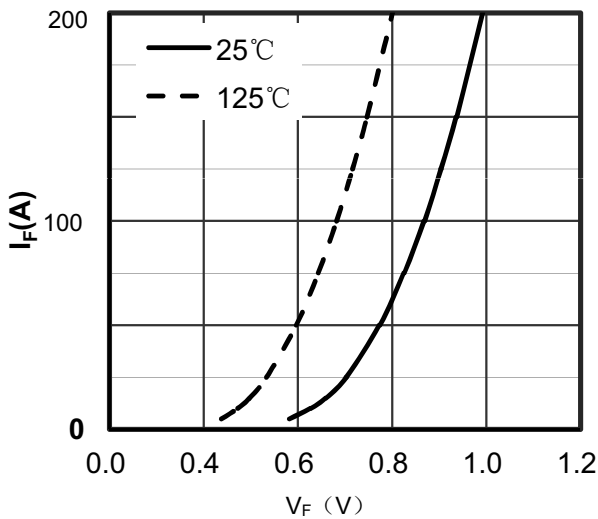


Figure1. Forward Voltage Drop vs Forward Current

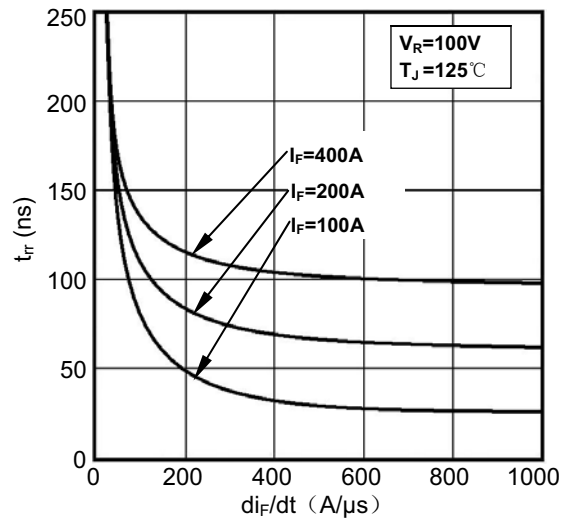


Figure2. Reverse Recovery Time vs di_F/dt

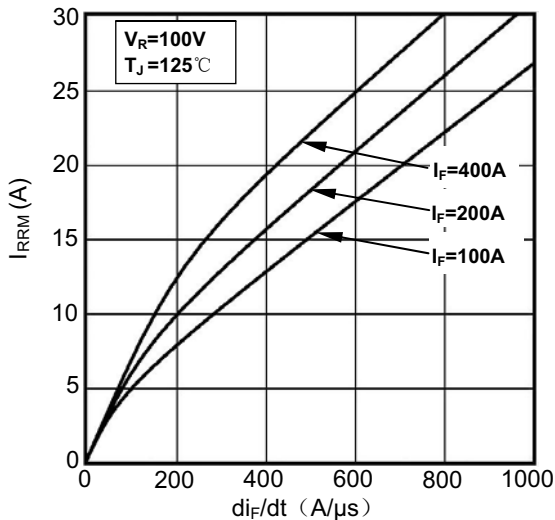


Figure3. Reverse Recovery Current vs di_F/dt

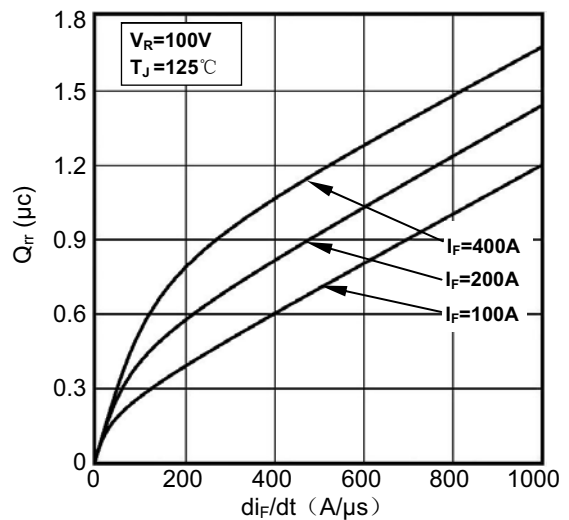


Figure4. Reverse Recovery Charge vs di_F/dt

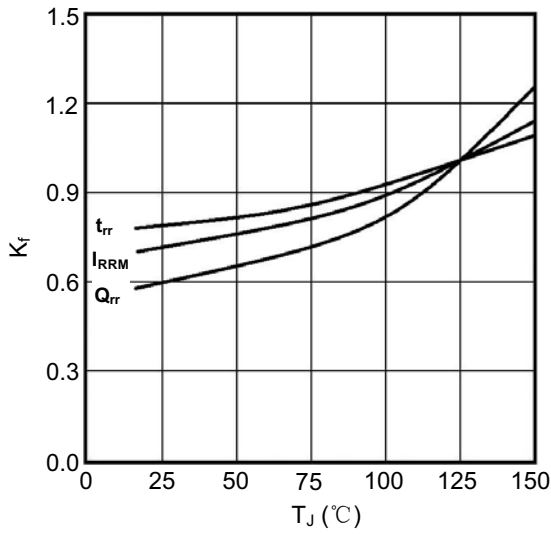


Figure5. Dynamic Parameters vs Junction Temperature

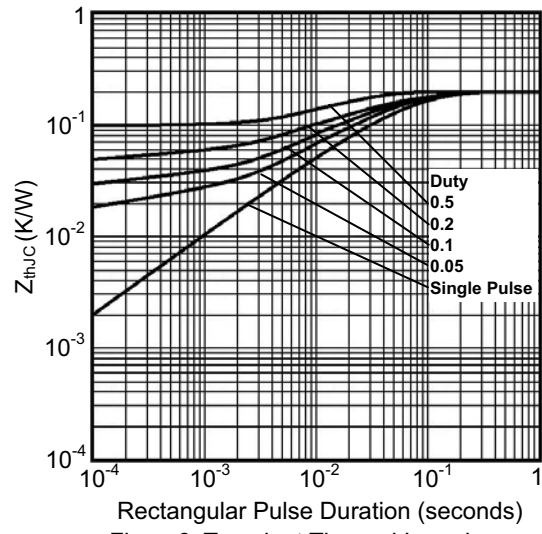
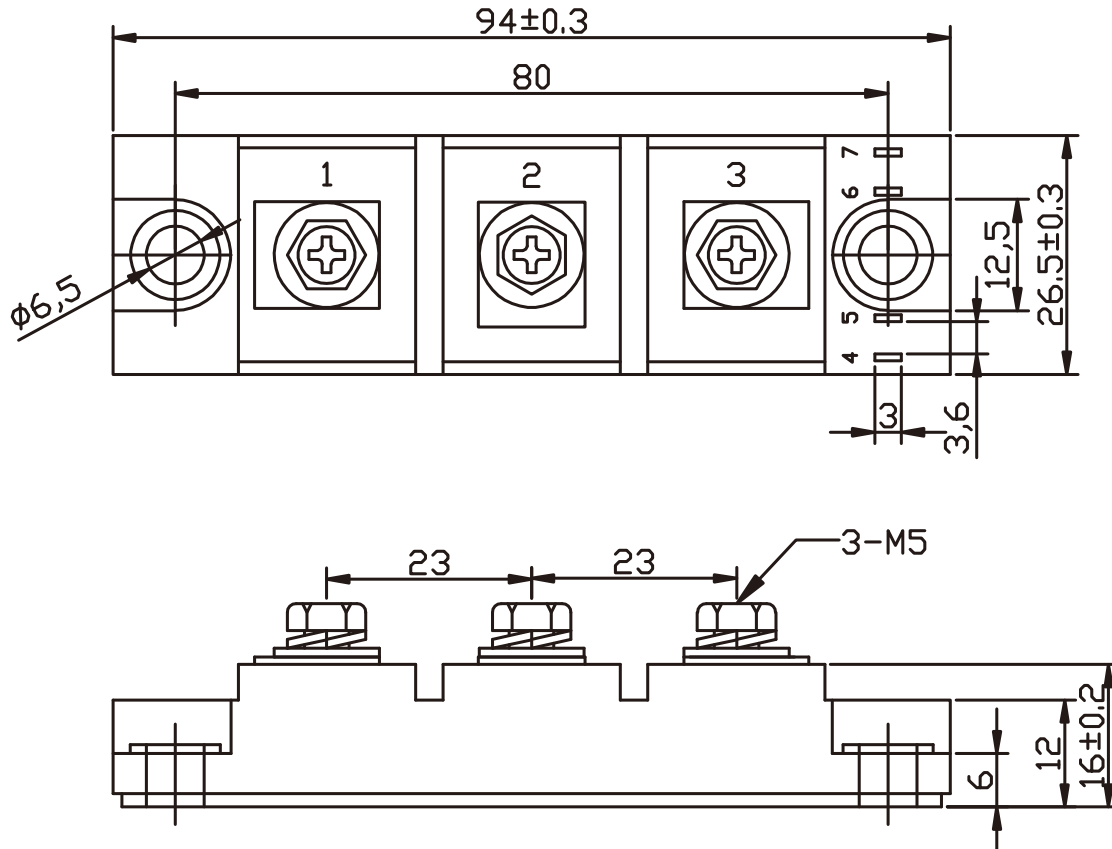


Figure6. Transient Thermal Impedance

Package Outline



Dimensions (mm)