



Micro Commercial Components



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

# MF300C12F2

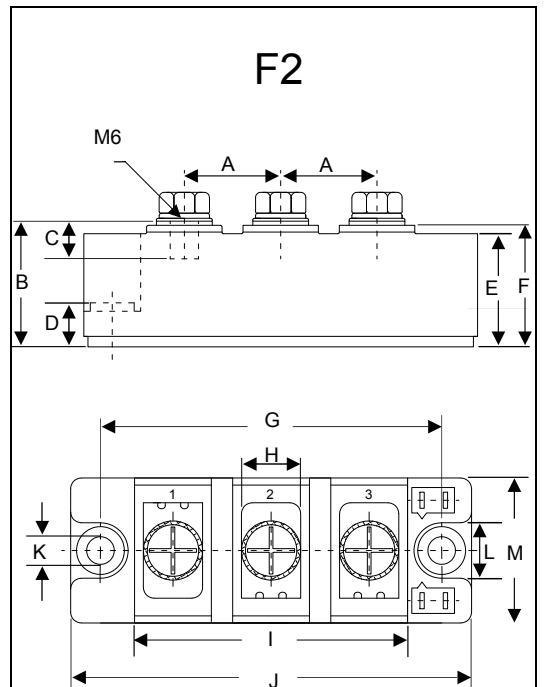
## 300 Amp FRED Modules 1200 Volts

### 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

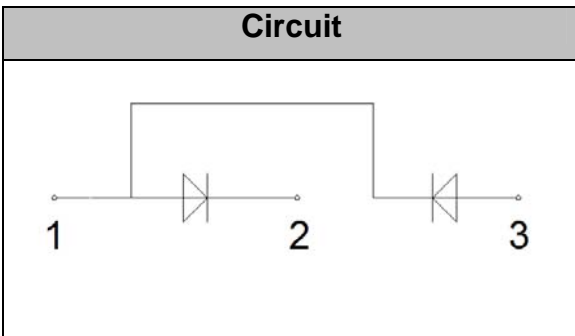
### Applications

- 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	0.886	0.925	22.50	23.50	
B	1.161	1.201	29.50	30.50	
C	0.335	0.374	8.50	9.50	
D	0.315	0.350	8.00	8.90	
E	1.043	1.083	26.50	27.50	
F	1.122	1.161	28.50	29.50	
G	3.130	3.169	79.50	80.50	
H	0.492	0.531	12.50	13.50	
I	2.500	2.539	63.50	64.50	
J	3.681	3.720	93.50	94.50	
K	0.256		6.50		∅
L	0.492	0.531	12.50	13.50	
M	1.319	1.358	33.50	34.50	

### Circuit



# MF300C12F2

## Maximum Ratings

Symbol	Conditions	Values	Units
$V_R$		1200	V
$V_{RRM}$		1200	V
$I_{F(AV)}$	$T_C=110^{\circ}\text{C}$ , Per Diode	300	A
	$T_C=120^{\circ}\text{C}$ , 20KHz, Per Moudle	200	A
$I_{F(RMS)}$	$T_C=110^{\circ}\text{C}$ , Per Diode	420	A
$I_{FSM}$	1/2 Cycle , 50Hz, Sine	2700	A
	1/2 Cycle , 60Hz, Sine	2850	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	40613	$\text{A}^2\text{s}$
$P_D$		893	W
Visol	AC, $T_{on}=1\text{min}$	3000	V
$T_J$		-40 to +150	$^{\circ}\text{C}$
$T_{STG}$		-40 to +125	$^{\circ}\text{C}$
Torque	Recommended (M6)	$5\pm 15\%$	N·m
Torque	Recommended (M6)	$5\pm 15\%$	N·m
Weight		160	g

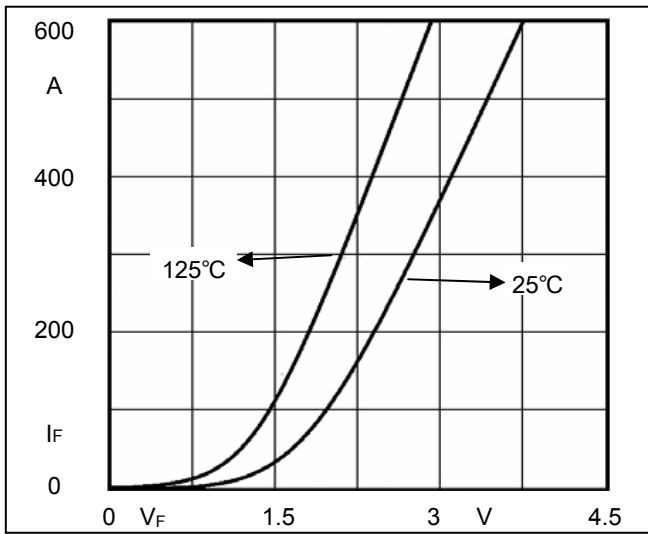
## Thermal Characteristics

Symbol	Conditions	Values	Units
$R_{th(j-c)}$	Per diode	0.14	$^{\circ}\text{C/W}$

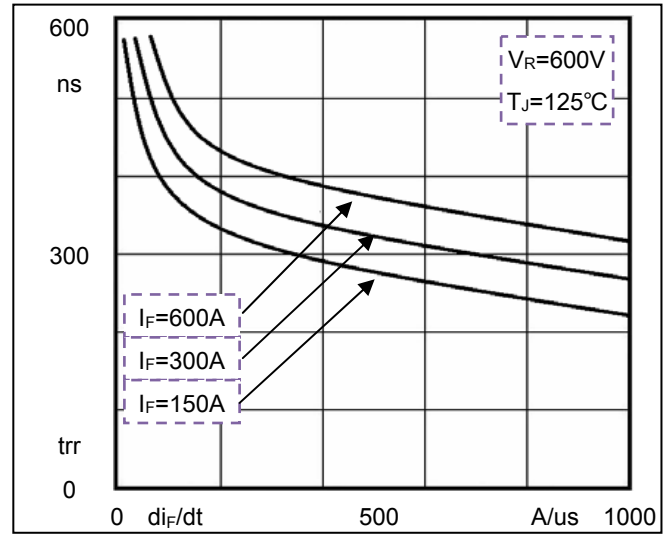
## Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=1200\text{V}$	--	--	1	mA
	$V_R=1200\text{V}$ , $T_J=125^{\circ}\text{C}$	--	--	5	mA
$V_F$	$I_F=300\text{A}$	--	2.8	3	V
	$I_F=300\text{A}$ , $T_J=125^{\circ}\text{C}$	--	2.1	2	V
trr	$I_F=1\text{A}$ , $V_R=30\text{V}$ , $di_F/dt=-200\text{A}/\mu\text{s}$	--	65	--	ns
trr	$V_R=600\text{V}$ , $I_F=300\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=25^{\circ}\text{C}$	--	135	--	ns
$I_{RRM}$		--	10	--	A
trr	$V_R=600\text{V}$ , $I_F=300\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=125^{\circ}\text{C}$	--	385	--	ns
$I_{RRM}$		--	25	--	A

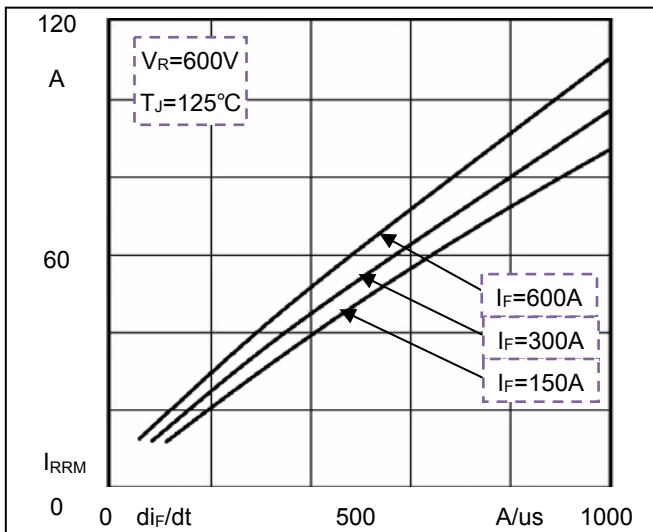
## Performance Curves



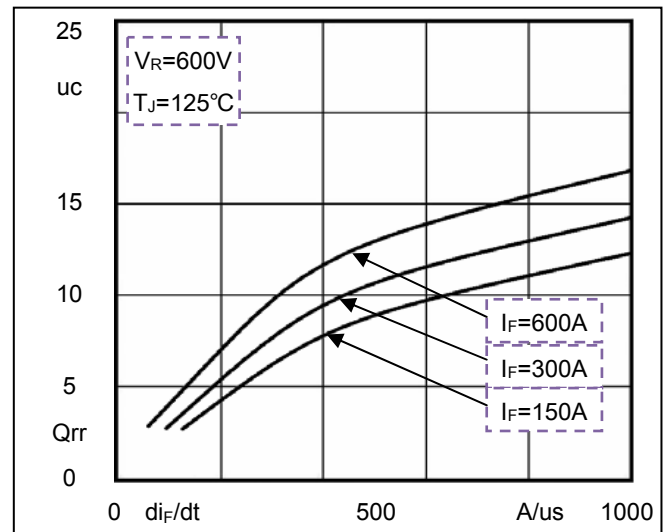
**Fig1. Forward Voltage Drop vs Forward Current**



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



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



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



Micro Commercial Components

Ordering Information :

Device	Packing
Part Number-BP	Bulk: 8PCS/BOX ;80PCS/CTN

**\*\*\*IMPORTANT NOTICE\*\*\***

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

**\*\*\*LIFE SUPPORT\*\*\***

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

**\*\*\*CUSTOMER AWARENESS\*\*\***

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

[www.mccsemi.com](http://www.mccsemi.com)