



Micro Commercial Components
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MF300U12F2

**300 Amp
FRED Modules
1200 Volts**

Features

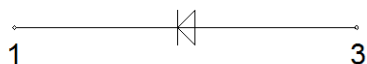
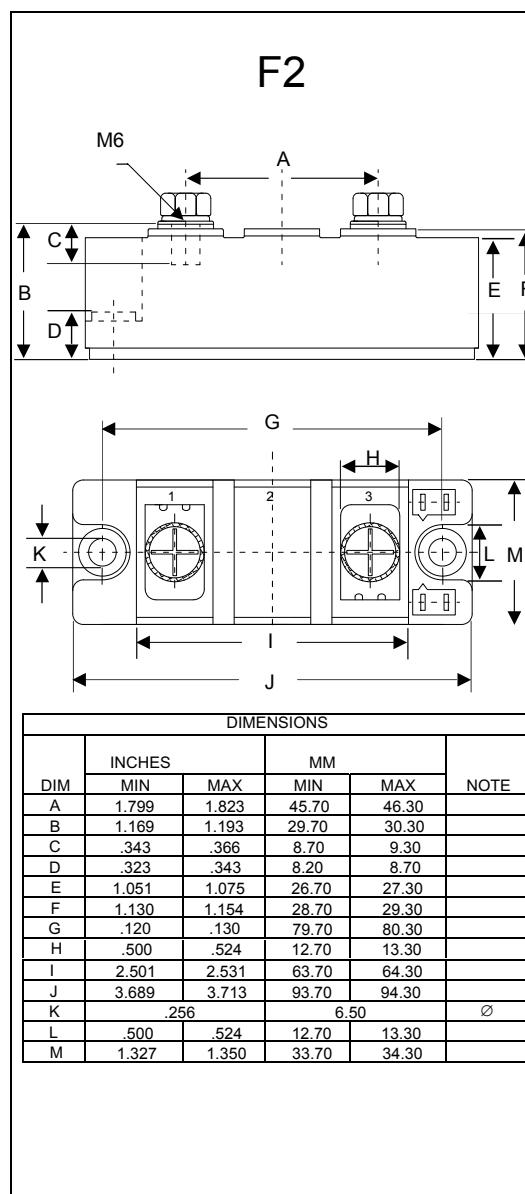
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

Applications

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



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
	$T_C=110^{\circ}\text{C}$, 20KHz	210	A
$I_{F(RMS)}$	$T_C=110^{\circ}\text{C}$	420	A
I_{FSM}	$T_J=45^{\circ}\text{C}$, 1/2 Cycle, 50Hz, Sine	2500	A
	$T_J=45^{\circ}\text{C}$, 1/2 Cycle, 60Hz, Sine	2800	A
I^2t	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	312500	A^2s
	$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	325000	A^2s
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
Torque	Recommended (M6)	$5\pm 15\%$	N·m
Weight		160	g

Thermal Characteristics

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

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
t_{rr}	$I_F=1\text{A}$, $V_R=30\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$	--	75	--	ns
t_{rr}	$V_R=600\text{V}$, $I_F=300\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=25^{\circ}\text{C}$	--	150	--	ns
I_{RRM}		--	12	--	A
t_{rr}	$V_R=600\text{V}$, $I_F=300\text{A}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_J=125^{\circ}\text{C}$	--	450	--	ns
I_{RRM}		--	27	--	A

Performance Curves

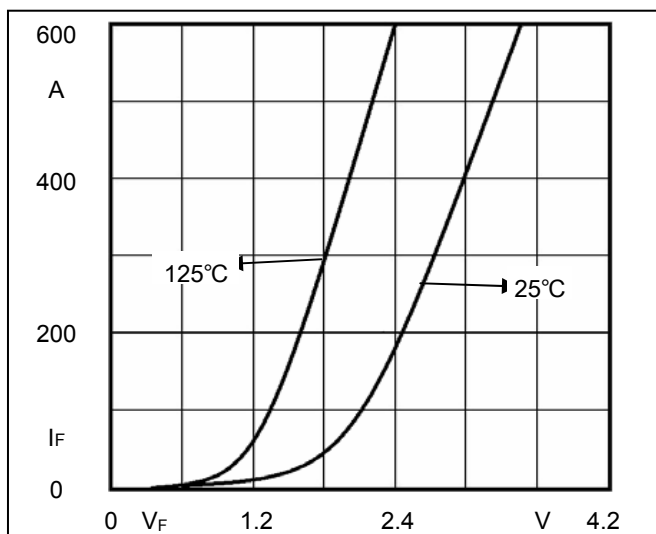


Fig1. Forward Voltage Drop vs Forward Current

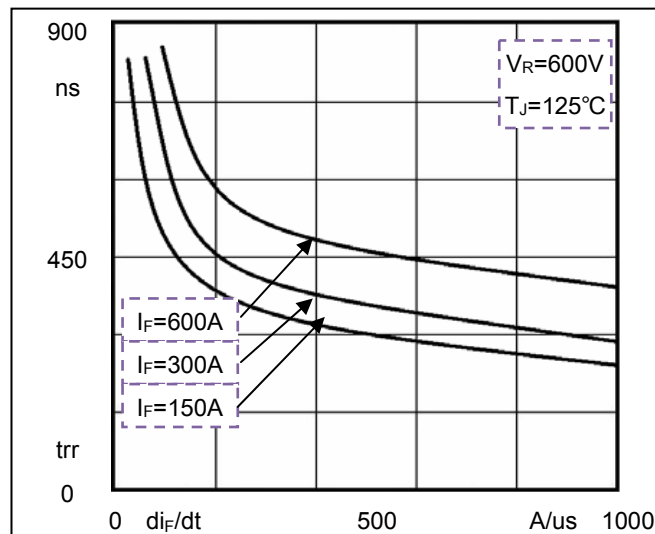


Fig2. Reverse Recovery Time vs di_F/dt

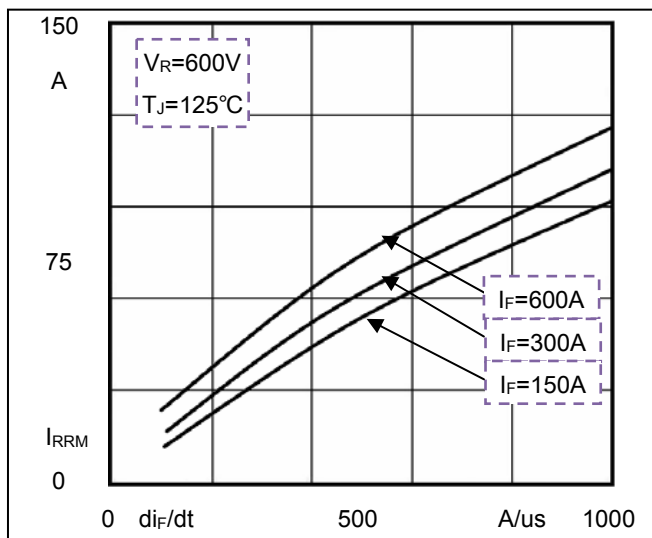


Fig3. Reverse Recovery Current vs di_F/dt

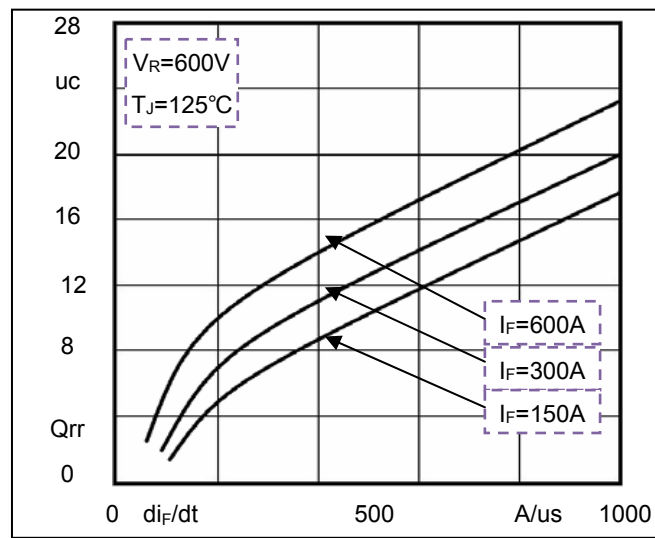


Fig4. Reverse Recovery Charge vs di_F/dt

Ordering Information :

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

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