



## FRED Modules

**V<sub>RRM</sub>** 600V

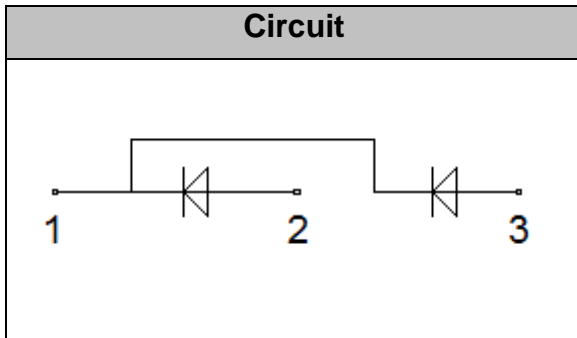
**I<sub>FAV</sub>** 200 A

### 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> =110°C, Per Diode	200	A
	T <sub>C</sub> =120°C, 20KHz, Per Module	300	A
I <sub>F(RMS)</sub>	T <sub>C</sub> =110°C, Per Diode	280	A
I <sub>FSM</sub>	1/2 Cycle, 50Hz, Sine	2000	A
	1/2 Cycle, 60Hz, Sine	2200	A
I <sup>2</sup> t	T <sub>J</sub> =45°C, t=10ms, 50Hz, Sine	20000	A <sup>2</sup> s
	T <sub>J</sub> =45°C, t=8.3ms, 60Hz, Sine	24200	A <sup>2</sup> s
P <sub>D</sub>		690	W
Visol	AC, Ton=1min	3000	V
T <sub>J</sub>		-40 to +150	°C
T <sub>STG</sub>		-40 to +125	°C
Torque	Recommended (M6)	5±15%	N·m
Torque	Recommended (M6)	5±15%	N·m
Weight		160	g

## Thermal Characteristics

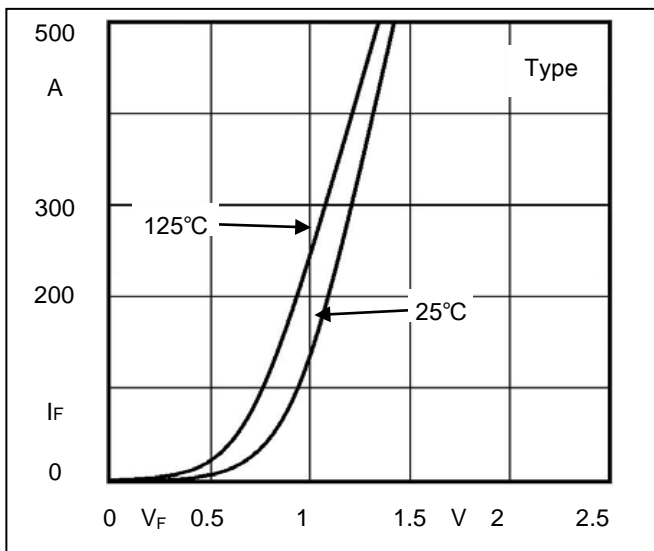
Symbol	Conditions	Values	Units
R <sub>th(j-c)</sub>	Per Module	0.18	°C/W



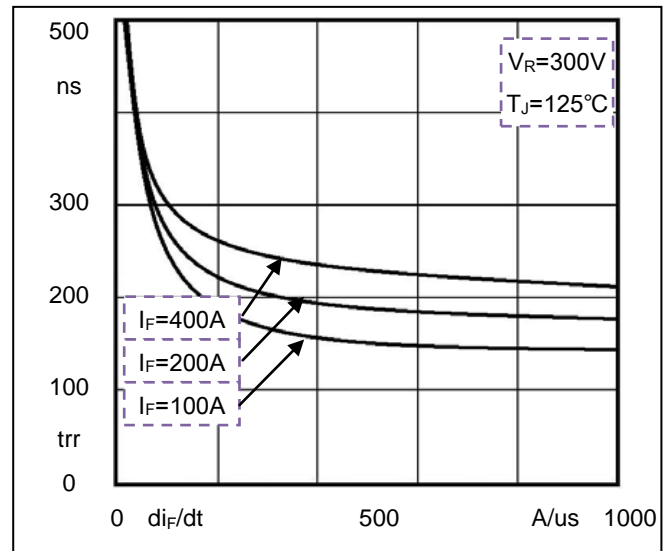
**Electrical Characteristics**

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=600V$	--	--	0.5	mA
	$V_R=600V, T_J=125^\circ C$	--	--	3	mA
$V_F$	$I_F=200A$	--	1.15	1.6	V
	$I_F=200A, T_J=125^\circ C$	--	0.9	1.25	V
trr	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	50	--	ns
trr	$V_R=300V, I_F=200A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	140	--	ns
$I_{RRM}$		--	15	--	A
trr	$V_R=300V, I_F=200A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	230	--	ns
$I_{RRM}$		--	25	--	A

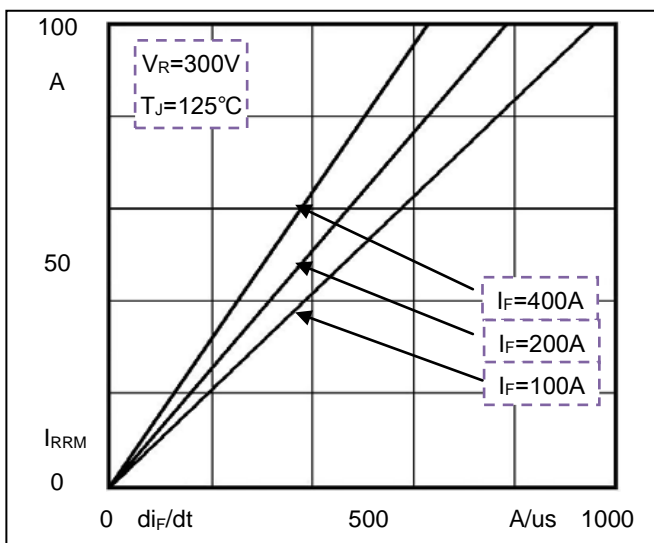
**Performance Curves**



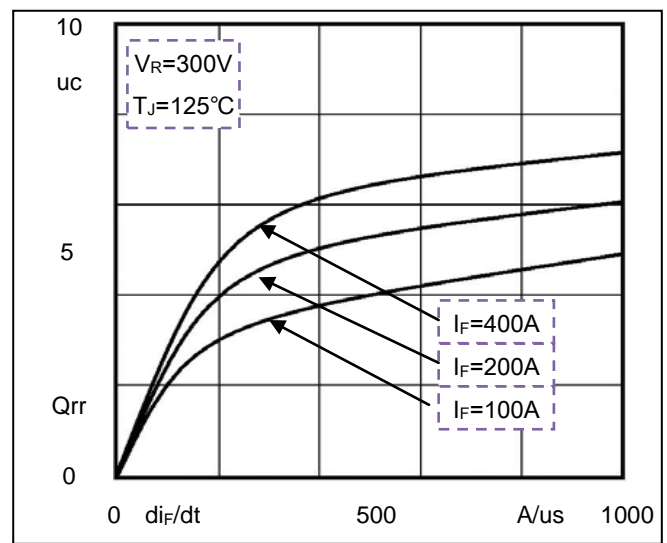
**Fig1. Forward Voltage Drop vs Forward Current**



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



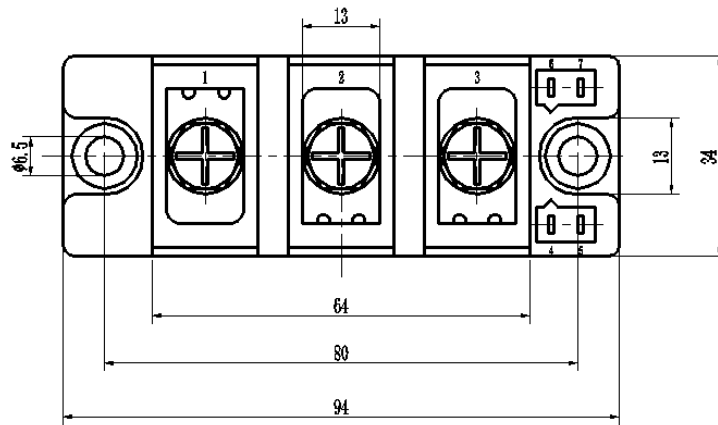
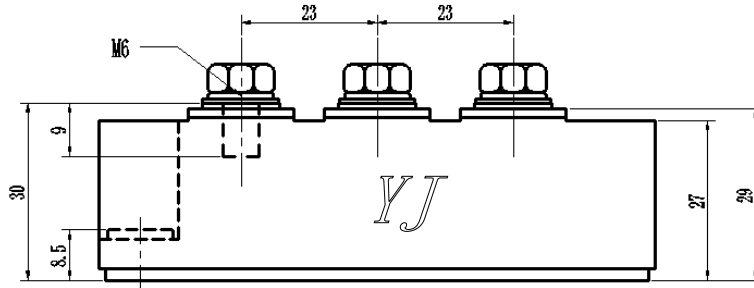
**Fig3. Reverse Recovery Current vs  $di_F/dt$**



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

### Package Outline Information

CASE: F2



Dimensions in mm

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