

## MF300K04F3

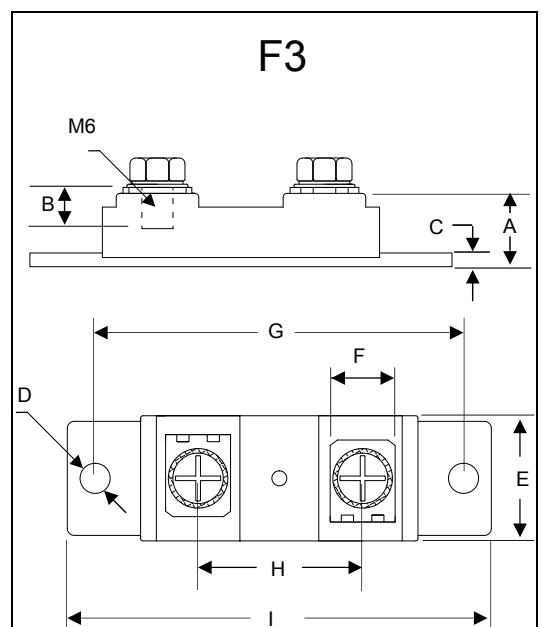
### 300 Amp FRED Modules 400 Volts

## Features

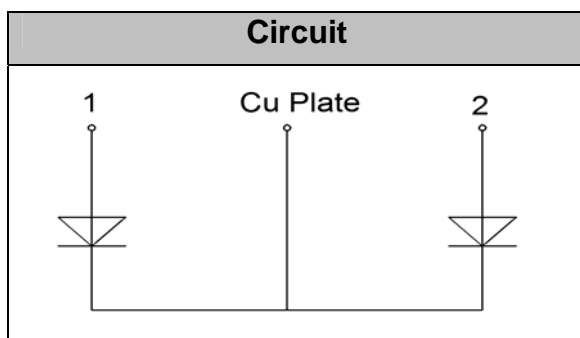
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

## Applications

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



DIMENSIONS					
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	Ø
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	



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## 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	150	A
	$T_C=125^{\circ}\text{C}$ , Per Moudle	300	A
	$T_C=125^{\circ}\text{C}$ , 20KHz, Per Moudle	200	A
$I_{F(RMS)}$	$T_C=125^{\circ}\text{C}$ , Per Diode	210	A
$I_{FSM}$	1/2 Cycle , 50Hz, Sine	2700	A
	1/2 Cycle , 60Hz, Sine	3000	A
$I^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	36450	$\text{A}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	37350	$\text{A}^2\text{s}$
$P_D$		1250	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		90	g

## Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$		0.10	$^{\circ}\text{C/W}$

## Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=400\text{V}$	--	--	0.5	mA
	$V_R=400\text{V}$ , $T_J=125^{\circ}\text{C}$	--	--	2	mA
$V_F$	$I_F=150\text{A}$	--	1.05	--	V
	$I_F=150\text{A}$ , $T_J=125^{\circ}\text{C}$	--	0.90	--	V
$t_{rr}$	$I_F=1\text{A}$ , $V_R=30\text{V}$ , $di_F/dt=-200\text{A}/\mu\text{s}$	--	44	--	ns
$t_{rr}$	$V_R=200\text{V}$ , $I_F=150\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=25^{\circ}\text{C}$	--	90	--	ns
$I_{RRM}$		--	9	--	A
$t_{rr}$	$V_R=200\text{V}$ , $I_F=150\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=125^{\circ}\text{C}$	--	200	--	ns
$I_{RRM}$		--	17	--	A

## Performance Curves

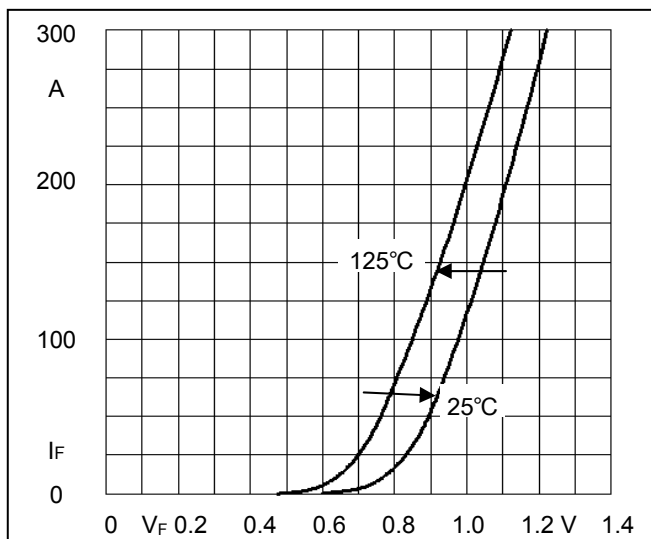


Fig1. Forward Voltage Drop vs Forward Current

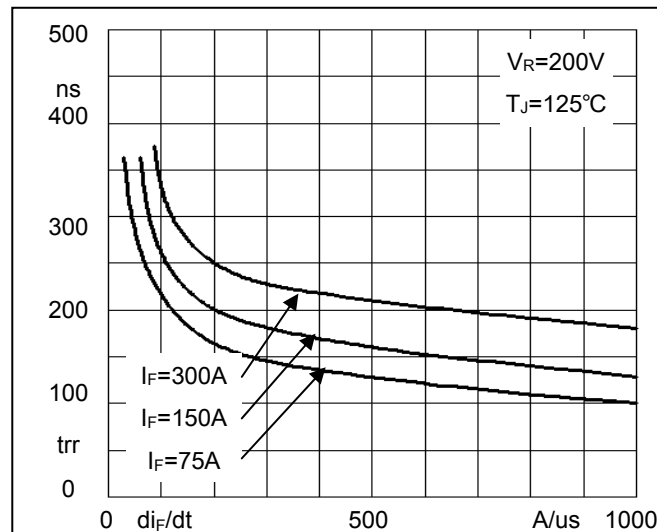


Fig2. Reverse Recovery Time vs  $di_F/dt$

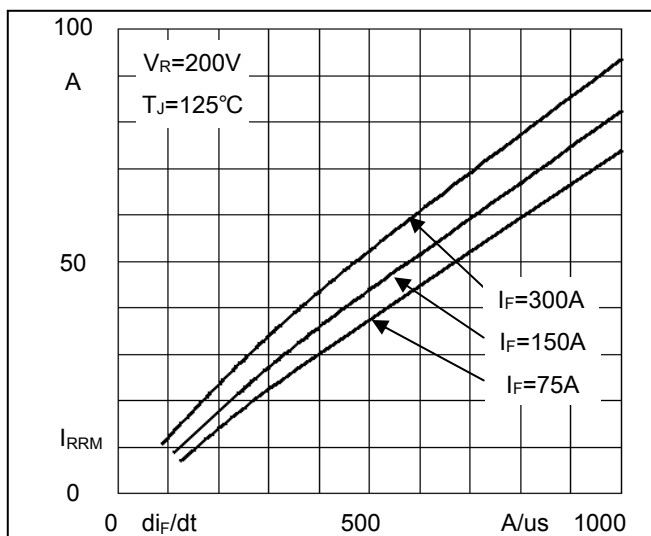


Fig3. Reverse Recovery Current vs  $di_F/dt$

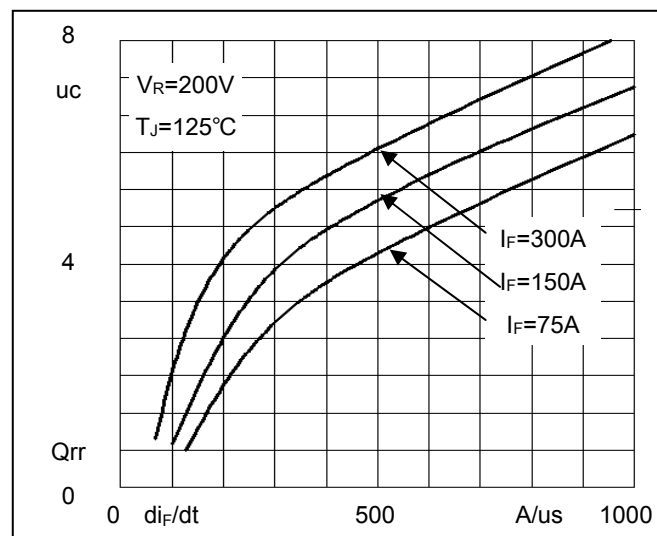


Fig4. Reverse Recovery Charge vs  $di_F/dt$

## Ordering Information :

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

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