



Micro Commercial Components  
 20736 Marilla Street Chatsworth  
 CA 91311  
 Phone: (818) 701-4933  
 Fax: (818) 701-4939

# MF400K04F3

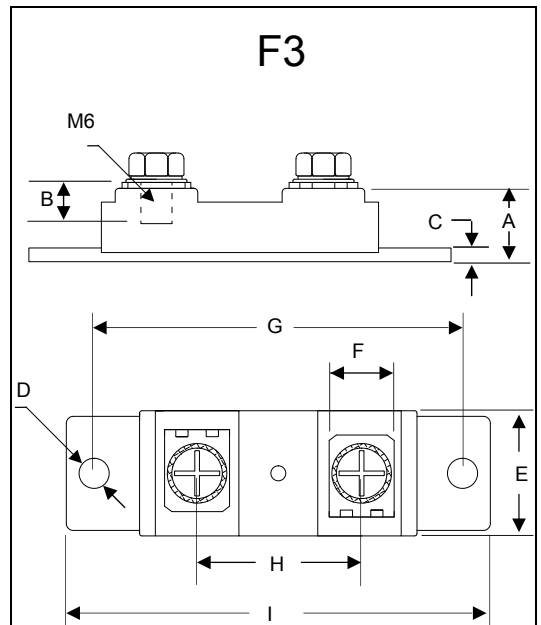
**400 Amp  
 FRED Modules  
 400 Volts**

## Features

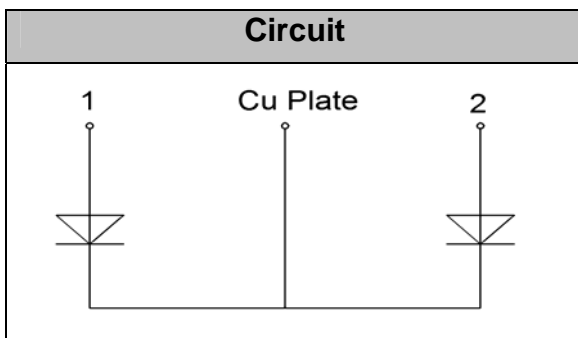
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

## Applications

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



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.618	.642	15.70	16.30	
B	.343	.366	8.70	9.30	
C	.118	.130	3.00	3.30	
D	.256		6.50		∅
E	1.051	1.075	26.70	27.30	
F	.539	.563	13.70	14.30	
G	3.138	3.161	79.70	80.30	
H	1.366	1.390	34.70	35.30	
I	3.610	3.634	91.70	92.30	



## 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 Moudle	400	A
	$T_C=125^\circ\text{C}$ , 20KHz, Per Moudle	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	$\text{A}^2\text{s}$
	$T_J=45^\circ\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	101250	$\text{A}^2\text{s}$
$P_D$		2080	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
Torque	Recommended (M6)	3~4.7	N·m
Weight		92	g

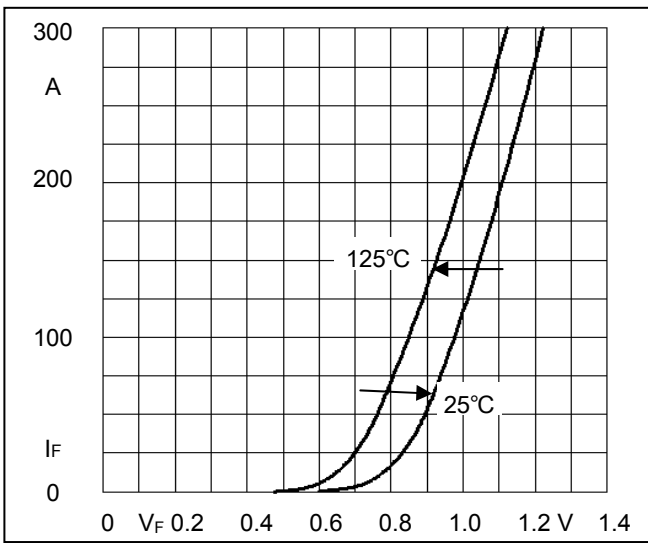
## Thermal Characteristics

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

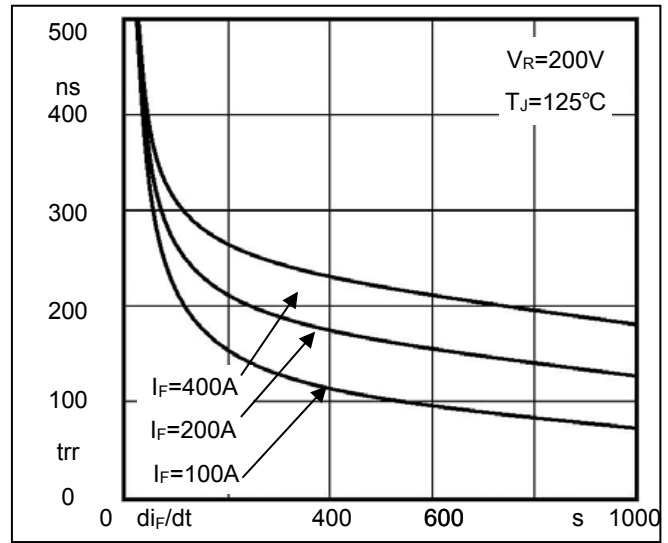
## Electrical Characteristics

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

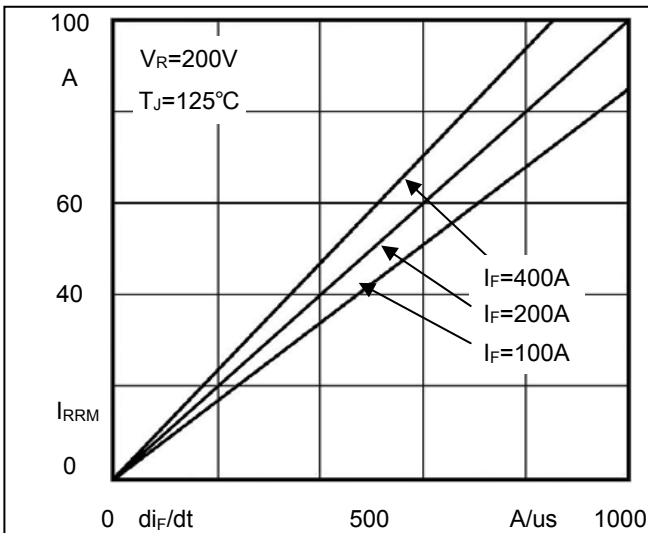
## Performance Curves



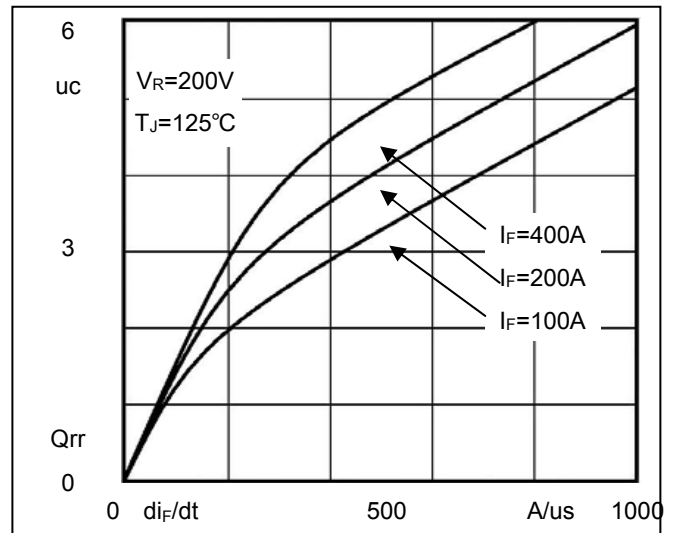
**Fig1. Forward Voltage Drop vs Forward Current**



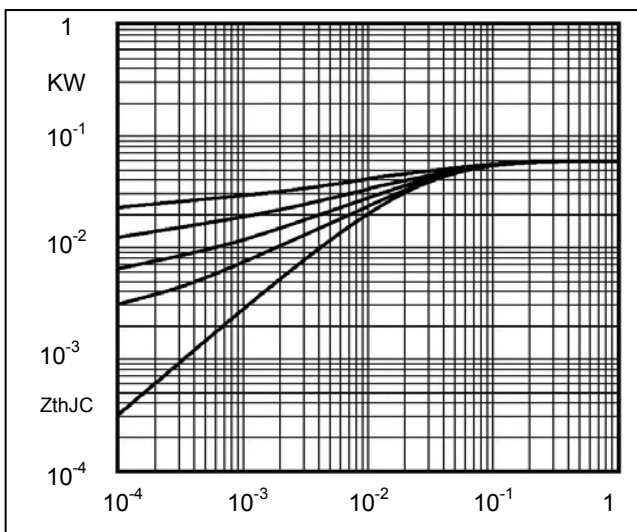
**Fig2. Reverse Recovery Time vs  $di_F/dt$**



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



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



**Fig5. Transient Thermal Impedance**



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## Ordering Information :

Device	Packing
Part Number-BP	Bulk: 10PCS/BOX ;100PCS/CTN

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