



Micro Commercial Components



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# MF300U12F2

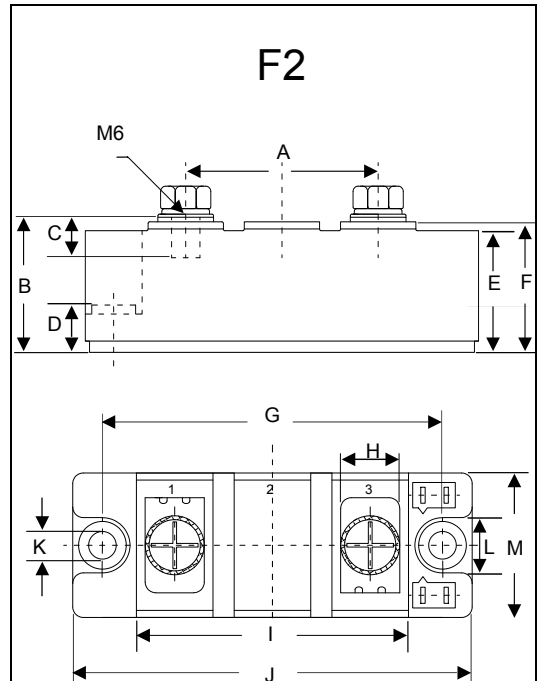
## 300 Amp FRED Modules 1200 Volts

### 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

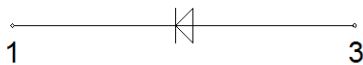
### Applications

- 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	1.799	1.823	45.70	46.30	
B	1.169	1.193	29.70	30.30	
C	.343	.366	8.70	9.30	
D	.323	.343	8.20	8.70	
E	1.051	1.075	26.70	27.30	
F	1.130	1.154	28.70	29.30	
G	.120	.130	79.70	80.30	
H	.500	.524	12.70	13.30	
I	2.501	2.531	63.70	64.30	
J	3.689	3.713	93.70	94.30	
K		.256		6.50	∅
L	.500	.524	12.70	13.30	
M	1.327	1.350	33.70	34.30	

### Circuit



## Maximum Ratings

Symbol	Conditions	Values	Units
$V_R$		1200	V
$V_{RRM}$		1200	V
$I_{F(AV)}$	$T_C=100^\circ\text{C}$	300	A
	$T_C=110^\circ\text{C}, 20\text{KHz}$	210	A
$I_{F(RMS)}$	$T_C=110^\circ\text{C}$	420	A
$I_{FSM}$	$T_J=45^\circ\text{C}, 1/2 \text{ Cycle}, 50\text{Hz}, \text{Sine}$	2500	A
	$T_J=45^\circ\text{C}, 1/2 \text{ Cycle}, 60\text{Hz}, \text{Sine}$	2800	A
$I^2t$	$T_J=45^\circ\text{C}, t=10\text{ms}, 50\text{Hz}, \text{Sine}$	312500	$\text{A}^2\text{s}$
	$T_J=45^\circ\text{C}, t=8.3\text{ms}, 60\text{Hz}, \text{Sine}$	325000	$\text{A}^2\text{s}$
$P_D$		890	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
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Weight		160	g

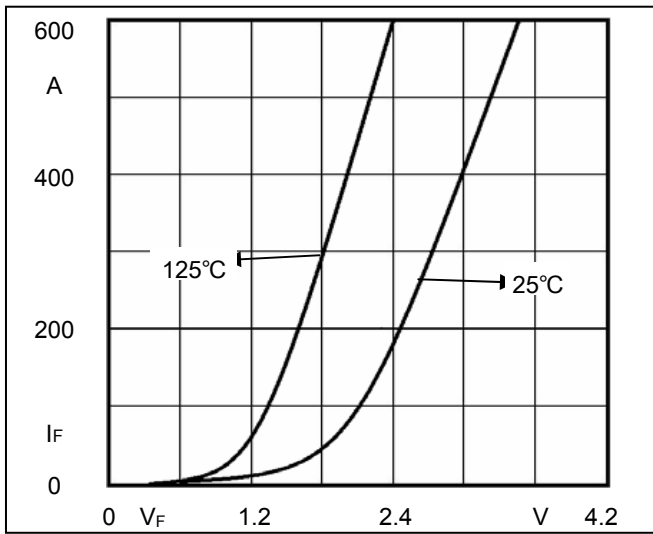
## Thermal Characteristics

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

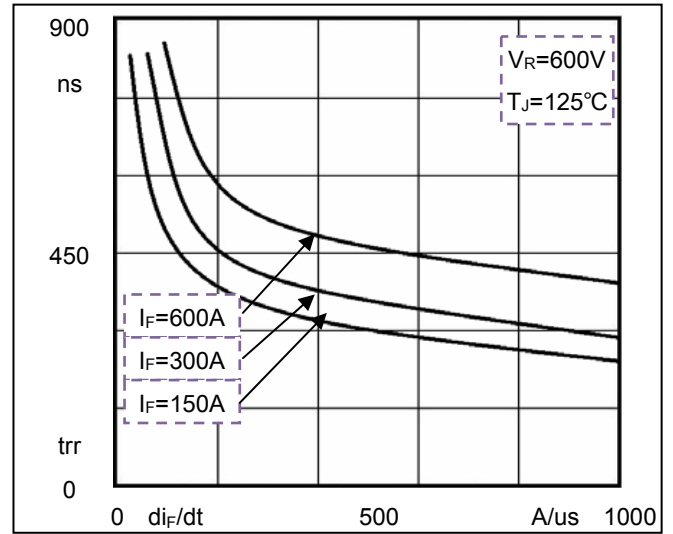
## Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
$I_{RM}$	$V_R=1200\text{V}$	--	--	5	mA
	$V_R=1200\text{V}, T_J=125^\circ\text{C}$	--	--	10	mA
$V_F$	$I_F=300\text{A}$	--	2.7	--	V
	$I_F=300\text{A}, T_J=125^\circ\text{C}$	--	1.8	--	V
trr	$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$	--	75	--	ns
trr	$V_R=600\text{V}, I_F=300\text{A}, di_F/dt=-200\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	--	150	--	ns
$I_{RRM}$		--	12	--	A
trr	$V_R=600\text{V}, I_F=300\text{A}, di_F/dt=-200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$	--	450	--	ns
$I_{RRM}$		--	27	--	A

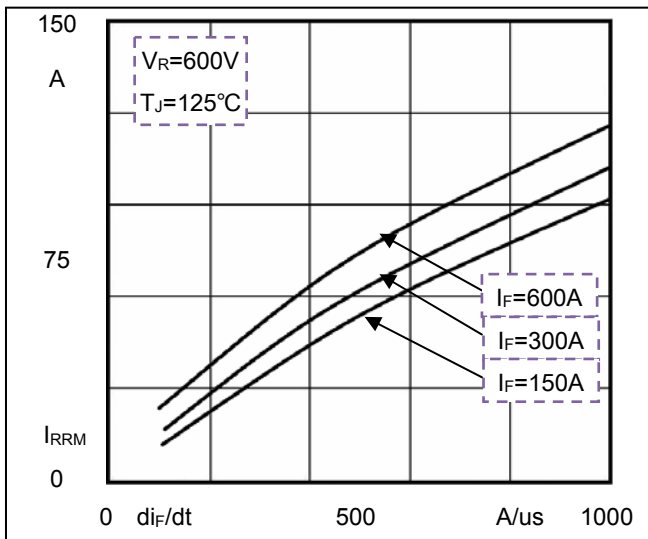
## Performance Curves



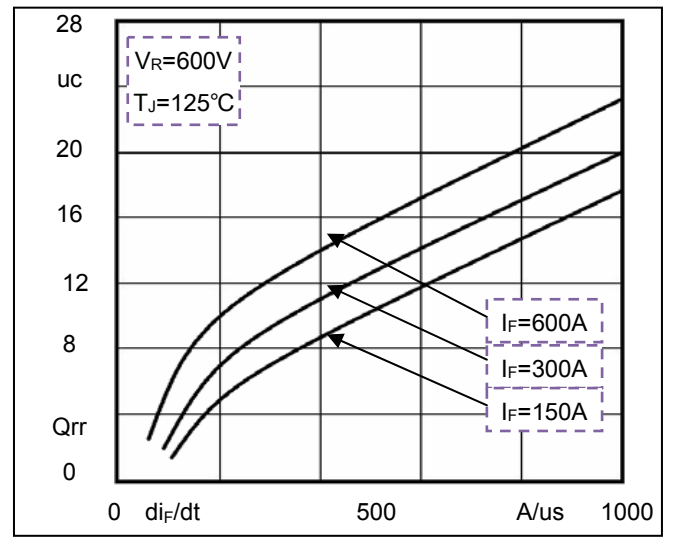
**Fig1. Forward Voltage Drop vs Forward Current**



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



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



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



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Ordering Information :

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

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