FRED Modules

V_{RRM} 400V
I_{FAV} 200 A

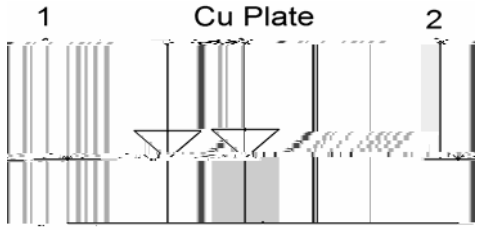
Features

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

Applications

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

Circuit



Maximum Ratings

Symbol	Conditions	Values	Units
V_R		400	V
V_{RRM}		400	V
$I_{F(AV)}$	T_C=125°C, Per Diode	100	A
	T_C=125°C, Per Module	200	A
$I_{F(RMS)}$	T_C=125°C, Per Diode	150	A
I_{FSM}	1/2 Cycle , 50Hz, Sine	1500	A
	1/2 Cycle , 60Hz, Sine	1800	A
I^2t	T_J=45°C, t=10ms, 50Hz, Sine	11250	A^2s
	T_J=45°C, t=8.3ms, 60Hz, Sine	16200	A^2s
T_J		-40 to +150	°C
T_{STG}		-40 to +125	°C
Torque	Recommended M6	3	N·m
Torque	Recommended M6	3	N·m
Weight		68	g

Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Per Leg	0.22	/W
$R_{th(j-c)}$	Per Module	0.11	/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	V_R=400V	--	--	0.5	mA
	V_R=400V, T_J=125°C	--	--	1	mA
V_F	I_F=100A	--	1.1	1.35	V
	I_F=100A, T_J=125°C	--	1.0	1.25	V
trr	I_F=1A, V_R=30V, di_F/dt=-200A/μs	--	38	--	ns
trr	V_R=200V, I_F=100A, di_F/dt=-200A/μs, T_J=25°C	--	95	--	ns
I_{RRM}		--	8.5	--	A
trr	V_R=200V, I_F=100A, di_F/dt=-200A/μs, T_J=125°C	--	150	--	ns
I_{RRM}		--	14	--	A

Performance Curves

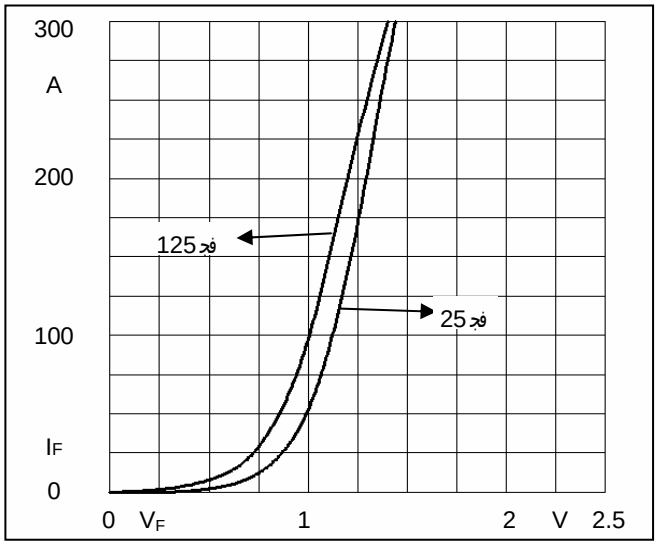


Fig1. Forward Volta ge Drop vs Forward Current

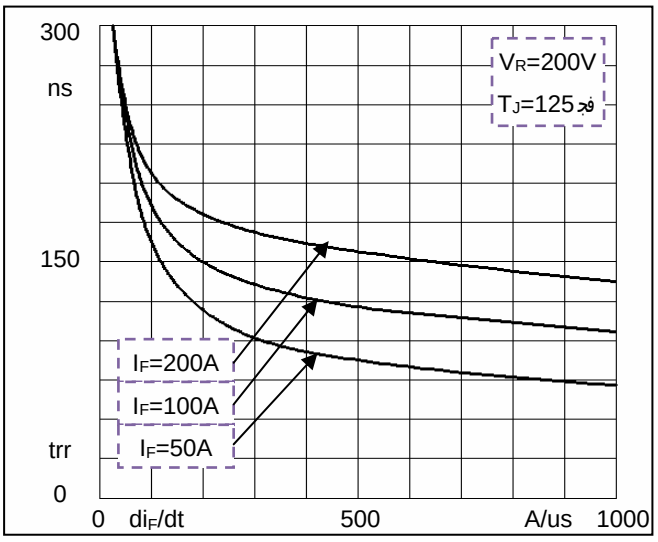


Fig2. Reverse Recovery Time vs di F/dt

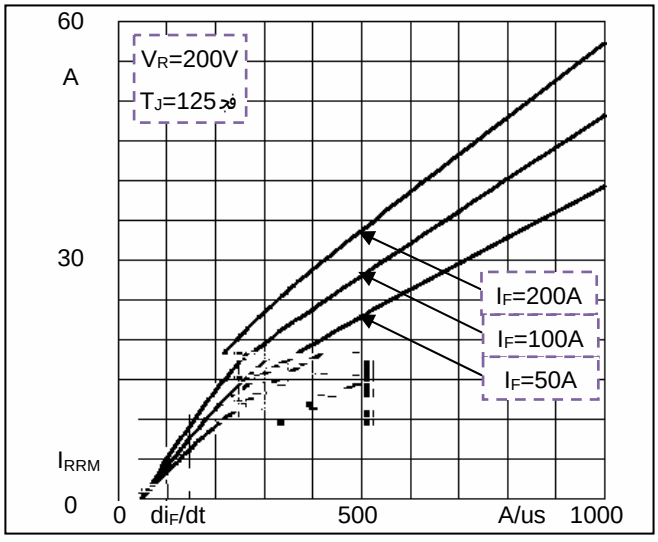


Fig3. Reverse Recovery Current vs di F/dt

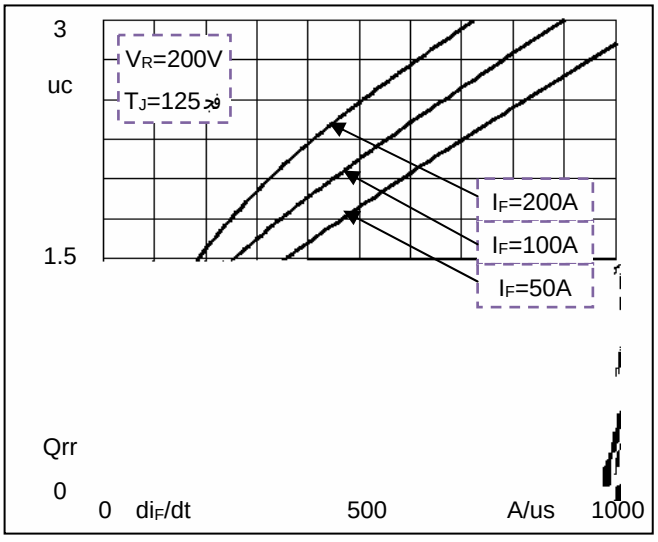
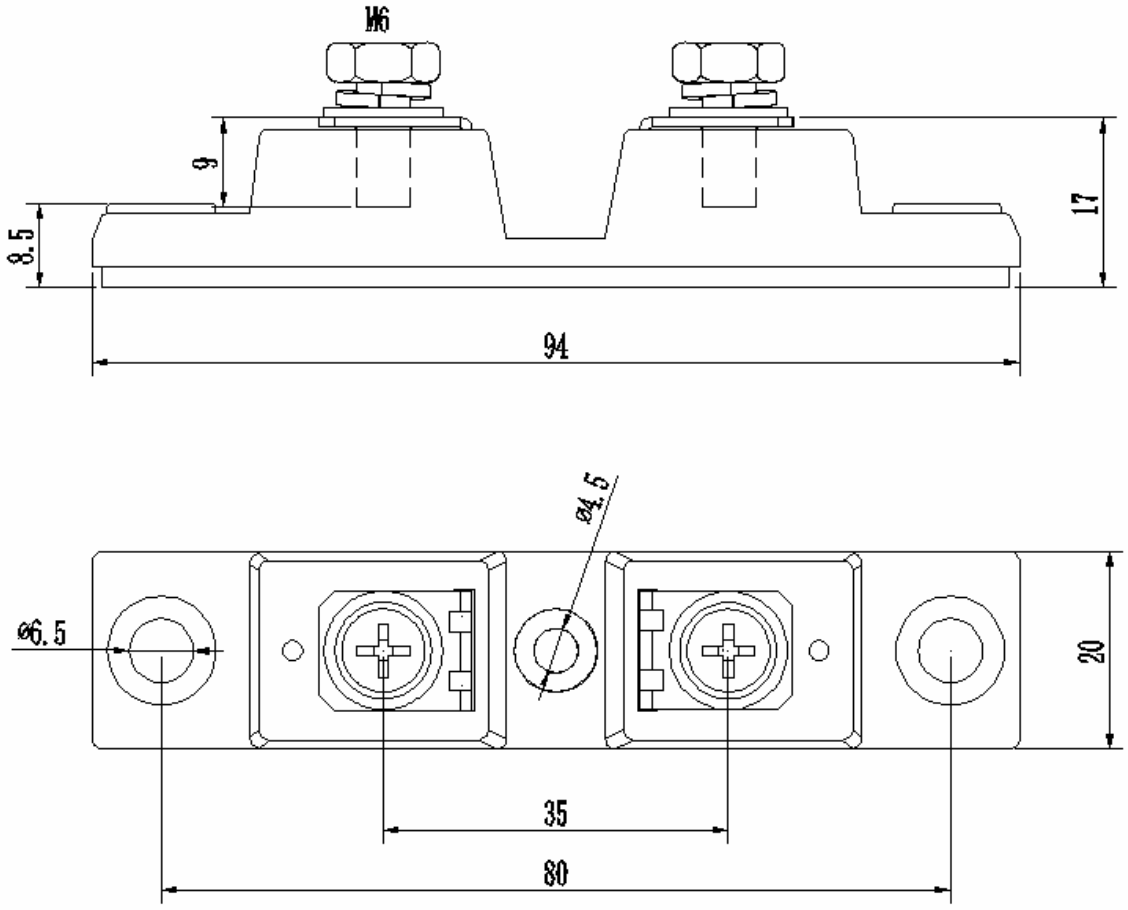


Fig4. Reverse Recovery Charge vs di F/dt

Package Outline Information

CASE: F4N



Dimensions in mm