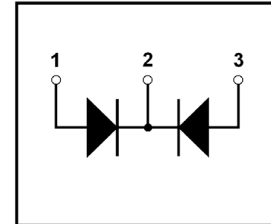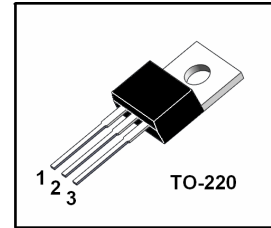# MM16F020KC

200V 16A FRED

PRODUCT FEATURES

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

APPLICATIONS

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

TO-220

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

ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

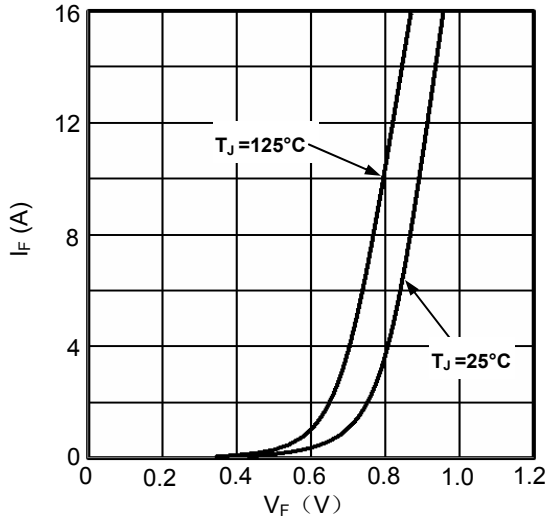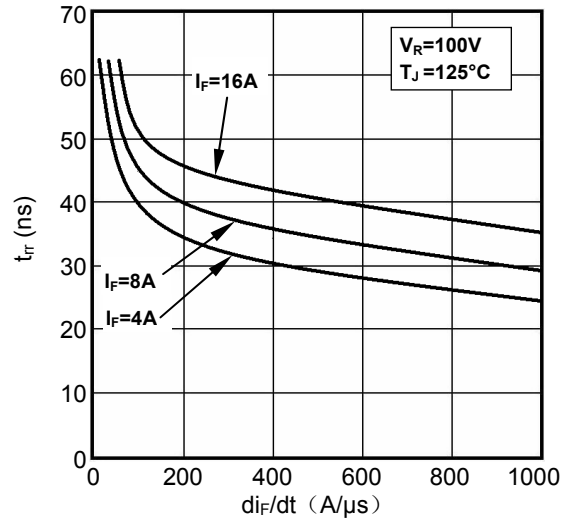| Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	V_R=200V	--	--	15	µA
		V_R=200V, T_J=125°C	--	--	250	µA
V_F	Forward Voltage	I_F=8A	--	0.87	1.0	V
		I_F=8A, T_J=125°C	--	0.78	--	V
t_{rr}	Reverse Recovery Time	I_F=1A, V_R=30V, di_F/dt=-200A/µs	--	20	--	ns
t_{rr}	Reverse Recovery Time	V_R=100V, I_F=8A	--	25	--	ns
I_{RRM}	Max. Reverse Recovery Current	di_F/dt=-200A/µs, T_J=25°C	--	3.0	--	A
t_{rr}	Reverse Recovery Time	V_R=100V, I_F=8A	--	40	--	ns
I_{RRM}	Max. Reverse Recovery Current	di_F/dt=-200A/µs, T_J=125°C	--	5.5	--	A

Fig1. Forward Voltage Drop vs Forward Current

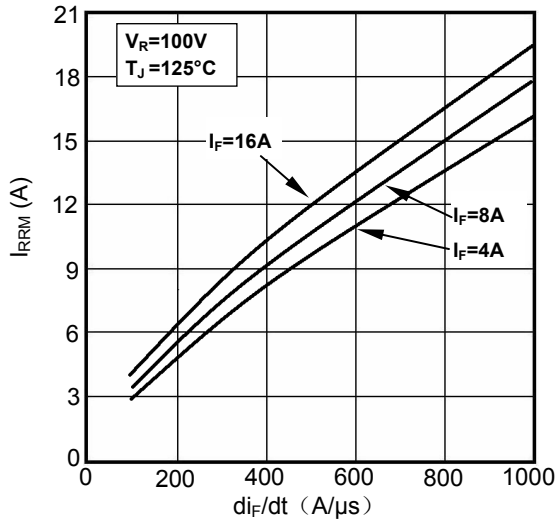Fig2. Reverse Recovery Time vs di$_F$/dt
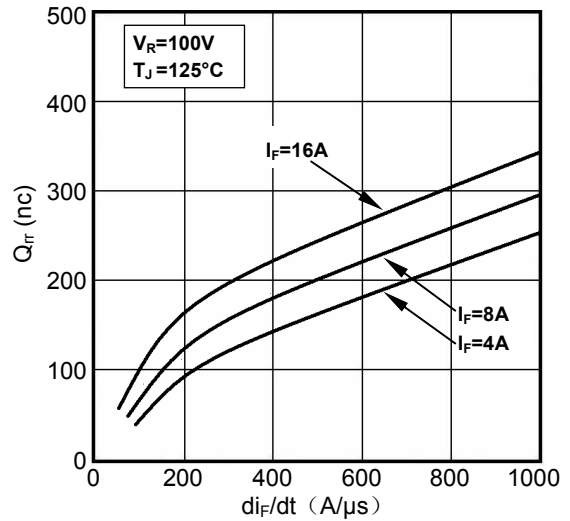
Fig3. Reverse Recovery Current vs di$_F$/dt

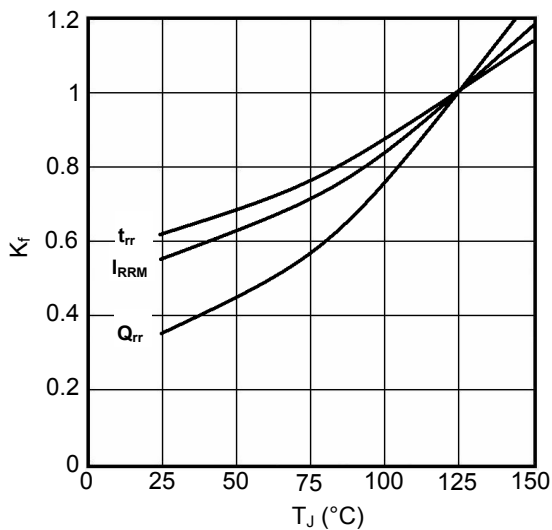Fig4. Reverse Recovery Charge vs di$_F$/dt

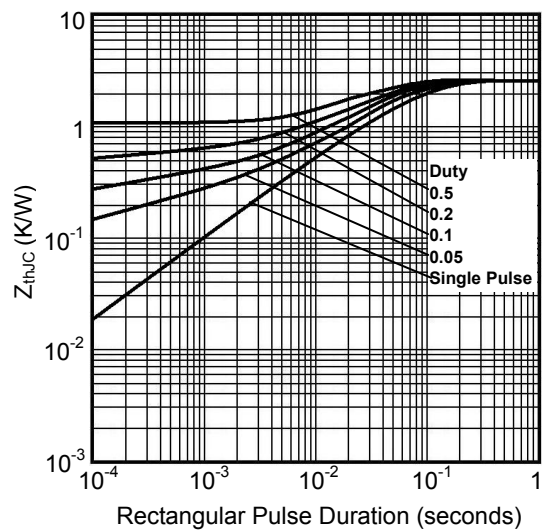Fig5. Dynamic Parameters vs Junction Temperature

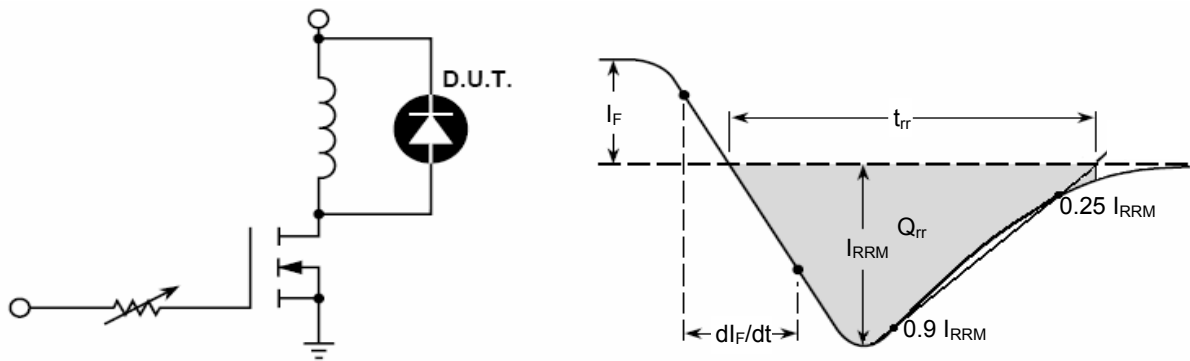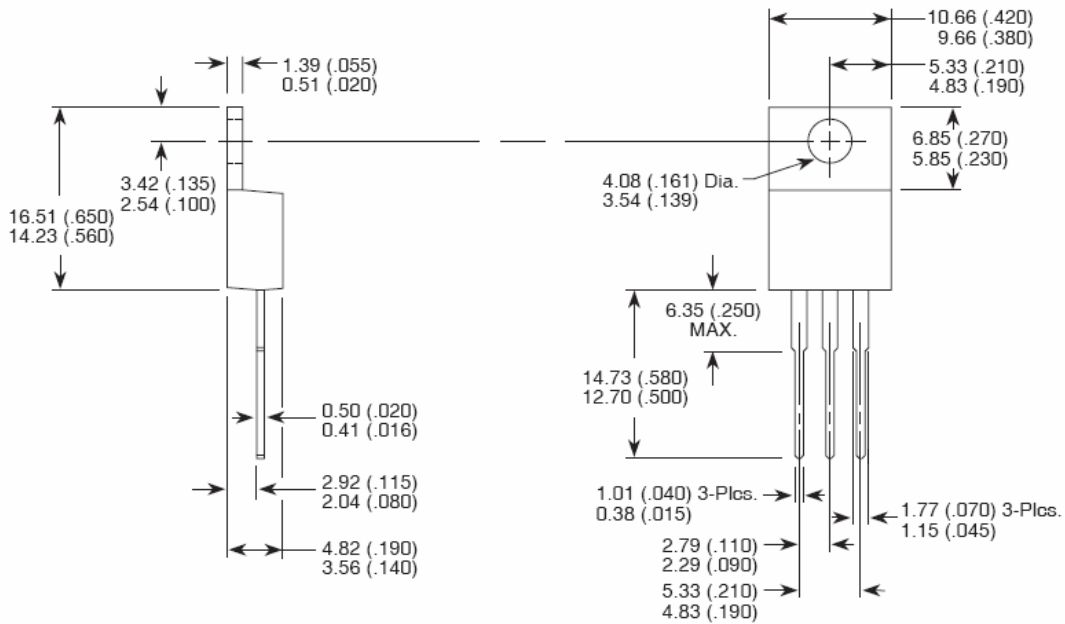Fig6. Transient Thermal Impedance

Fig7. Diode Reverse Recovery Test Circuit and Waveform

Dimensions in Millimeters and (Inchs)
Fig8. Package Outline