

FRED Modules

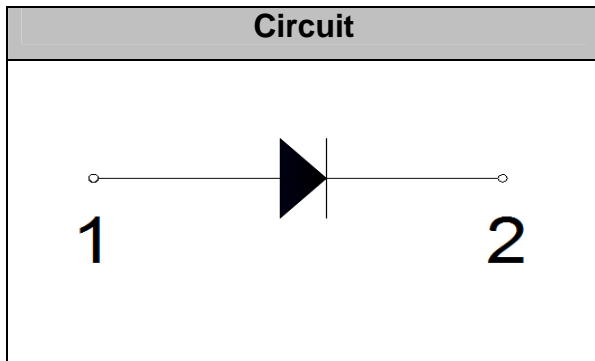


V_{RRM} 500V

I_{FAV} 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		500	V
V_{RRM}		500	V
$I_{F(AV)}$	$T_C=110^\circ\text{C}$,	300	A
$I_{F(RMS)}$	$T_C=110^\circ\text{C}$,	420	A
I_{FSM}	1/2 Cycle , 50Hz, Sine	5000	A
	1/2 Cycle , 60Hz, Sine	5500	A
I^2t	$T_J=45^\circ\text{C}$, t=10ms, 50Hz, Sine	12500	A^2s
	$T_J=45^\circ\text{C}$, t=8.3ms, 60Hz, Sine	15120	A^2s
P_D		1136	W
T_J		-40 to +150	$^\circ\text{C}$
T_{STG}		-40 to +125	$^\circ\text{C}$
Torque	Module-to-Sink Recommended (M6)	3~4.7	N·m
Torque	Module Electrodes Recommended (M6)	3~4.7	N·m
Weight		92	g

Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Per Module	0.11	$^\circ\text{C/W}$



Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=500V$	--	--	0.5	mA
	$V_R=500V, T_J=125^\circ C$	--	--	2	mA
V_F	$I_F=300A$	--	1.2	1.4	V
	$I_F=300A, T_J=125^\circ C$	--	1.1	1.25	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	65	--	ns
t_{rr}	$V_R=250V, I_F=300A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	155	--	ns
I_{RRM}		--	15	--	A
t_{rr}	$V_R=250V, I_F=300A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	335	--	ns
I_{RRM}		--	34	--	A

Performance Curves

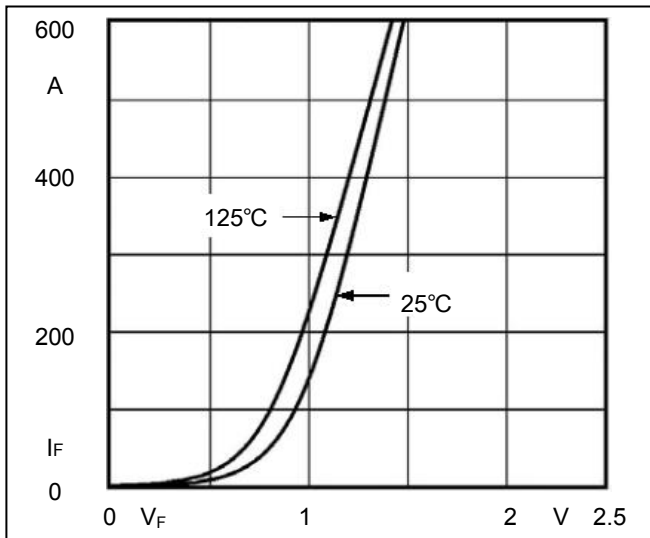


Fig1. Forward Voltage Drop vs Forward Current

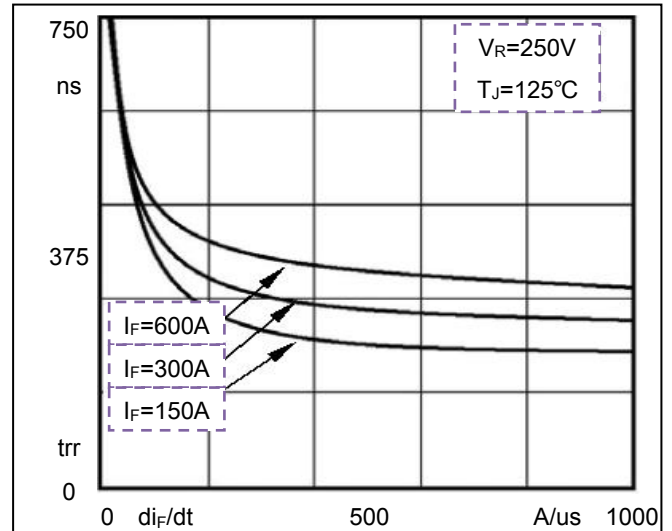


Fig2. Reverse Recovery Time vs di_F/dt

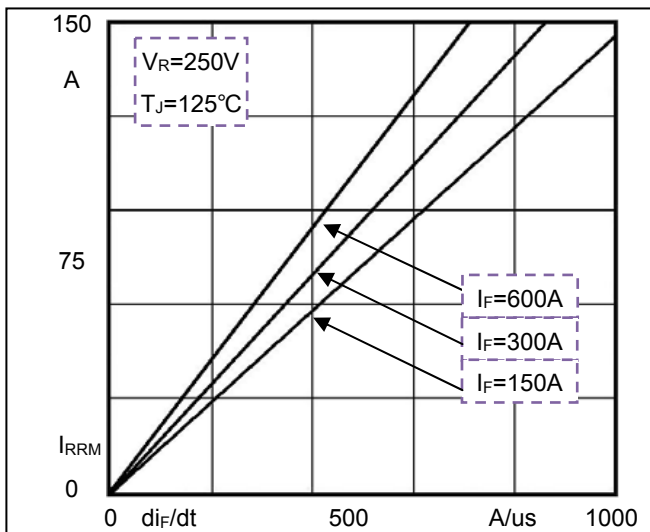


Fig3. Reverse Recovery Current vs di_F/dt

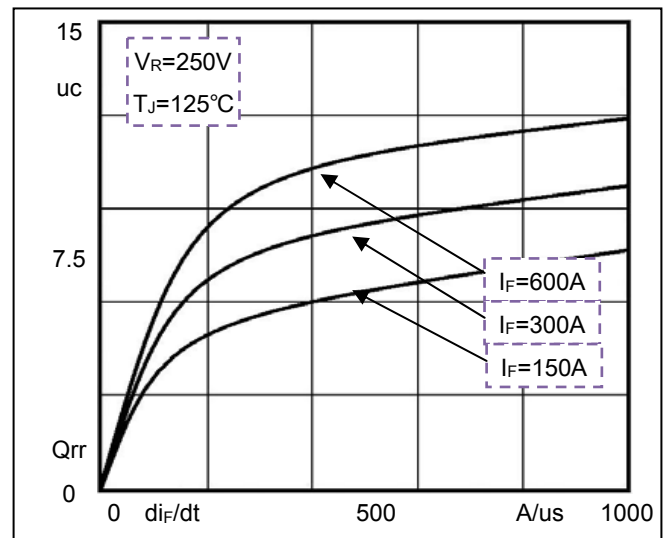
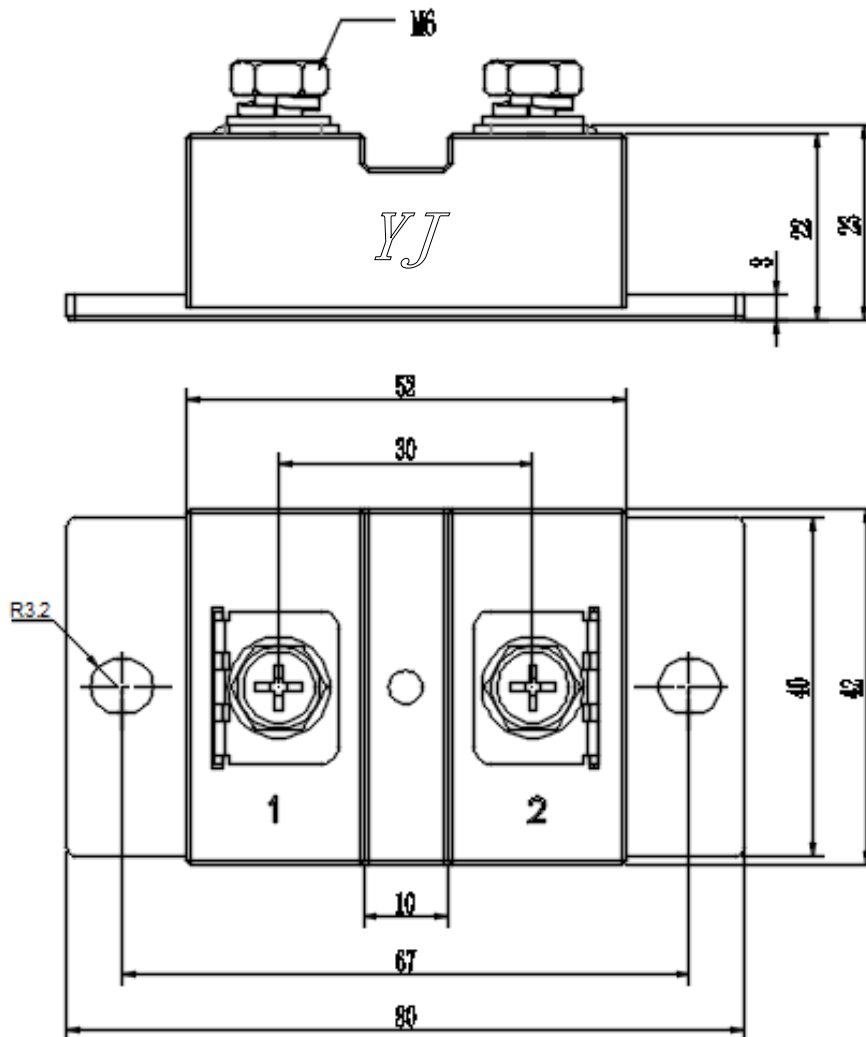


Fig4. Reverse Recovery Charge vs di_F/dt

Package Outline Information

CASE: F6



Dimensions in mm