



Micro Commercial Components
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MF300C12F2

Features

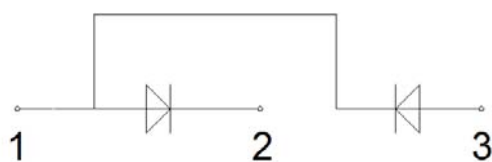
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

Applications

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

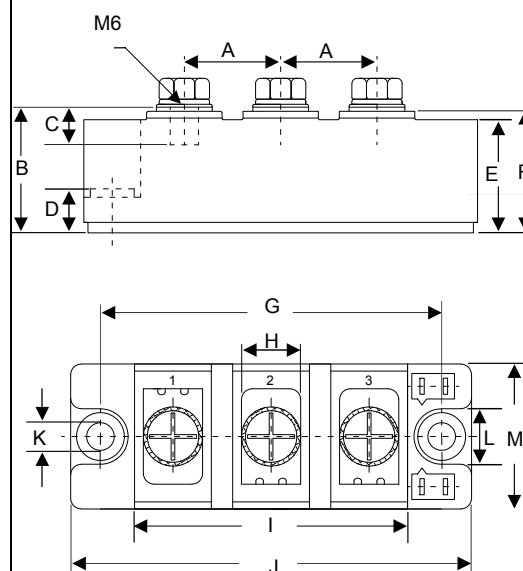


Circuit



**300 Amp
FRED Modules
1200 Volts**

F2



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.894	.917	22.70	23.30	
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		Ø
L	.500	.524	12.70	13.30	
M	1.327	1.350	33.70	34.30	

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	A^2s
	$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	40613	A^2s
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

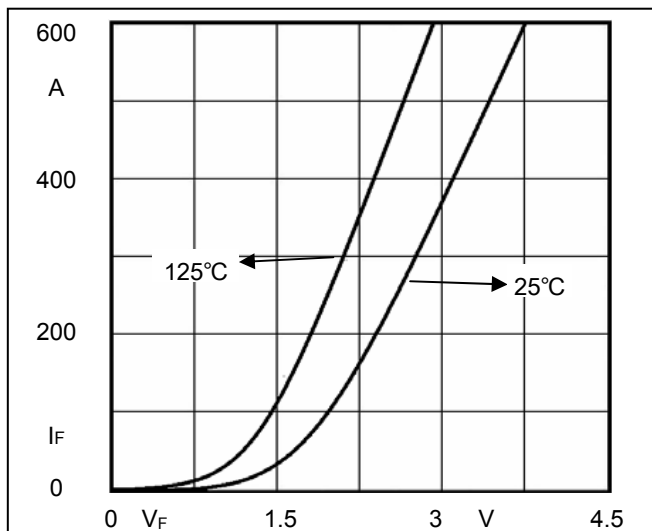


Fig1. Forward Voltage Drop vs Forward Current

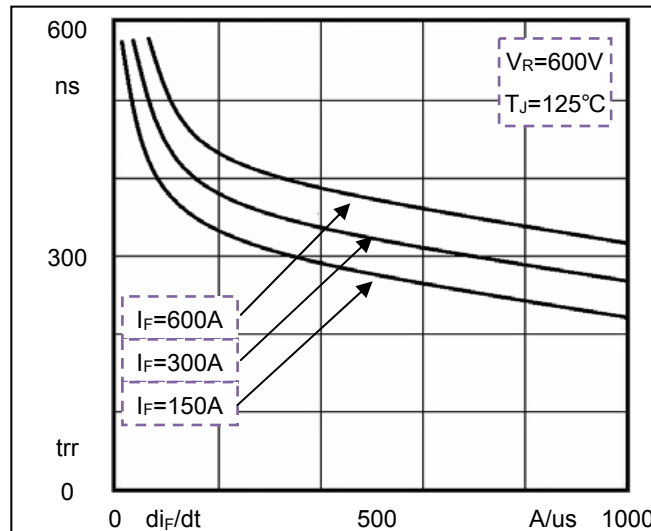


Fig2. Reverse Recovery Time vs di_F/dt

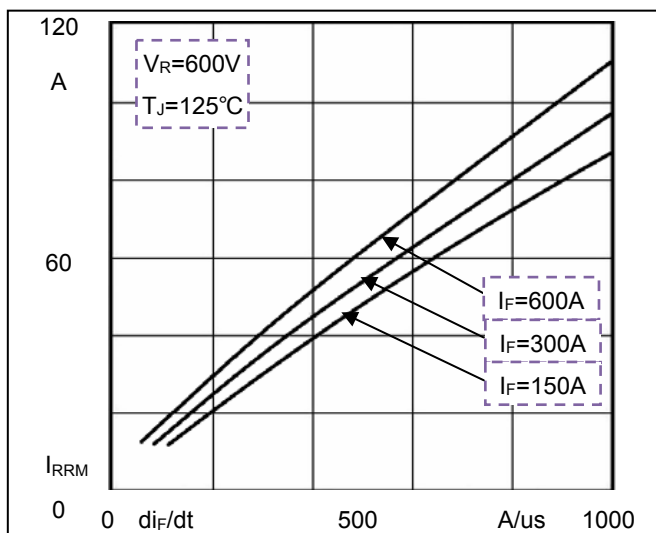


Fig3. Reverse Recovery Current vs di_F/dt

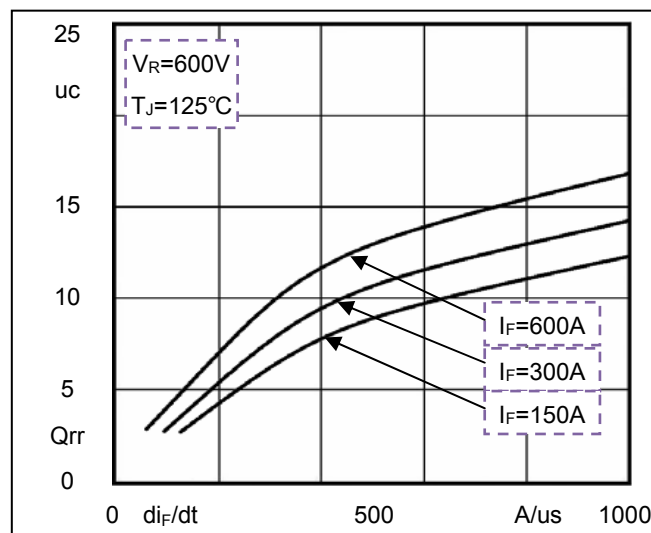


Fig4. Reverse Recovery Charge vs di_F/dt

Ordering Information :

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

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