

FRED Modules

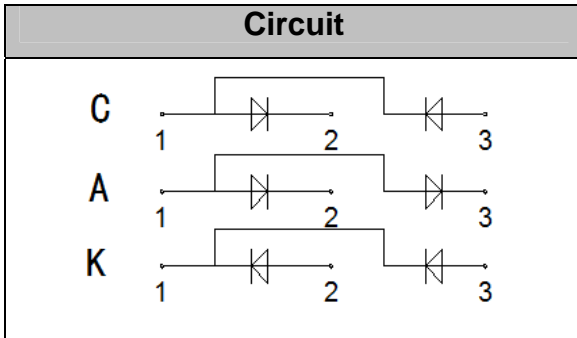


VRRM 600V

IFAV 100 A

Applications

- Inversion Welder
- Uninterruptible Power Supply (UPS)
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Power Factor Correction (PFC) Circuit
- Converter & Chopper



Features

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

Module Type

TYPE			VRRM	VRSM
MF100C06F1	MF100A06F1	MF100K06F1	600V	660V

Maximum Ratings

Symbol	Conditions	Values	Units
V_R		600	V
V_{RRM}		600	V
$I_{F(AV)}$	$T_C=90^\circ\text{C}$, Per Diode	100	A
$I_{F(RMS)}$	$T_C=95^\circ\text{C}$, Per Diode	150	A
I_{FSM}	1/2 Cycle, 50Hz, Sine	1300	A
	1/2 Cycle, 60Hz, Sine	1500	A
I^2t	$T_J=45^\circ\text{C}$, $t=10\text{ms}$, 50Hz, Sine	8450	A^2s
	$T_J=45^\circ\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	11250	A^2s
P_D		280	W
Visol	AC, $T_{on}=1\text{min}$	3000	V
T_J		-40 to +150	$^\circ\text{C}$
T_{STG}		-40 to +125	$^\circ\text{C}$
Torque	Recommended (M5)	$3 \pm 15\%$	N·m
Torque	Recommended (M5)	$3 \pm 15\%$	N·m
Weight		100	g

Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Per diode	0.4	$^\circ\text{C/W}$



Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=600V$	--	--	50	μA
	$V_R=600V, T_J=125^\circ C$	--	--	1	mA
V_F	$I_F=100A$	--	1.25	1.4	V
	$I_F=100A, T_J=125^\circ C$	--	1.1	1.3	V
trr	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	45	50	ns
trr	$V_R=300V, I_F=100A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	105	--	ns
I_{RRM}		--	10	--	A
trr	$V_R=300V, I_F=100A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	200	--	ns
I_{RRM}		--	18	--	A

Performance Curves

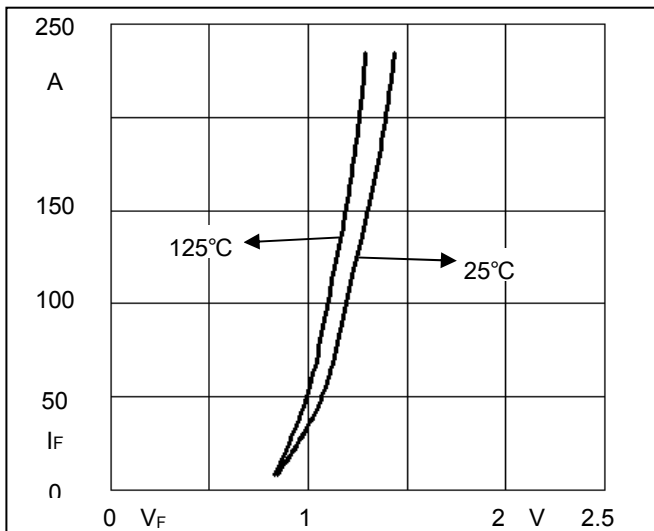


Fig1. Forward Voltage Drop vs Forward Current

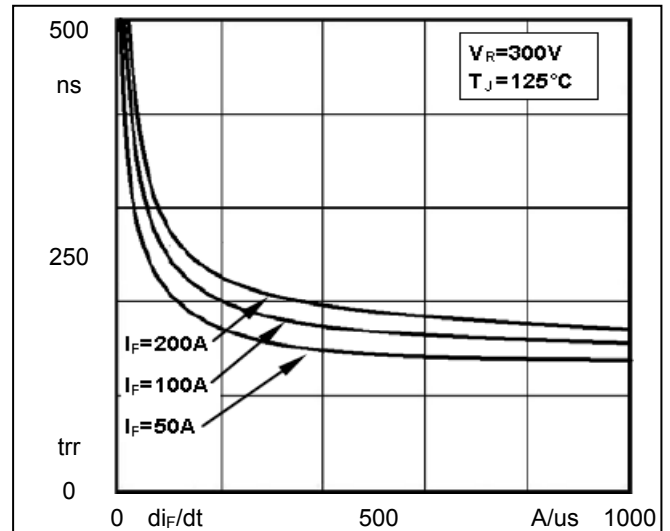


Fig2. Reverse Recovery Time vs di_F/dt

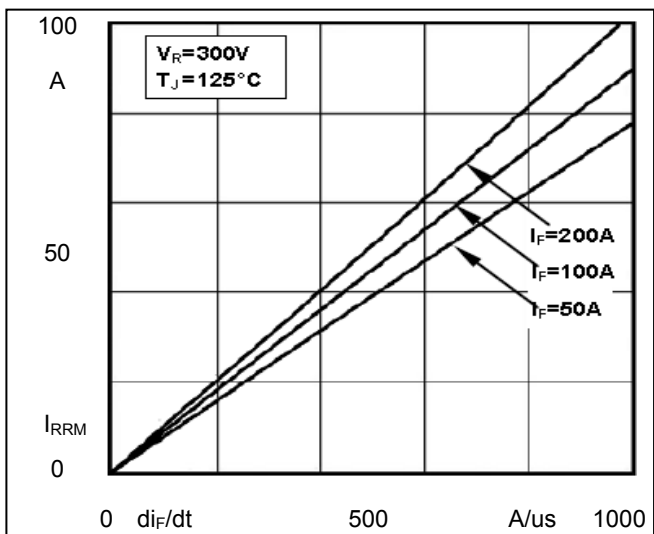


Fig3. Reverse Recovery Current vs di_F/dt

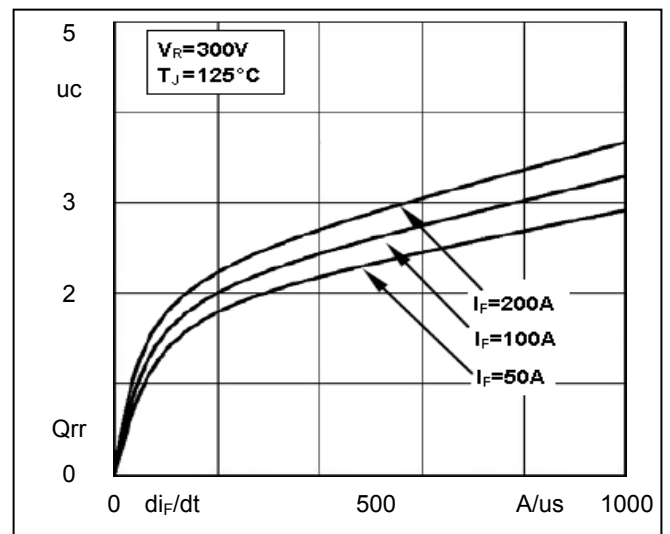
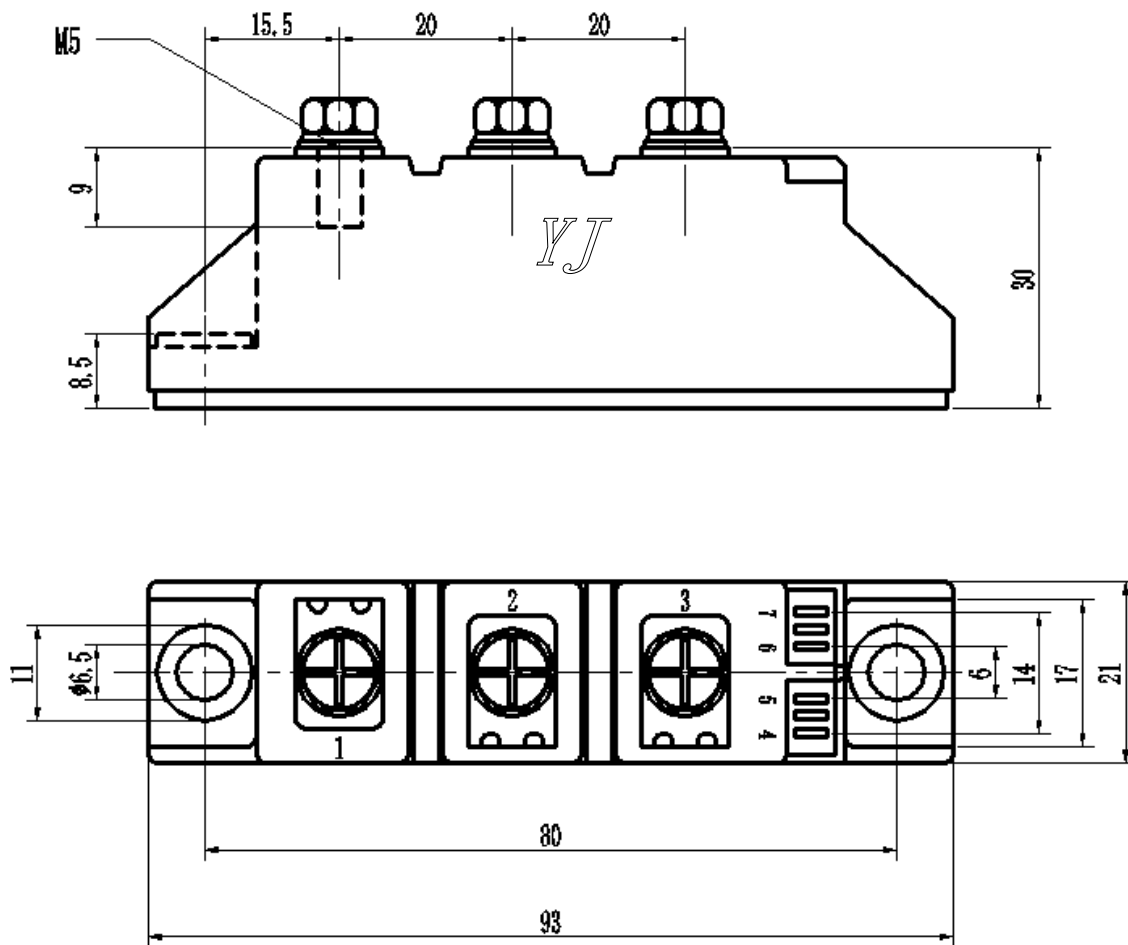


Fig4. Reverse Recovery Charge vs di_F/dt

Package Outline Information

CASE: F1



Dimensions in mm