

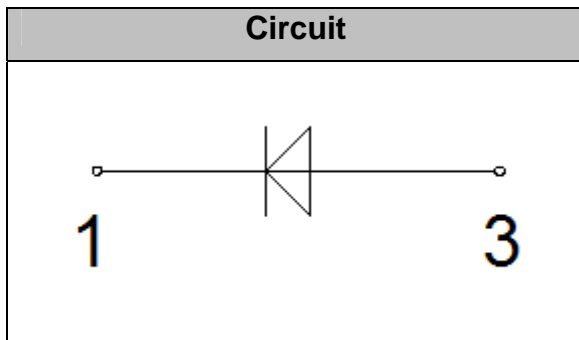
## FRED Modules



**V<sub>RRM</sub>** 600V  
**I<sub>FAV</sub>** 300 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
$V_R$		600	V
$V_{RRM}$		600	V
$I_{F(AV)}$	$T_C=110^{\circ}C,$	300	A
	$T_C=110^{\circ}C, 20KHz$	210	A
$I_{F(RMS)}$	$T_C=110^{\circ}C,$	420	A
$I_{FSM}$	1/2 Cycle , 50Hz, Sine	3000	A
	1/2 Cycle , 60Hz, Sine	3290	A
$I^2t$	$T_J=45^{\circ}C, t=10ms, 50Hz, Sine$	45000	$A^2s$
	$T_J=45^{\circ}C, t=8.3ms, 60Hz, Sine$	44800	$A^2s$
$P_D$		1100	W
Visol	AC, Ton=1min	3000	V
$T_J$		-40 to +150	$^{\circ}C$
$T_{STG}$		-40 to +125	$^{\circ}C$
Torque	Recommended (M6)	$4\pm 15\%$	N·m
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Weight		160	g

### Thermal Characteristics

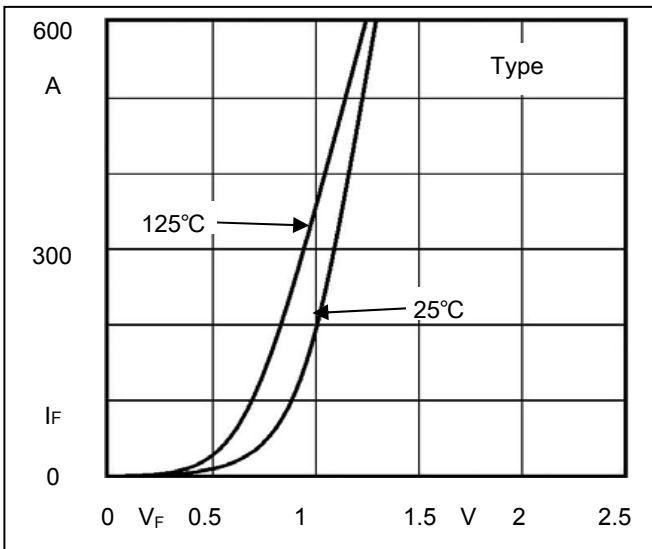
Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Junction-to-Case	0.10	$^{\circ}C/W$



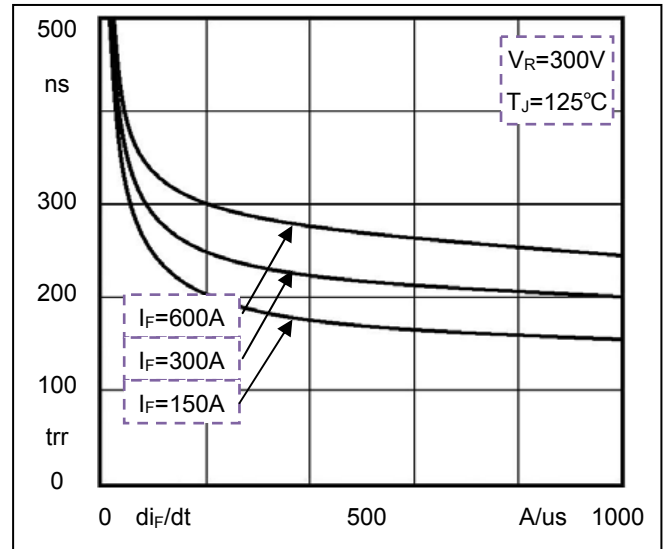
**Electrical Characteristics**

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=600V$	--	--	0.5	mA
	$V_R=600V, T_J=125^\circ C$	--	--	5	mA
$V_F$	$I_F=300A$	--	1.15	1.65	V
	$I_F=300A, T_J=125^\circ C$	--	0.9	1.45	V
trr	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	55	--	ns
trr	$V_R=300V, I_F=300A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	145	--	ns
$I_{RRM}$		--	17	--	A
trr	$V_R=300V, I_F=300A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	240	--	ns
$I_{RRM}$		--	30	--	A

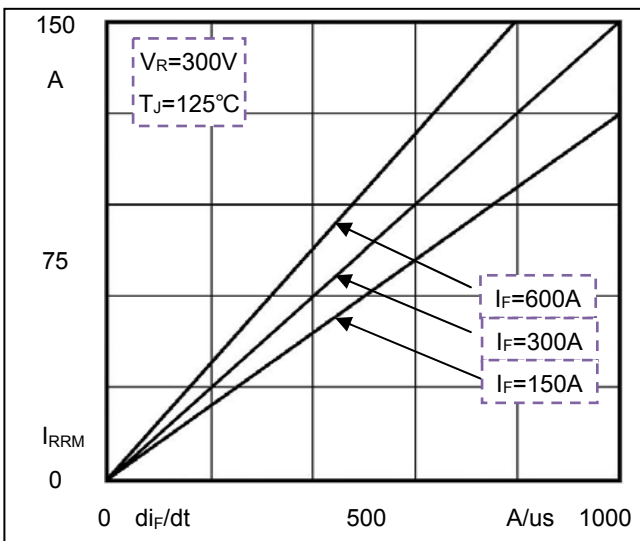
**Performance Curves**



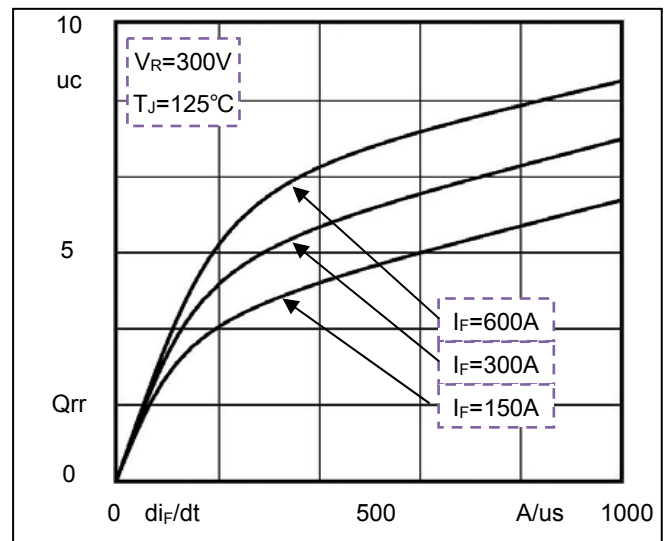
**Fig1. Forward Voltage Drop vs Forward Current**



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



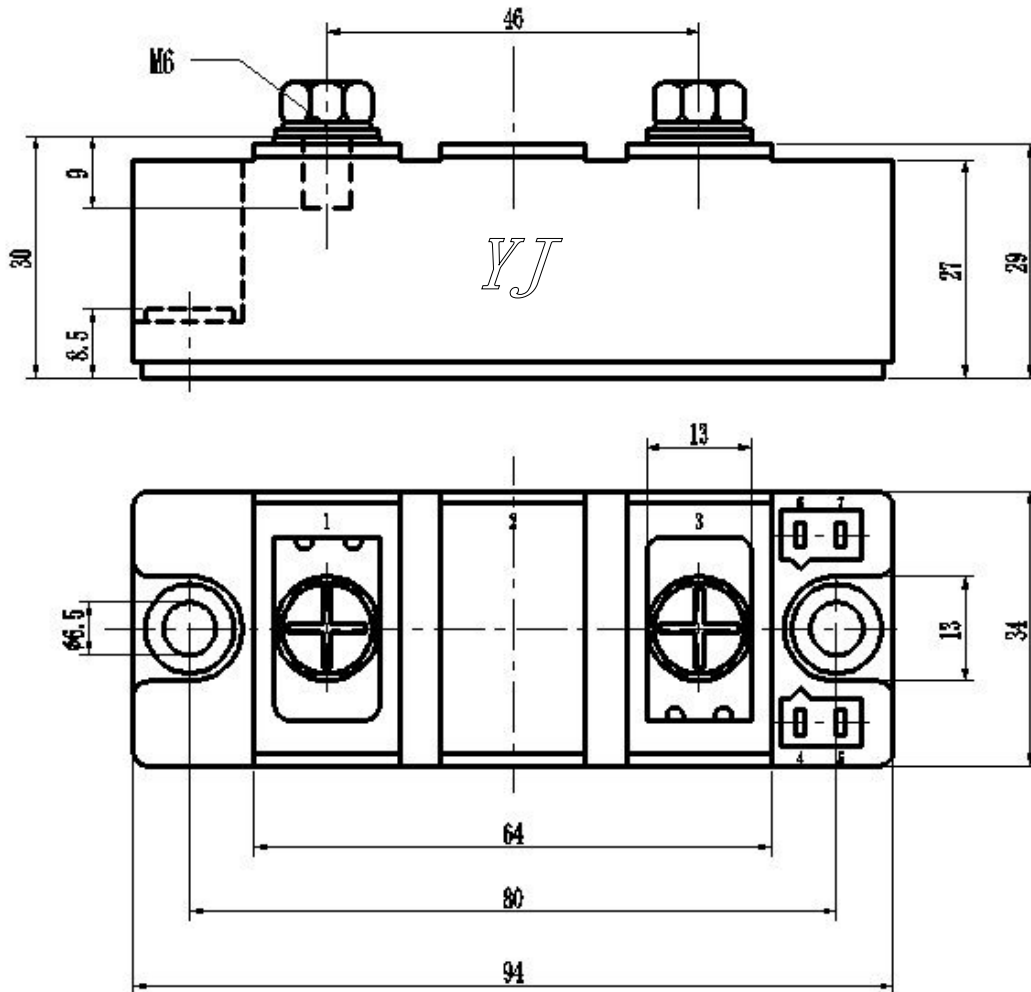
**Fig3. Reverse Recovery Current vs  $di_F/dt$**



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

**Package Outline Information**

**CASE: F2**



**Dimensions in mm**