MM100F20B

200V 100A FRED

RoHS Compliant

September 2017

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

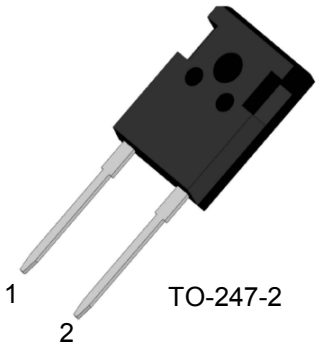
☐PFC

☐Plating Power Supply

☐Ultrasonic Cleaner and Welder

☐Converter & Chopper

☐UPS



TO-247-2

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.



1-Cathode
2-Anode

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			
$I_{F(AV)}$	Average Forward Current	T_C=125℃	100	A
$I_{F(RMS)}$	RMS Forward Current	T_C=125℃	140	
I_{FSM}	Non Repetitive Surge Forward Current	T_J=45℃,t=10ms, 50Hz, Sine	800	
P_D	Power Dissipation		520	W
T_J	Junction Temperature		-55 to +150	℃
T_{STG}	Storage Temperature Range		-55 to +125	℃
Torque	To Heat Sink	Recommended（M3）	1.1	Nm
R_{thJC}	Junction to Case Thermal Resistance		0.24	℃ /W
Weight			6	g

ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
I_{RM}	Maximum Reverse Leakage Current	V_R =200V			10	μA
		V_R =200V, T_J = 125℃			5	mA
V_F	Forward Voltage	I_F=100A		1.01	1.2	V
		I_F=100A,T_J=125℃		0.95		
trr	Reverse Recovery Time (I_F = 1A, dI_F/dt = -200A/μs, V_R = 30V)			35	40	ns

MacMic Science & Technology Co., Ltd.

Add：#18, Hua Shan Zhong Lu, New District, Changzhou City, Jiangsu Province, P. R .of China

Tel.：+86-519-85163708 Fax：+86-519-85162291 Post Code：213022 Website：www.macmicst.com

Download from alldatasheet.com

ELECTRICAL CHARACTERISTICS *(T_C =25°C unless otherwise specified)*

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	I_F =100A,V_R =100V, dI_F/dt = -200A/μs		94		ns
I_{RRM}	Maximum Reverse Recovery Current			11.2		A
Q_{RR}	Reverse Recovery Charge			1100		nC
trr	Reverse Recovery Time	I_F =100A,V_R =100V, dI_F/dt = -200A/μs ,T_J=125℃		110		ns
I_{RRM}	Maximum Reverse Recovery Current			14.2		A
Q_{RR}	Reverse Recovery Charge			1400		nC

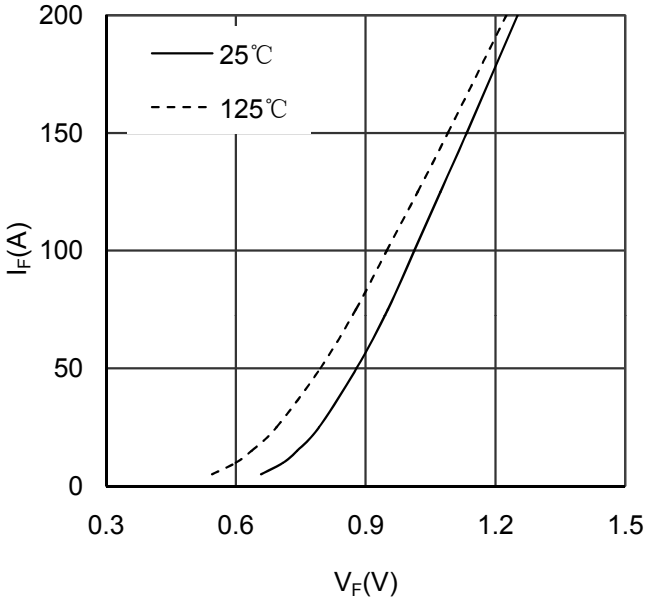


Figure 1. Forward Voltage Drop vs Forward Current

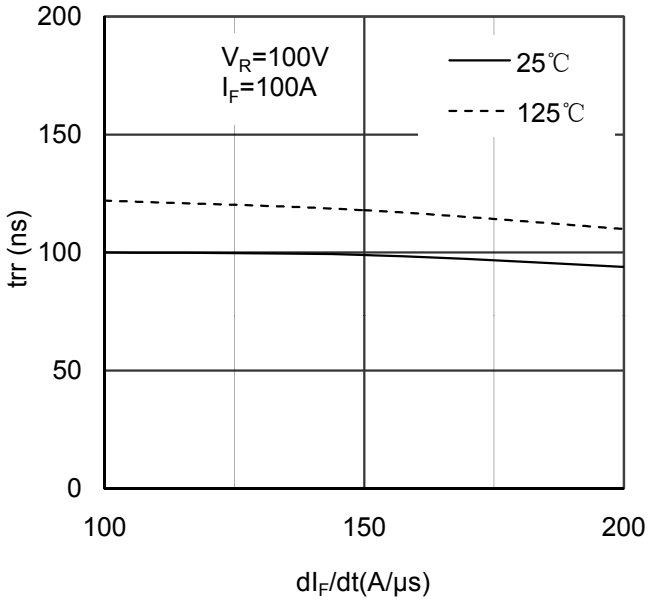


Figure 2. Reverse Recovery Time vs dI_F/dt

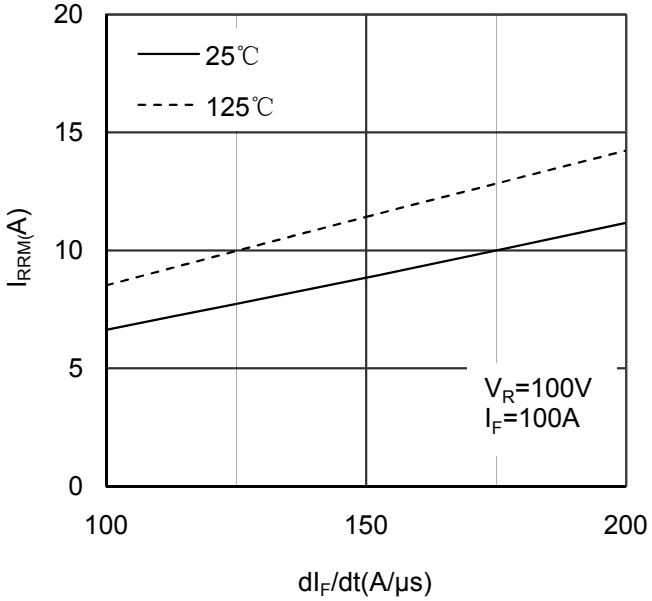


Figure 3. Reverse Recovery Current vs dI_F/dt

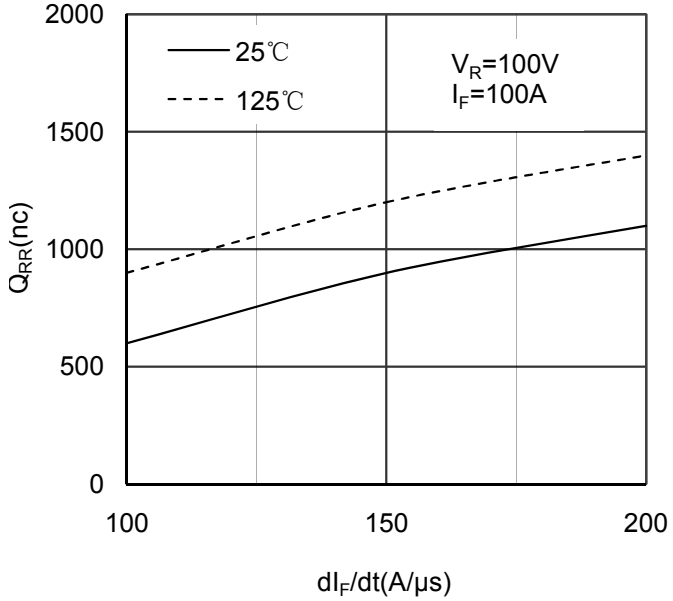


Figure 4. Reverse Recovery Charge vs dI_F/dt

Download from alldatasheet.com

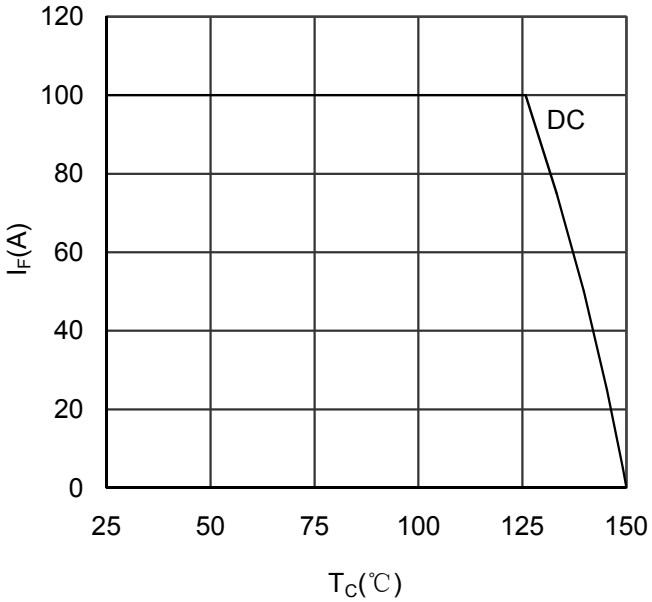


Figure 5.Forward current vs Case temperature

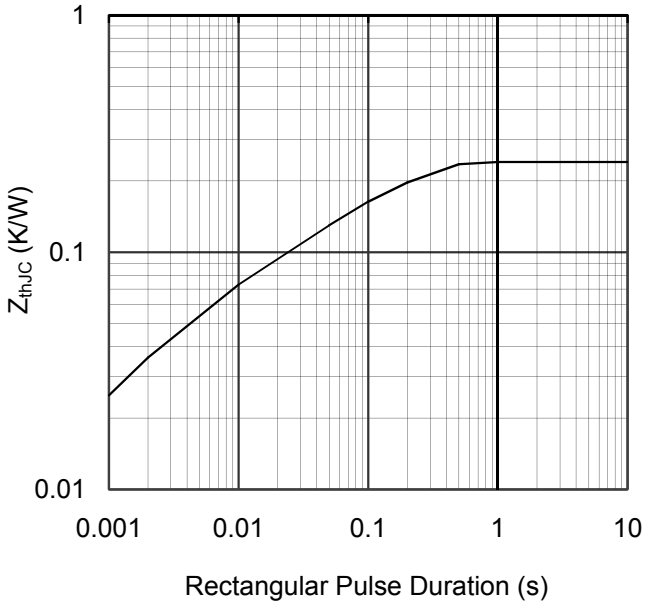


Figure 6.Transient Thermal Impedance

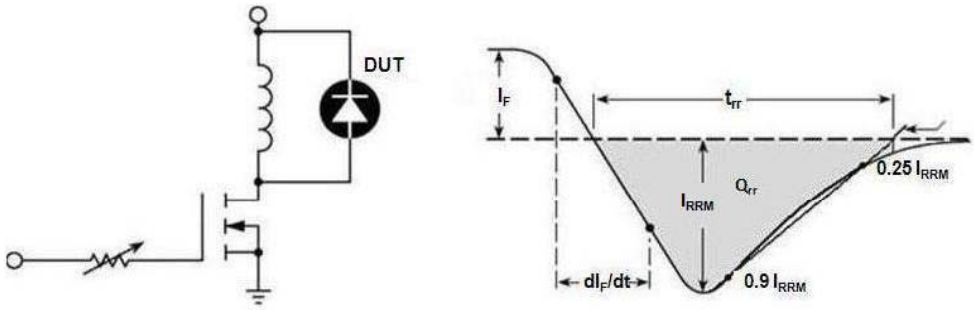
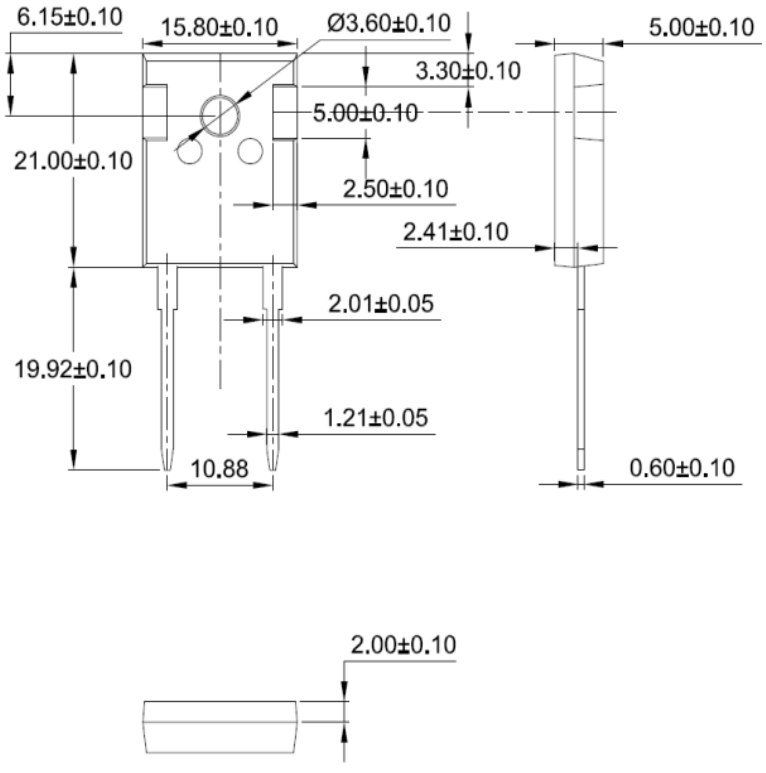


Figure 7. Diode Reverse Recovery Test Circuit and Waveform



Dimensions in (mm)

Figure 8. Package Outline

Download from alldatasheet.com