

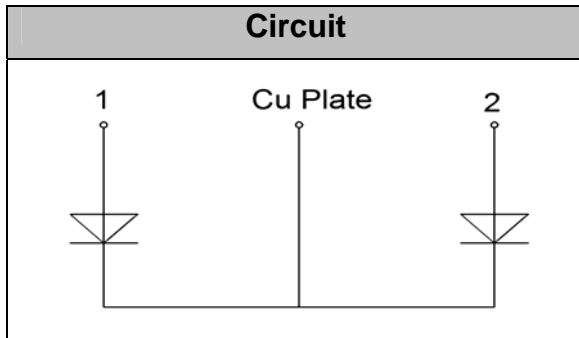
## FRED Modules



**V<sub>RRM</sub>** 600V  
**I<sub>FAV</sub>** 400 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

## Maximum Ratings

Symbol	Conditions	Values	Units
V <sub>R</sub>		600	V
V <sub>RRM</sub>		600	V
I <sub>F(AV)</sub>	T <sub>C</sub> =125°C, Per Diode	200	A
	T <sub>C</sub> =125°C, Per Module	400	A
I <sub>F(RMS)</sub>	T <sub>C</sub> =125°C, Per Diode	295	A
I <sub>FSM</sub>	1/2 Cycle, 50Hz, Sine	3500	A
	1/2 Cycle, 60Hz, Sine	4000	A
I <sup>2</sup> t	T <sub>J</sub> =45°C, t=10ms, 50Hz, Sine	61250	A <sup>2</sup> s
	T <sub>J</sub> =45°C, t=8.3ms, 60Hz, Sine	80000	A <sup>2</sup> s
P <sub>D</sub>		2080	W
T <sub>J</sub>		-40 to +150	°C
T <sub>STG</sub>		-40 to +125	°C
Torque	Recommended (M6)	3~4.7	N·m
Torque	Recommended (M6)	3~4.7	N·m
Weight		92	g

## Thermal Characteristics

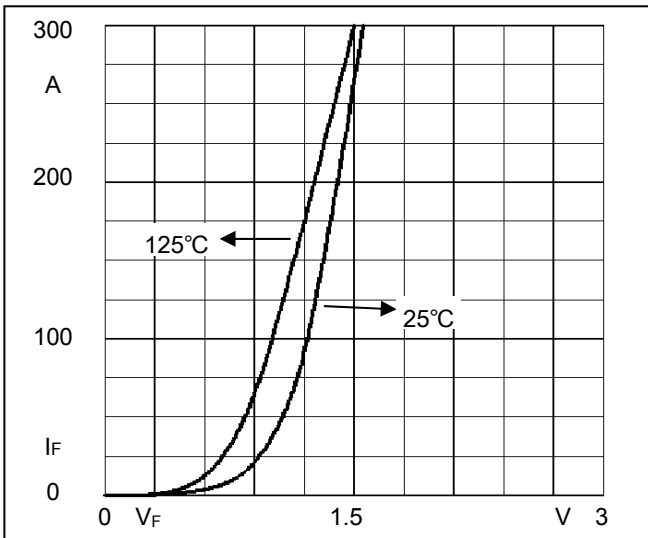
Symbol	Conditions	Values	Units
R <sub>th(j-c)</sub>	Per diode	0.06	°C/W



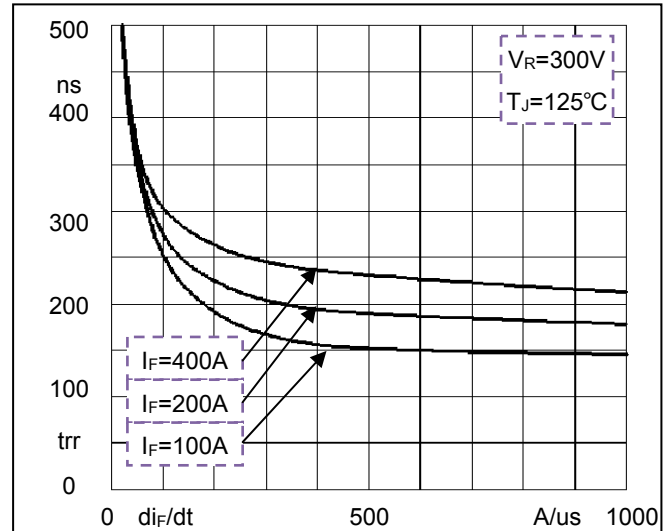
**Electrical Characteristics**

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=600V$	--	--	1	mA
	$V_R=600V, T_J=125^\circ C$	--	--	20	mA
$V_F$	$I_F=200A$	--	1.3	1.4	V
	$I_F=200A, T_J=125^\circ C$	--	1.2	1.3	V
$t_{rr}$	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	50	--	ns
$t_{rr}$	$V_R=300V, I_F=200A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	130	--	ns
$I_{RRM}$		--	14	--	A
$t_{rr}$	$V_R=300V, I_F=200A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	220	--	ns
$I_{RRM}$		--	22	--	A

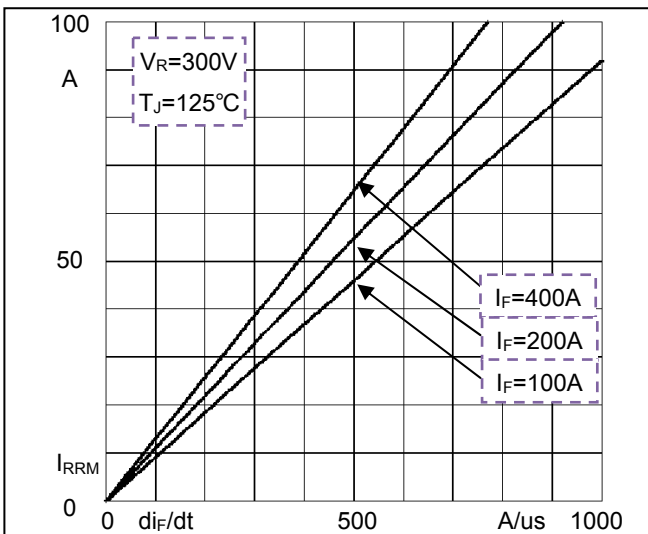
**Performance Curves**



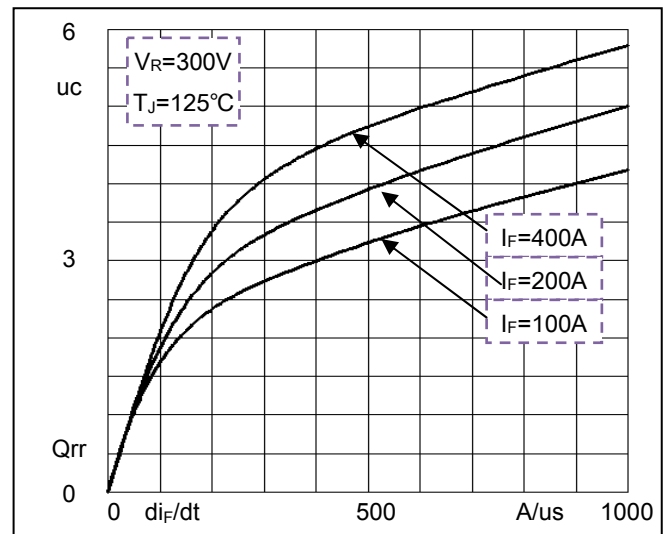
**Fig1. Forward Voltage Drop vs Forward Current**



**Fig2. Reverse Recovery Time vs  $di_F/dt$**



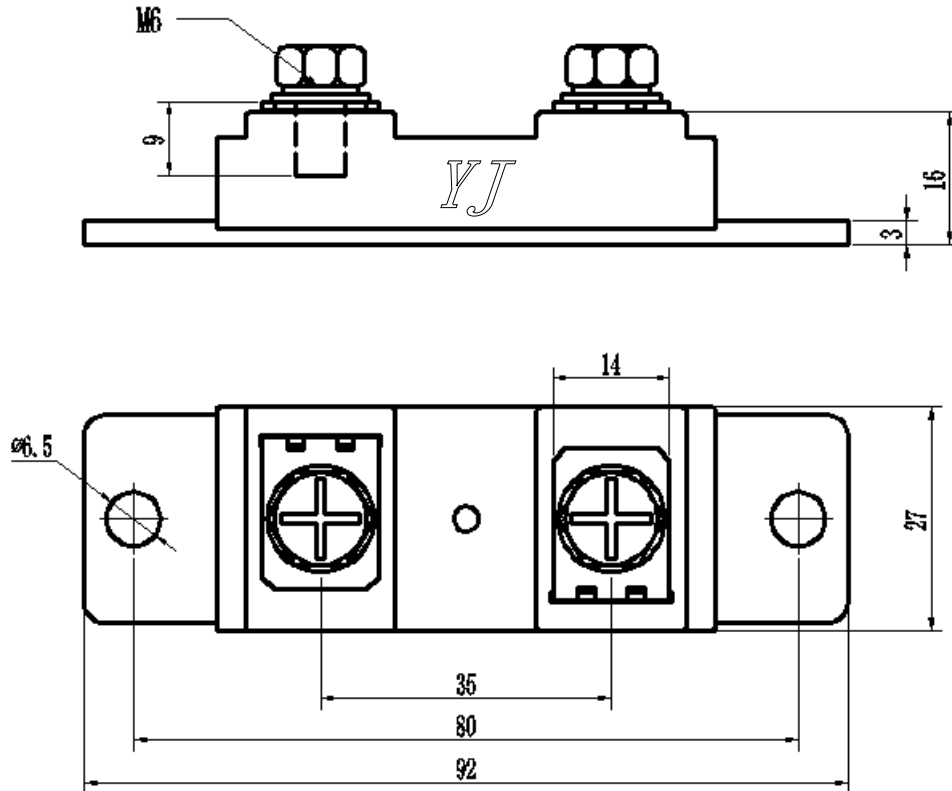
**Fig3. Reverse Recovery Current vs  $di_F/dt$**



**Fig4. Reverse Recovery Charge vs  $di_F/dt$**

## Package Outline Information

CASE: F3



Dimensions in mm