

产品规格书

Specifcation of products

产品名称:快恢复二极管

产品型号: MFDK300A400V-K8

浙江世菱半导体有限公司
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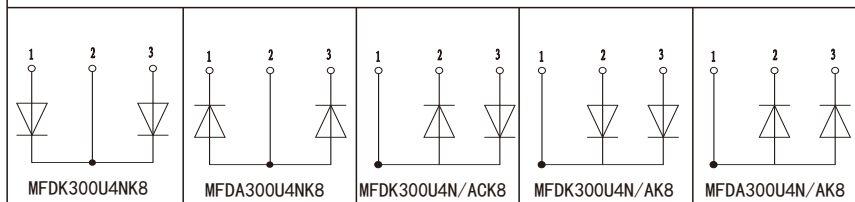
PRODUCT FEATURES

- 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°C 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 =110°C, Per Diode	150	A
		T _C =120°C, 20KHz, Per Moudle	300	A
I _{F(RMS)}	RMS Forward Current	T _C =110°C, Per Diode	420	A
I _{FSM}	Non-Repetitive Surge Forward Current	T _J =45°C, t=10ms, 50Hz, Sine	2700	A
		T _J =45°C, t=8.3ms, 60Hz, Sine	2850	A
I ² t	I ² t (For Fusing)	T _J =45°C, t=10ms, 50Hz, Sine	36450	A ² s
		T _J =45°C, t=8.3ms, 60Hz, Sine	40612	A ² s
P _D	Power Dissipation		893	W
T _J	Junction Temperature		-40 to +150	°C
T _{STG}	Storage Temperature Range		-40 to +125	°C
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 _{θJC}	Thermal Resistance	Junction-to-Case	0.14	°C /W
Weight			160	g

ELECTRICAL CHARACTERISTICS

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	$V_R=400\text{V}$	--	--	2	mA
		$V_R=400\text{V}, T_J=125^\circ\text{C}$	--	--	10	mA
V_F	Forward Voltage	$I_F=150\text{A}$	--	1.20	1.45	V
		$I_F=150\text{A}, T_J=125^\circ\text{C}$	--	1.10	1.20	V
t_{rr}	Reverse Recovery Time	$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$	--	65	--	ns
t_{rr}	Reverse Recovery Time	$V_R=400\text{V}, I_F=300\text{A}$	--	135	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	--	10	--	A
t_{rr}	Reverse Recovery Time	$V_R=400\text{V}, I_F=300\text{A}$	--	385	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$	--	25	--	A

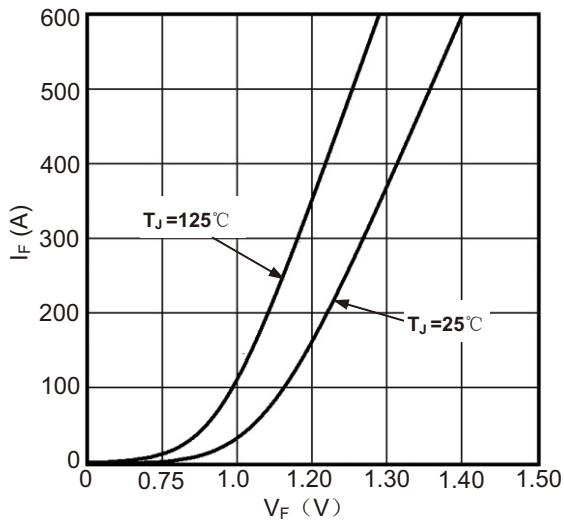


Figure1. Forward Voltage Drop vs Forward Current

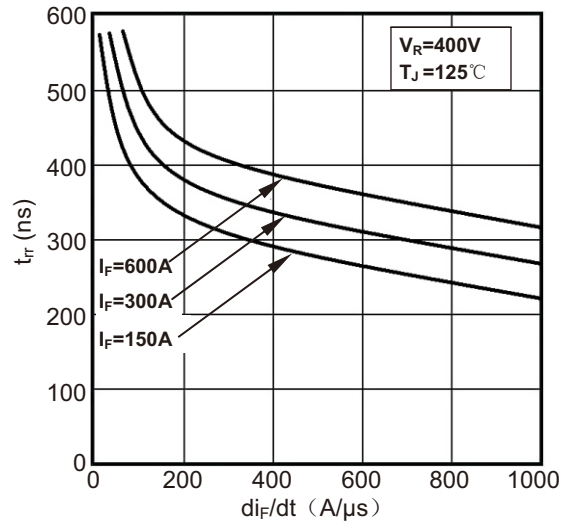


Figure2. Reverse Recovery Time vs di_F/dt

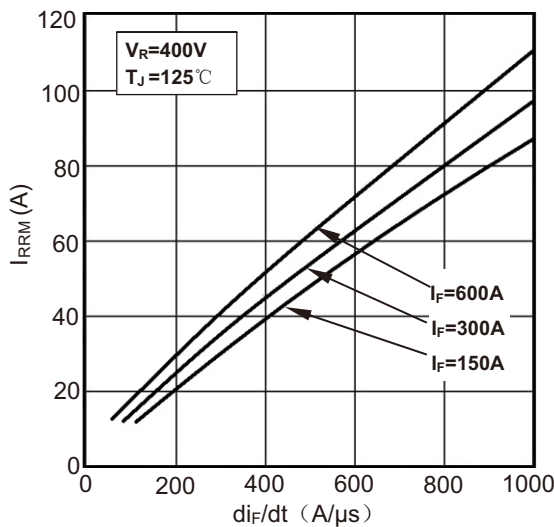


Figure3. Reverse Recovery Current vs di_F/dt

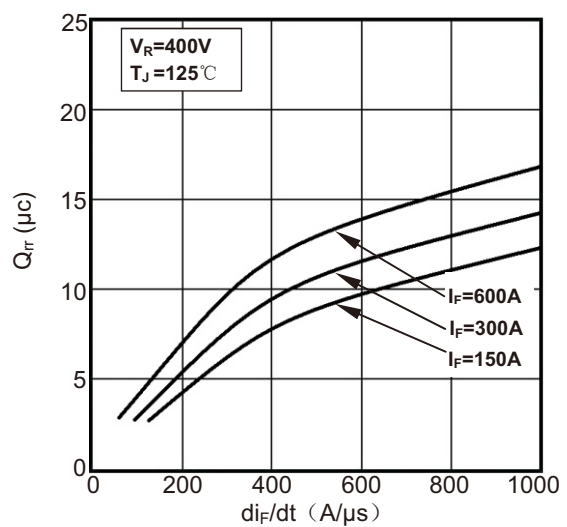


Figure4. Reverse Recovery Charge vs di_F/dt

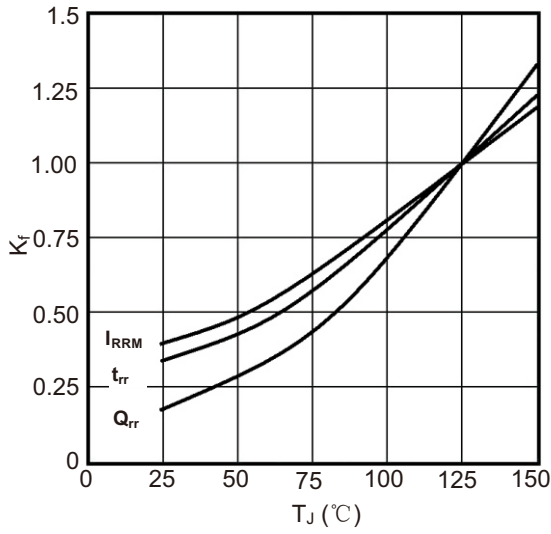


Figure5. Dynamic Parameters vs Junction Temperature

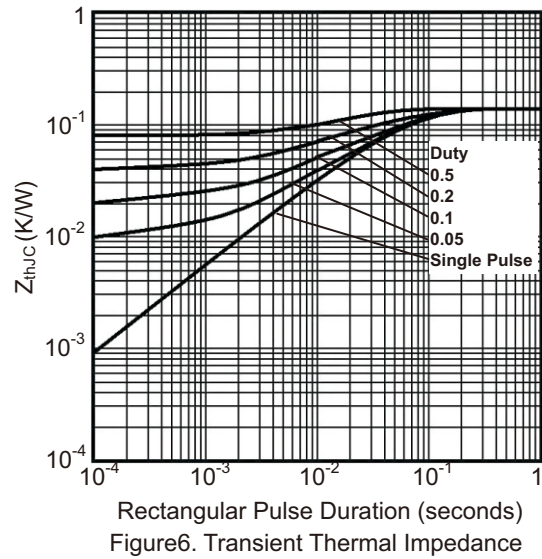
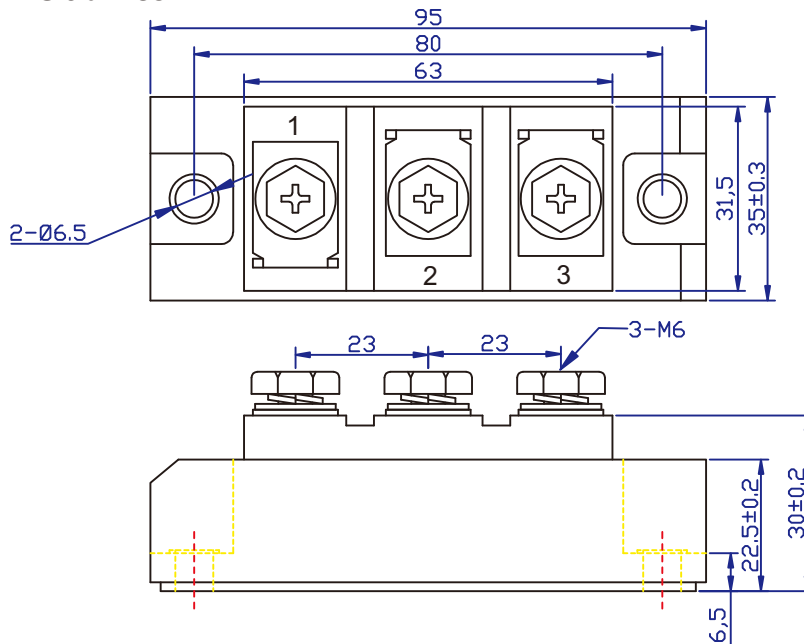


Figure6. Transient Thermal Impedance

Package Outlines



Unit:mm