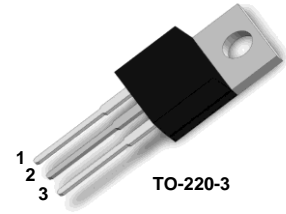


PRODUCT FEATURES

- Ultrafast Recovery Time
- Low Recovery Loss
- Soft Reverse Recovery Characteristics
- Low Leakage Current
- Low Forward Voltage
- High Surge Current Capability

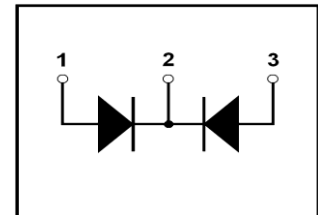
APPLICATIONS

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS



DESCRIPTION

FRED from MacMic utilizes advanced processing techniques to achieve ultrafast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.



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			
$I_{F(AV)}$	Average Forward Current	$T_C=110^\circ\text{C}$, Per Diode	8	A
		$T_C=110^\circ\text{C}$, Per Package	16	
$I_{F(RMS)}$	RMS Forward Current	$T_C=110^\circ\text{C}$, Per Diode	12	
I_{FSM}	Non Repetitive Surge Forward Current	$T_J=45^\circ\text{C}$, $t=10\text{ms}$, 50Hz, Sine	100	
P_D	Power Dissipation		50	W
T_J	Junction Temperature		-40 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-40 to +150	$^\circ\text{C}$
Torque	Module-to-Sink	Recommended (M3)	1.1	Nm
R_{thJC}	Junction to Case Thermal Resistance		2.5	$^\circ\text{C}/\text{W}$
Weight			2.1	g

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
I_{RM}	Maximum Reverse Leakage Current	$V_R = 600\text{V}$			15	μA
		$V_R = 600\text{V}$, $T_J = 125^\circ\text{C}$			250	μA
V_F	Forward Voltage	$I_F=8\text{A}$		1.8	2.4	V
		$I_F=8\text{A}$, $T_J=125^\circ\text{C}$		1.4		
t_{rr}	Reverse Recovery Time ($I_F = 1\text{A}$, $di_F/dt = -200\text{A}/\mu\text{s}$, $V_R = 30\text{V}$)			17		ns

MM16FU060KC

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F=8\text{A}, V_R=300\text{V},$ $di_F/dt = -200\text{A}/\mu\text{s}$		30		ns
I_{RRM}	Maximum Reverse Recovery Current			2.3		A
t_{rr}	Reverse Recovery Time	$I_F=8\text{A}, V_R=300\text{V},$ $di_F/dt = -200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$		60		ns
I_{RRM}	Maximum Reverse Recovery Current			4.8		A

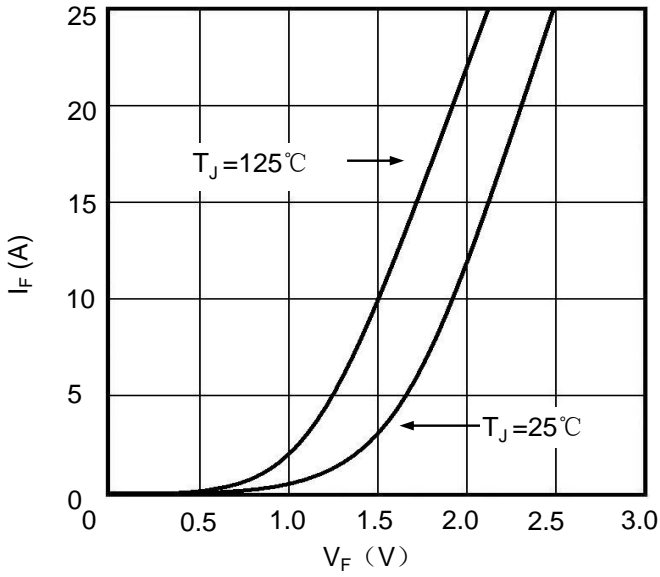


Fig1. Forward Voltage Drop vs Forward Current

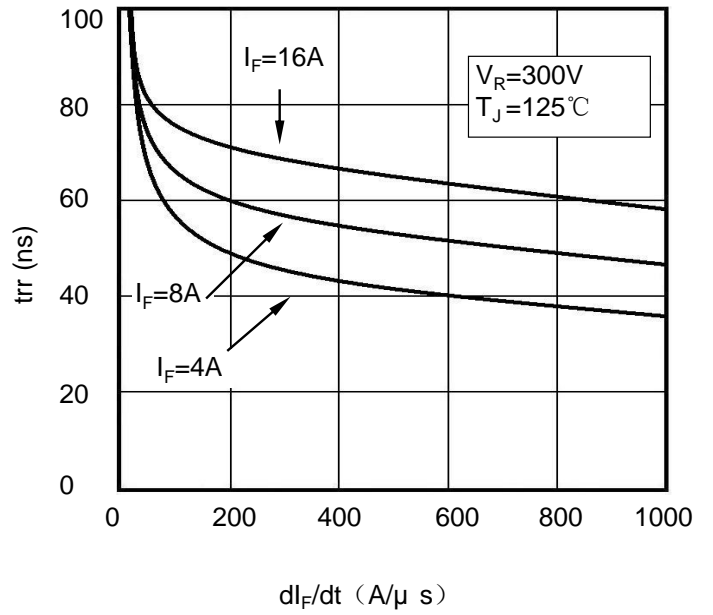


Figure 2. Reverse Recovery Time vs di_F/dt

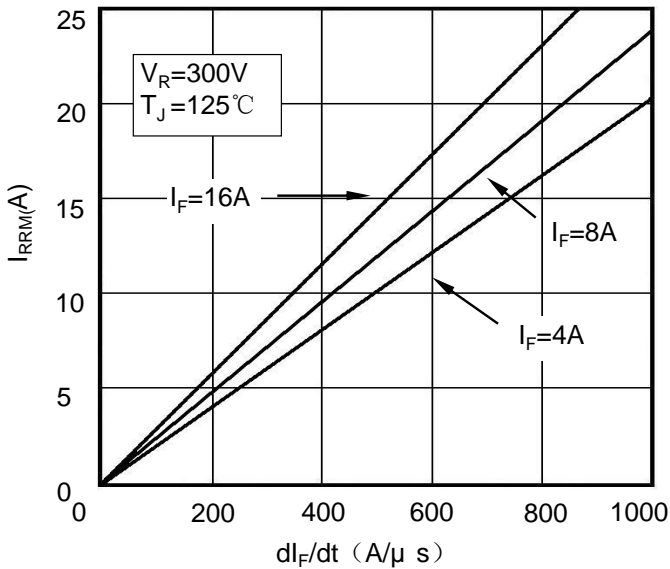


Figure 3. Reverse Recovery Current vs di_F/dt

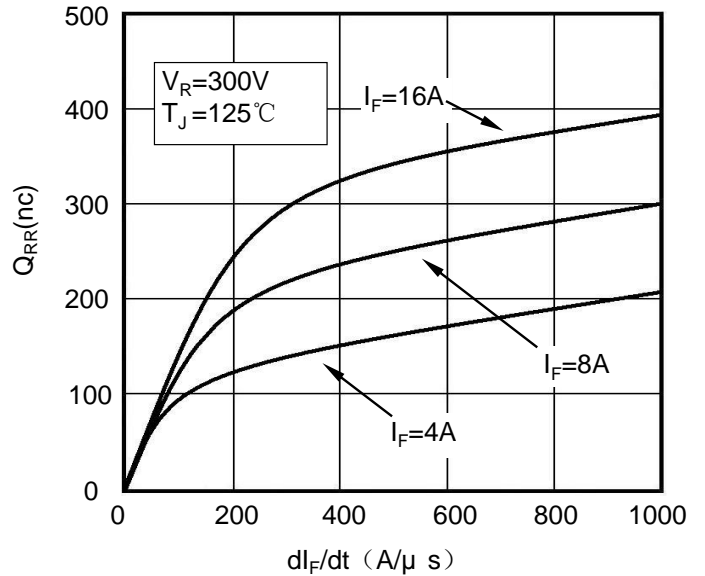


Figure 4. Reverse Recovery Charge vs di_F/dt

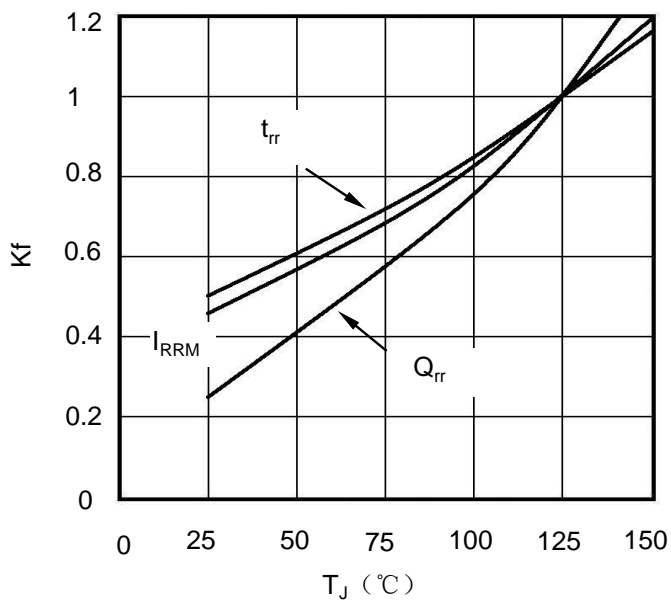


Fig5. Dynamic Parameters vs Junction Temperature

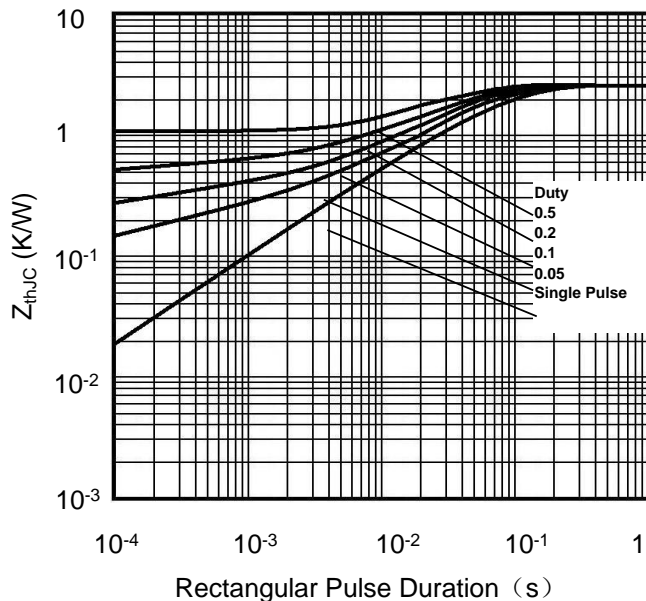


Figure 6. Transient Thermal Impedance

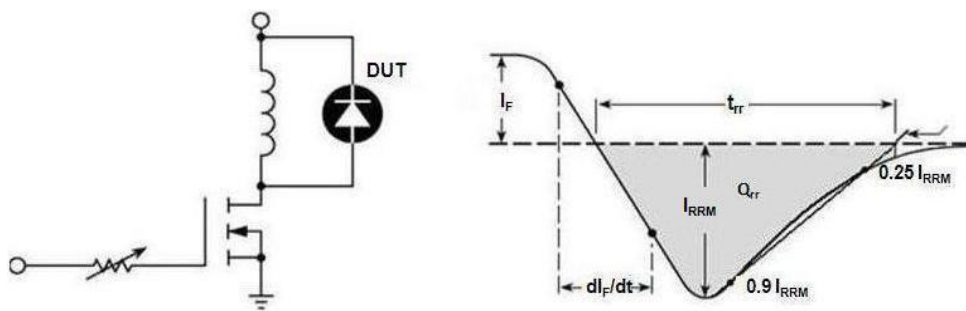
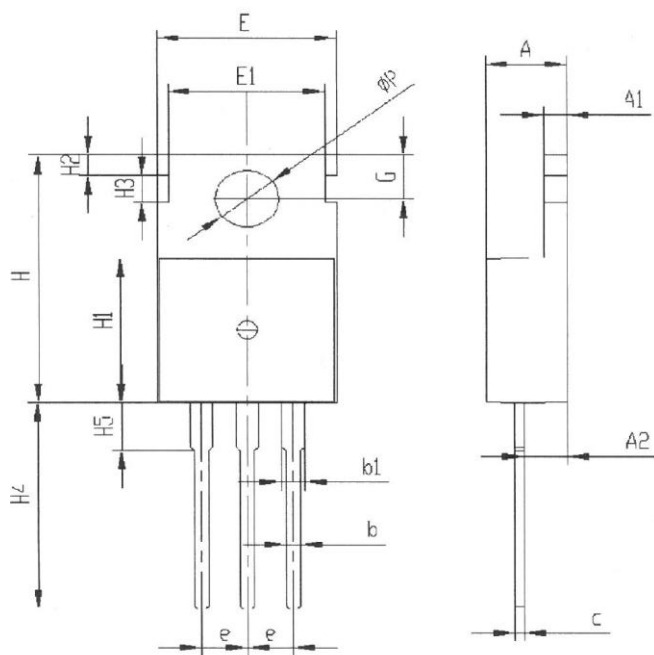


Figure 7. Diode Reverse Recovery Test Circuit and Waveform



基本尺寸

Symbol	单位 mm		
	Min	Nom	Max
A	4.30	4.5	4.70
A1	1.20	1.30	1.40
A2	2.20	2.4	2.60
b	0.60	0.8	1.00
b1	1.20	1.30	1.40
c	0.40	0.5	0.60
e	2.44	2.54	2.64
E	9.80	10.0	10.2
E1	8.50	8.70	8.90
H	15.5	15.7	15.9
H1	9.00	9.2	9.40
H2	1.10	1.34	1.50
H3	1.50	1.7	1.90
H4	12.9	13.3	13.7
H5	2.80	3.0	3.20
G	2.60	2.8	3.00
ΦP	3.40	3.6	3.80

Dimensions in (mm)

Figure 8. Package Outline