

FRED Modules

V_{RRM} 400V

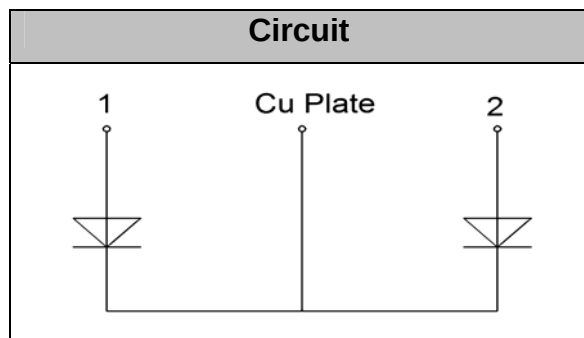
I_{FAV} 400 A

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		400	V
V_{RRM}		400	V
$I_{F(AV)}$	$T_C=125^{\circ}\text{C}$, Per Diode	200	A
	$T_C=125^{\circ}\text{C}$, Per Module	400	A
	$T_C=125^{\circ}\text{C}$, 20KHz, Per Module	300	A
$I_{F(RMS)}$	$T_C=125^{\circ}\text{C}$, Per Diode	285	A
I_{FSM}	1/2 Cycle , 50Hz, Sine	4000	A
	1/2 Cycle , 60Hz, Sine	4500	A
I^2t	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	80000	A^2s
	$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	101250	A^2s
P_D		2000	W
T_J		-40 to +150	$^{\circ}\text{C}$
T_{STG}		-40 to +125	$^{\circ}\text{C}$
Torque	Recommended (M6)	3~4.7	N·m
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Weight		92	g

Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$		0.06	$^{\circ}\text{C/W}$

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=400V$	--	--	1	mA
	$V_R=400V, T_J=125^{\circ}C$	--	--	2	mA
V_F	$I_F=200A$	--	1.1	1.35	V
	$I_F=200A, T_J=125^{\circ}C$	--	1.0	1.25	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	45	--	ns
t_{rr}	$V_R=200V, I_F=200A, di_F/dt=-200A/\mu s, T_J=25^{\circ}C$	--	135	--	ns
I_{RRM}		--	12	--	A
t_{rr}	$V_R=200V, I_F=200A, di_F/dt=-200A/\mu s, T_J=125^{\circ}C$	--	210	--	ns
I_{RRM}		--	20	--	A

Performance Curves

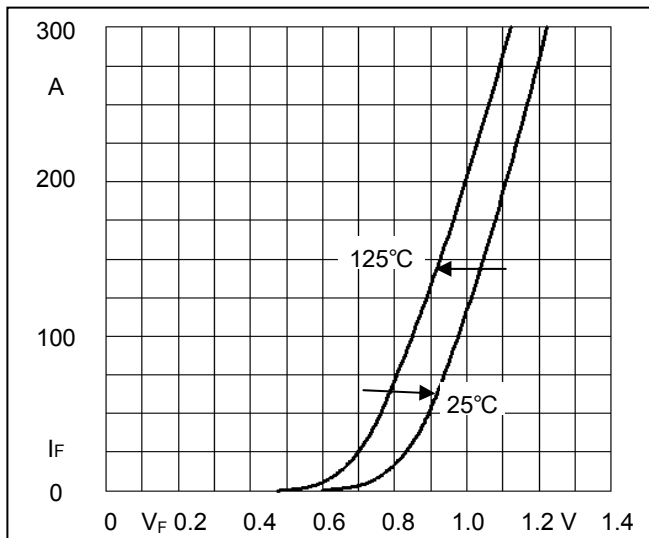


Fig1. Forward Voltage Drop vs Forward Current

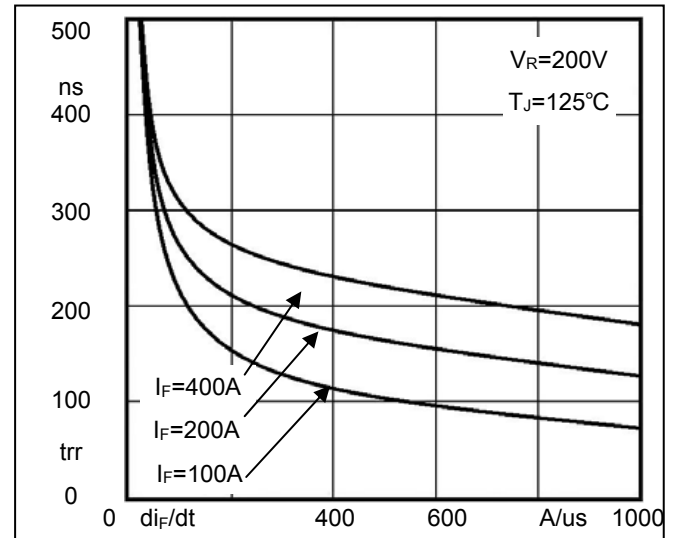


Fig2. Reverse Recovery Time vs di_F/dt

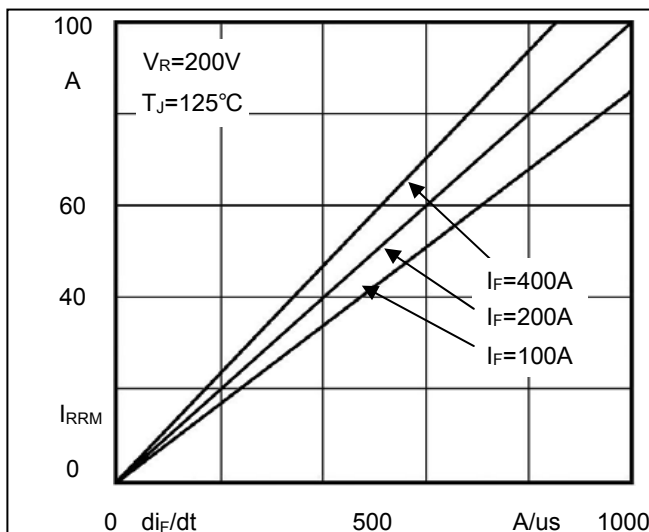


Fig3. Reverse Recovery Current vs di_F/dt

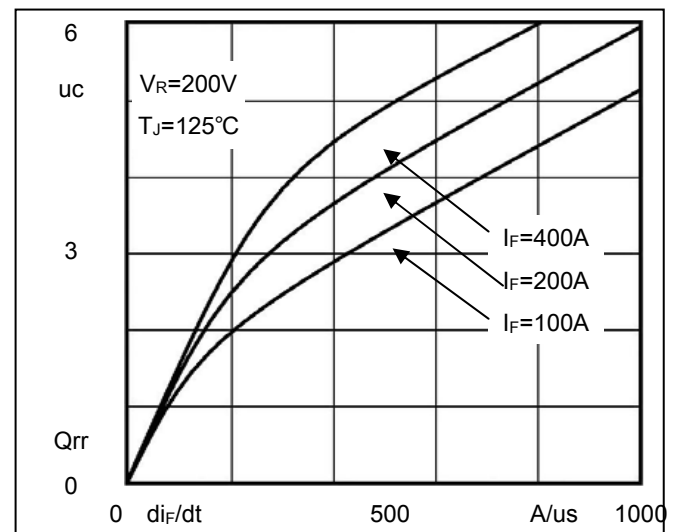


Fig4. Reverse Recovery Charge vs di_F/dt

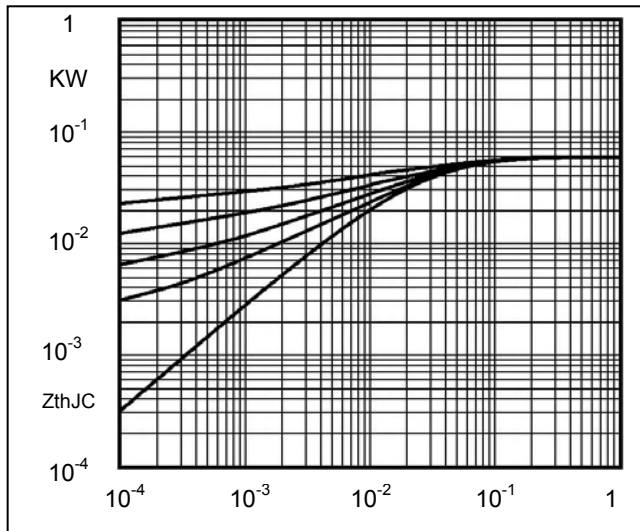
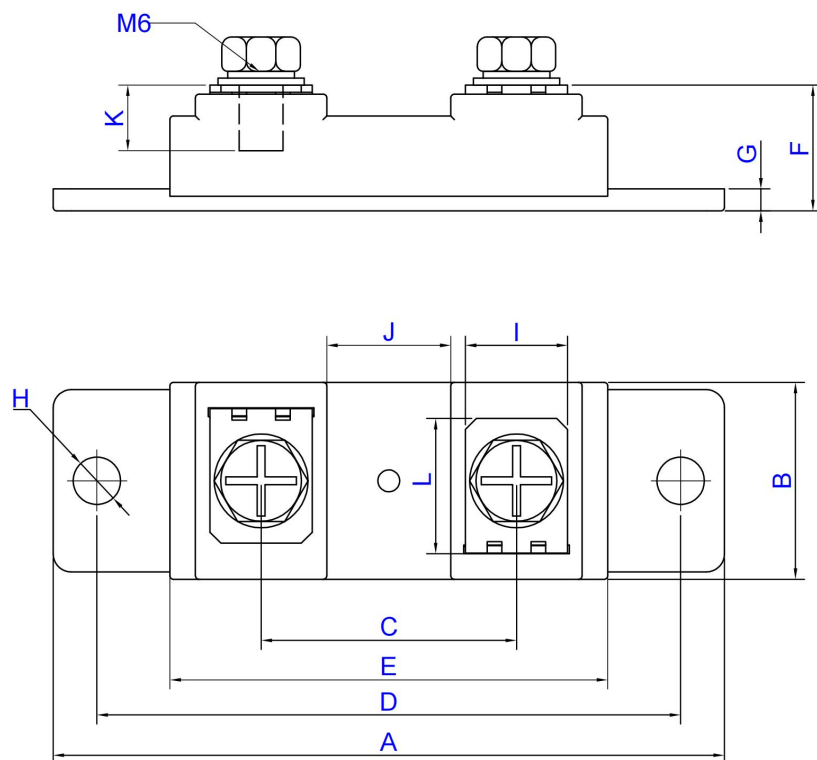


Fig5. Transient Thermal Impedance

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

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