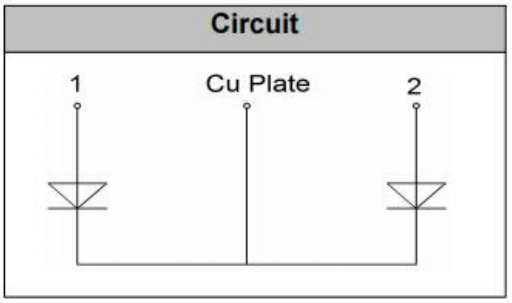


FRED Modules

VRRM 400V
IFAV 400 A



Applications

- Inversion Welder
- 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

Maximum Ratings

Symbol	Conditions	Values	Units
V_R		400	V
V_{RRM}		400	V
I_{FAV}	T_C=90°C, Per Leg	200	A
	T_C=90°C, Per Module	400	A
I_{FRMS}	T_C=90°C, Per Leg	280	A
I_{FSM}	t=10ms T_J=25℃	3000	A
I^2t	t=10ms T_J=25℃	45000	A^2s
P_D		780	W
T_J		-40 to +150	℃
Tstg		-40 to +125	℃
Mt	To Terminals(M6)	5±15%	N·m
Ms	To Heatsink(M6)	5±15%	N·m
Weight		85	g

Thermal Characteristics

Symbol	Conditions	Values	Units
Rth(j-c)	Junction to Case(Per Leg)	0.16	℃/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	--	--	5	mA
V_F	I_F=200A	--	1.1	1.3	V
	I_F=200A, T_J=125°C	--	1.0	1.2	V
trr	I_F=1A, V_R=30V, di_F/dt=-200A/μs	--	45	--	ns
trr	V_R=200V, I_F=200A, di_F/dt=-200A/μs, TJ=25°C	--	135	--	ns
I_{RRM}		--	12	--	A
trr	V_R=200V, I_F=200A, di_F/dt=-200A/μs, TJ=125°C	--	210	--	ns
I_{RRM}		--	20	--	A

Performance Curves

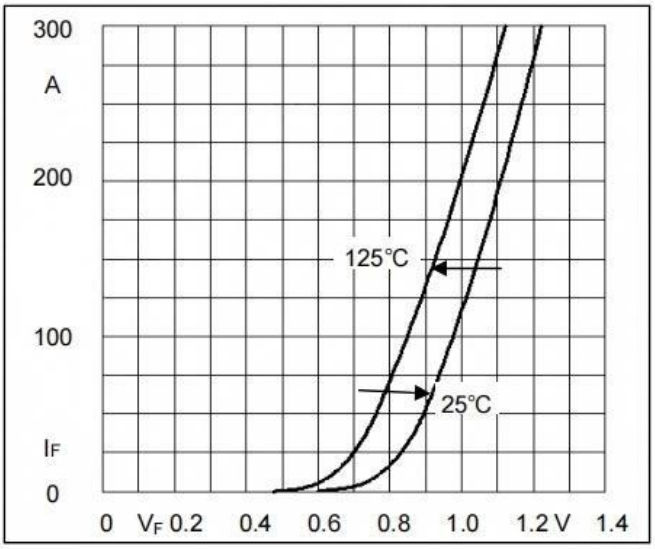


Fig1. Forward Characteristics

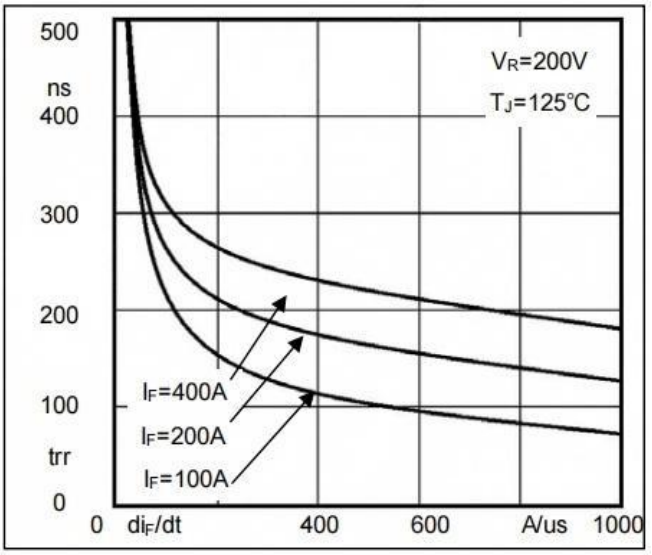


Fig2.Reverse Recovery Time vs di_F/dt

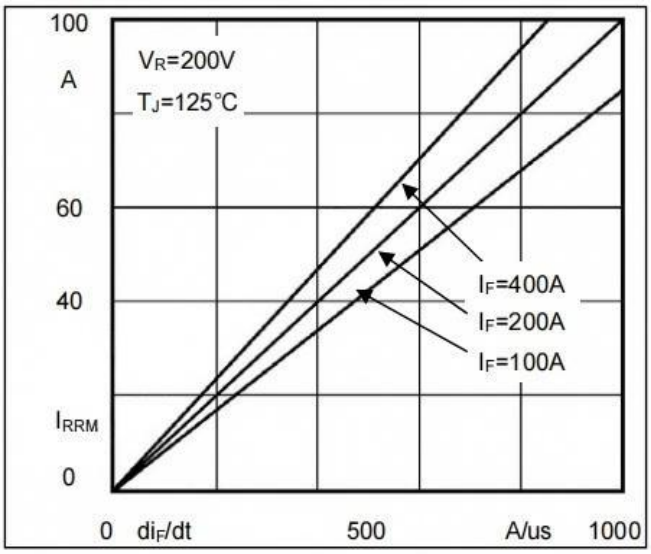


Fig3. Reverse Recovery Current vs di_F/dt

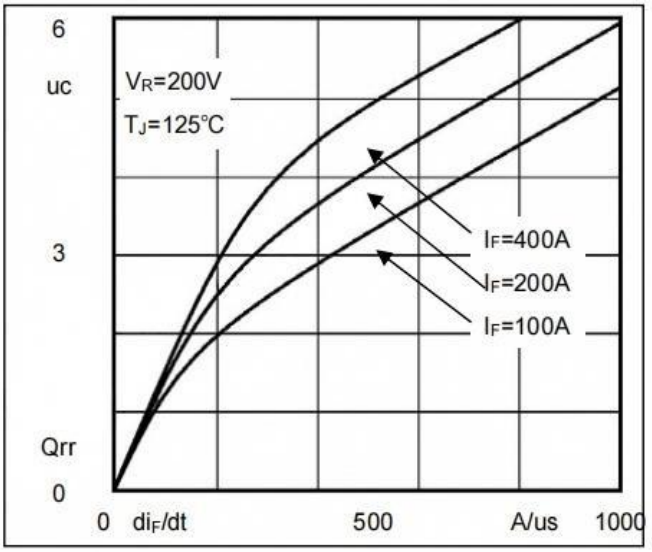
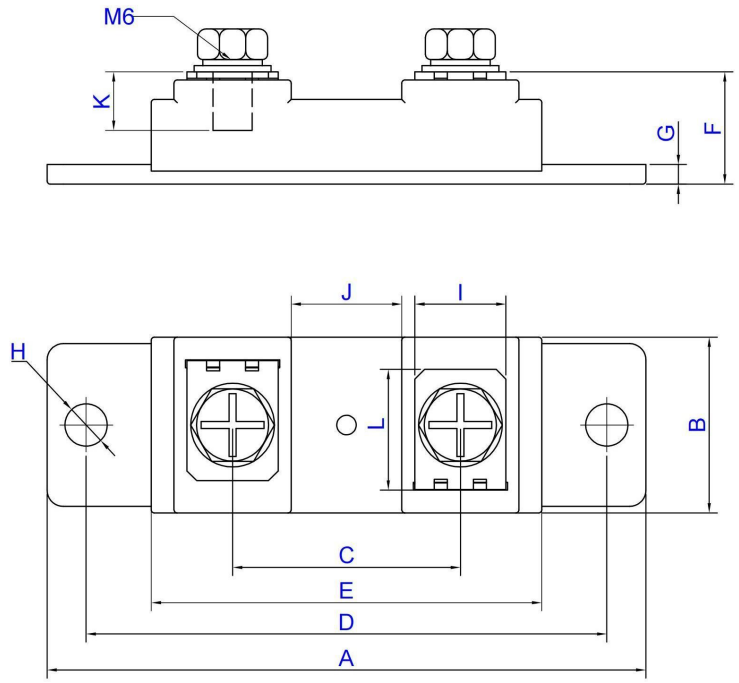


Fig4. Reverse Recovery Charge vs diF/dt

Package Outline Information

CASE: F3



DIM	Min (mm)	Max (mm)	Note
A	91.5	92.5	
B	26.5	27.5	
C	34.5	35.5	
D	79.5	80.5	
E	59.5	60.5	
F	16.5	17.5	
G	2.8	3.2	
H	6.2	6.8	Ø
I	13.8	14.2	
J	16.5	17.5	
K	8.5	9.5	
L	18.2	18.8	

Packing Standard

Item	Length: A(mm)	Width: B(mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	40	10
Outer Carton	545	295	240	120

Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.