

## 产品规格书

### Specification of Products

产品名称：快恢复二极管

产品型号：MF400U6NK9

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

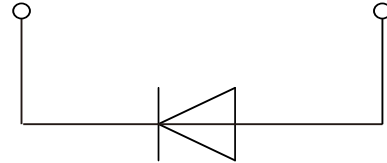
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金明辉	曹剑龙	宗瑞

### 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		600	V
$V_{RRM}$	Maximum Repetitive Reverse Voltage		600	V
$I_{F(AV)}$	Average Forward Current	$T_C=110^{\circ}\text{C}$ , Per Moudle	400	A
$I_{F(RMS)}$	RMS Forward Current	$T_C=110^{\circ}\text{C}$ , Per Diode	350	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	3600	A
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	3968	A
$I^2t$	$I^2t$ (For Fusing)	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	76800	$\text{A}^2\text{s}$
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	86700	$\text{A}^2\text{s}$
$P_D$	Power Dissipation		730	W
$T_J$	Junction Temperature		-40 to +150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range		-40 to +125	$^{\circ}\text{C}$
$V_{isol}$	Insulation Test Voltage	AC, $t=1\text{min}$	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	0.11	$^{\circ}\text{C} / \text{W}$
Weight			105	g

### ELECTRICAL CHARACTERISTICS

T<sub>C</sub>=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>RM</sub>	Reverse Leakage Current	V <sub>R</sub> =600V	--	--	20	uA
		V <sub>R</sub> =600V, T <sub>J</sub> =125°C	--	--	10	mA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =400A	--	1.45	--	V
		I <sub>F</sub> =400A, T <sub>J</sub> =125°C	--	1.35	--	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =1A, V <sub>R</sub> =30V, di <sub>F</sub> /dt=-200A/μs	--	140	--	ns
t <sub>rr</sub>	Reverse Recovery Time	V <sub>R</sub> =300V, I <sub>F</sub> =400A	--	160	--	ns
I <sub>RRM</sub>	Max. Reverse Recovery Current	di <sub>F</sub> /dt=-200A/μs, T <sub>J</sub> =25°C	--	12	--	A
t <sub>rr</sub>	Reverse Recovery Time	V <sub>R</sub> =300V, I <sub>F</sub> =400A	--	210	--	ns
I <sub>RRM</sub>	Max. Reverse Recovery Current	di <sub>F</sub> /dt=-1000A/μs, T <sub>J</sub> =125°C	--	20	--	A

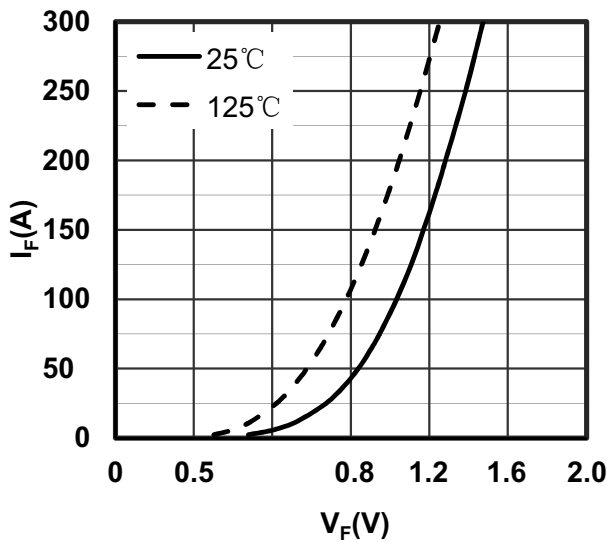


Figure1. Forward Voltage Drop vs Forward Current

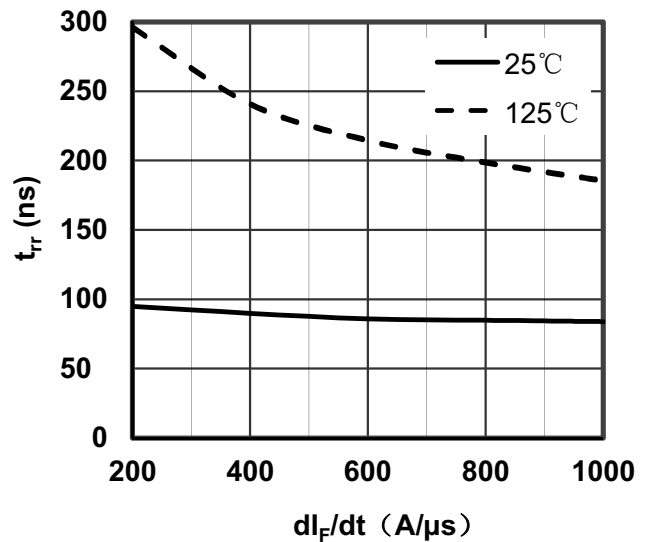


Figure2. Reverse Recovery Time vs di<sub>F</sub>/dt

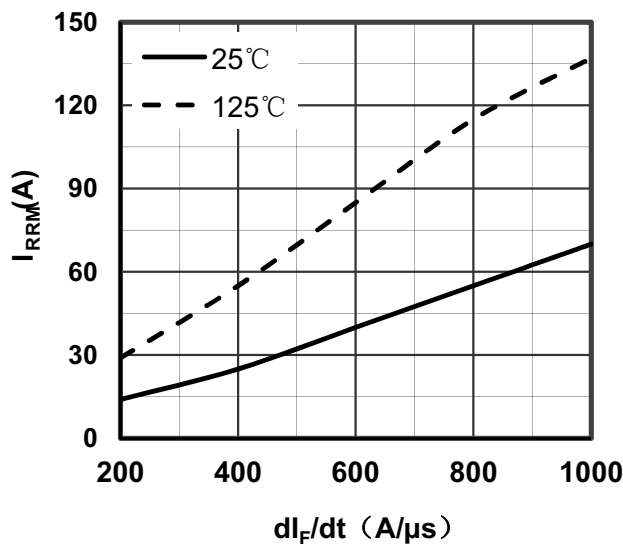


Figure3. Reverse Recovery Current vs di<sub>F</sub>/dt

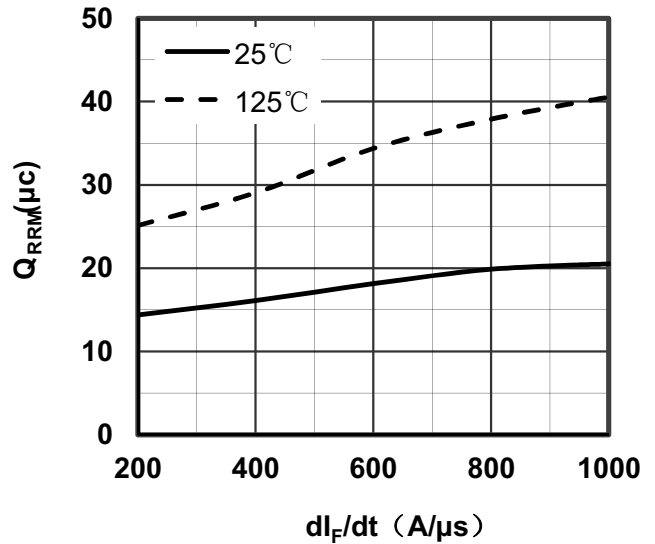


Figure4. Reverse Recovery Charge vs di<sub>F</sub>/dt

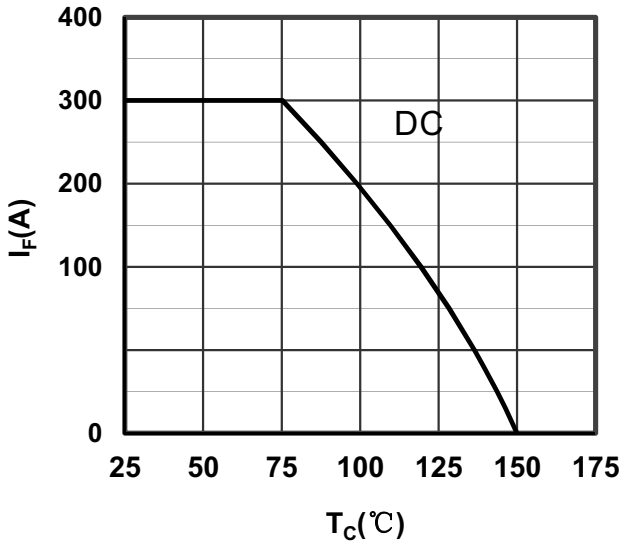


Figure 5. Forward current vs Case temperature

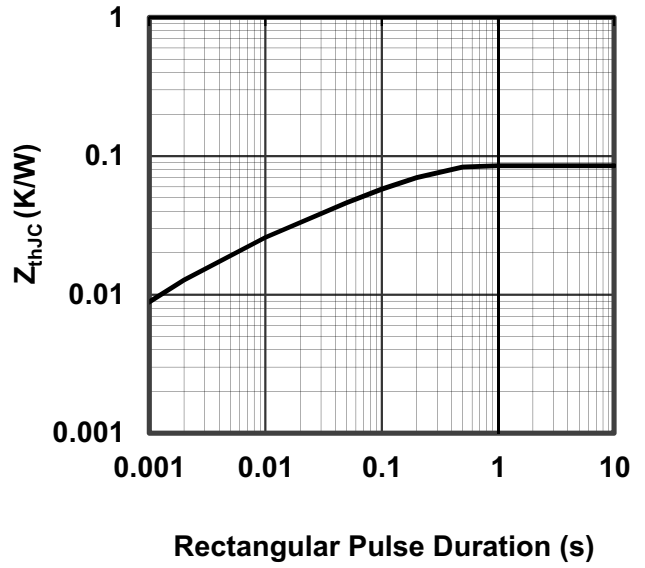


Figure 6. Transient Thermal Impedance

