ShiLing® 浙江世菱半导体有限公司
ZHEJIANG SHILING SEMICONDUCTOR CO.,LTD.

产品规格书

Specifcation of products

产品名称:快恢复二极管

产品型号:MFDK400U4N-K4

浙江世菱半导体有限公司
ZHEJIANG SHILING SEMICONDUCTOR CO.,LTD.

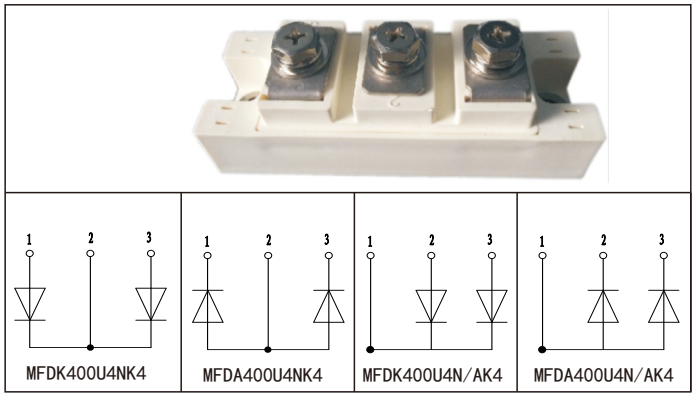
地址:浙江省 丽水市 莲都区
电话:(0578)3012571 3615078
传真:(0578)3611180
邮编: 323000
E-mail:smrshiling01@163.com
Http//www.smrshiling.com

拟制	审核	核准
林益龙	曹剑龙	宗瑞

版本号:05 更新日期:2023.8

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℃ unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
V_R	Maximum D.C. Reverse Voltage		400	V
V_{RRM}	Maximum Repetitive Reverse Voltage		400	V
$I_{F(AV)}$	Average Forward Current	T_C=75℃, Per Diode	400	A
		T_C=120℃, 20KHz, Per Moudle	300	A
$I_{F(RMS)}$	RMS Forward Current	T_C=110℃, Per Diode	560	A
I_{FSM}	Non-Repetitive Surge Forward Current	T_J=45℃, t=10ms, 50Hz, Sine	3600	A
		T_J=45℃, t=8.3ms, 60Hz, Sine	3960	A
I^2t	I^2t (For Fusing)	T_J=45℃, t=10ms, 50Hz, Sine	64800	A^2s
		T_J=45℃, t=8.3ms, 60Hz, Sine	65000	A^2s
P_D	Power Dissipation		1450	W
T_J	Junction Temperature		-40 to +150	℃
T_{STG}	Storage Temperature Range		-40 to +125	℃
V_{isol}	Insulation Test Voltage	AC, t=1min	3000	V
Torque	Module-to-Sink	Recommended（M6）	3～5	N.M
Torque	Module Electrodes	Recommended（M6）	3～5	N.M
$R_{\theta JC}$	Thermal Resistance	Junction-to-Case	0.14	℃ /W
Weight			160	g

ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	V_R=400V	--	--	0.3	mA
		V_R=400V, T_J=125℃	--	--	10	mA
V_F	Forward Voltage	I_F=400A	--	1.4	--	V
		I_F=400A, T_J=125℃	--	1.15		V
t_{rr}	Reverse Recovery Time	I_F=1A, V_R=30V, di_F/dt=-200A/μs	--	50	--	ns
t_{rr}	Reverse Recovery Time	V_R=200V, I_F=400A	--	85	--	ns
I_{RRM}	Max. Reverse Recovery Current	di_F/dt=-200A/μs, T_J=25℃	--	12	--	A
t_{rr}	Reverse Recovery Time	V_R=200V, I_F=400A	--	180	--	ns
I_{RRM}	Max. Reverse Recovery Current	di_F/dt=-1000A/μs, T_J=125℃	--	20	--	A

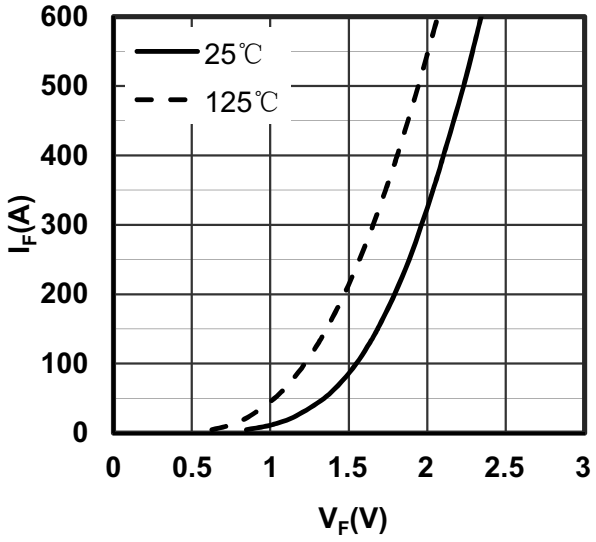


Figure1. Forward Voltage Drop vs Forward Current

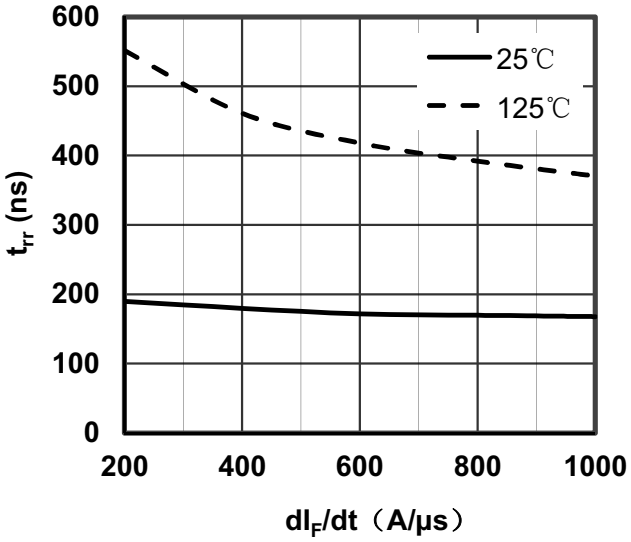


Figure2. Reverse Recovery Time vs di_F/dt

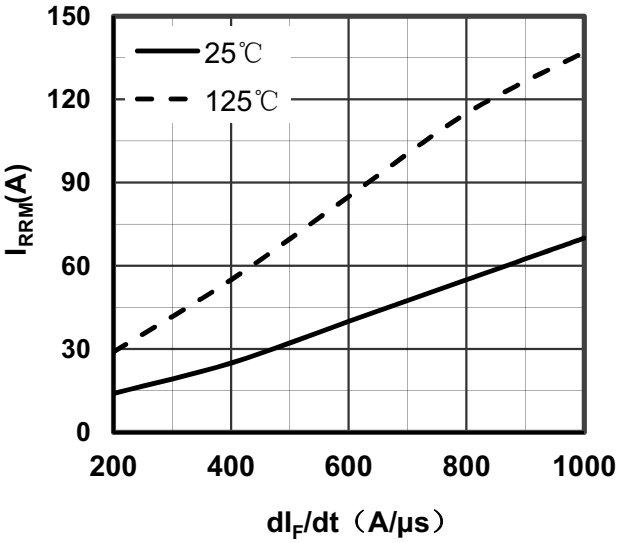


Figure3. Reverse Recovery Current vs di_F/dt

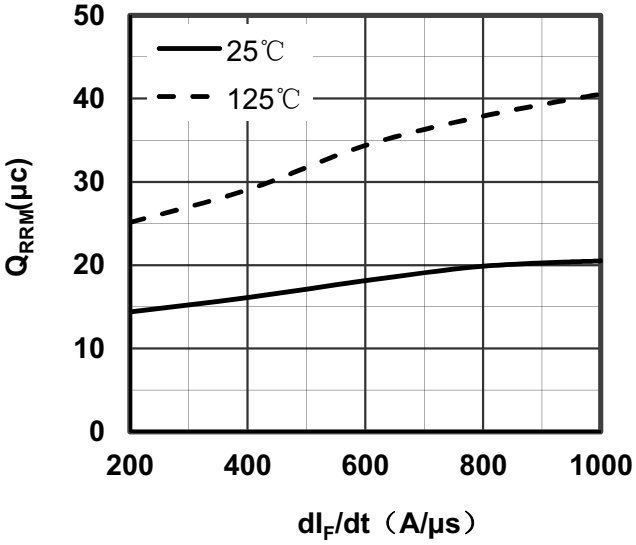


Figure4. Reverse Recovery Charge vs di_F/dt

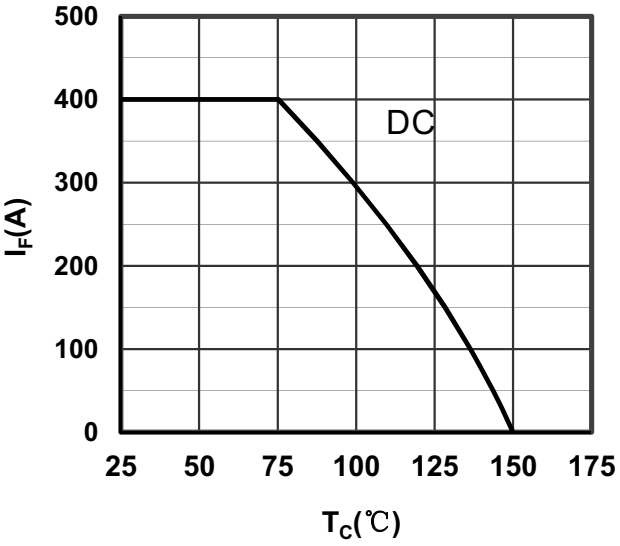


Figure 5.Forward current vs Case temperature

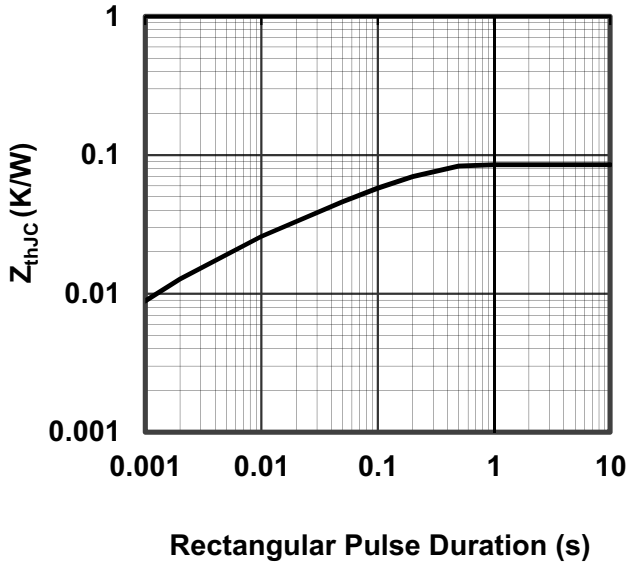
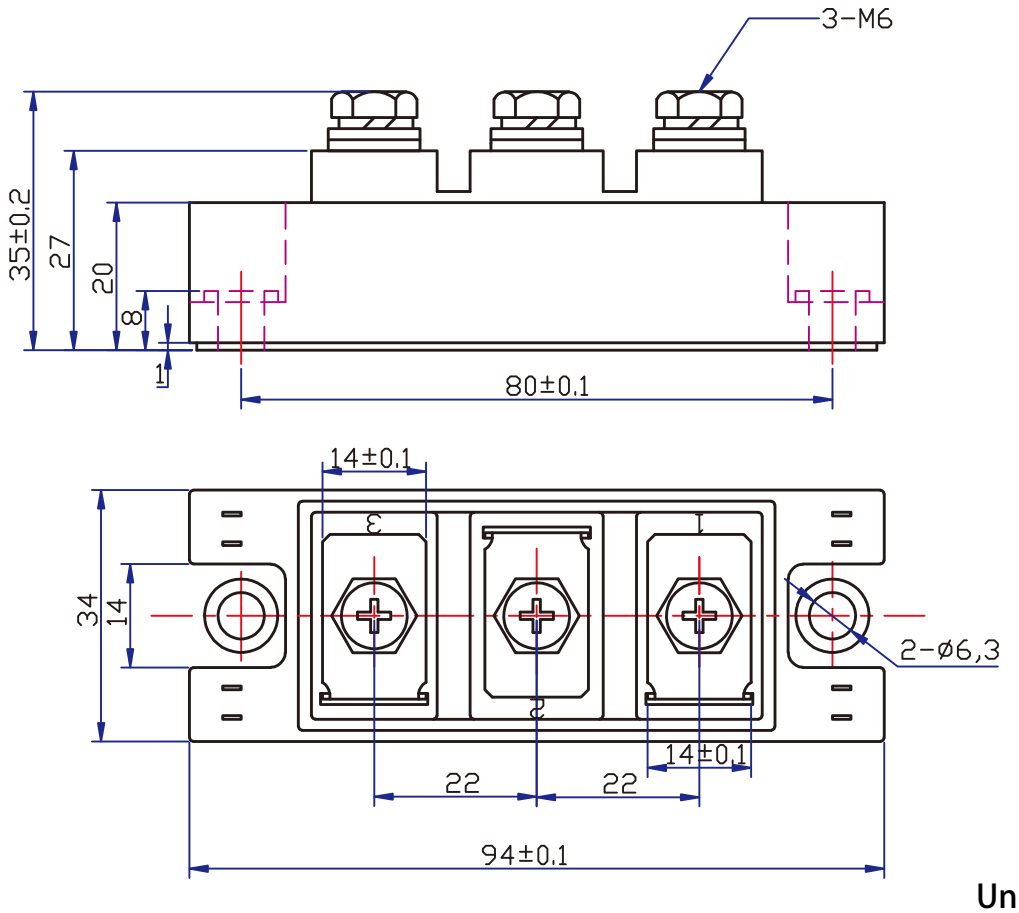


Figure 6. Transient Thermal Impedance



Unit:mm