

**Features**

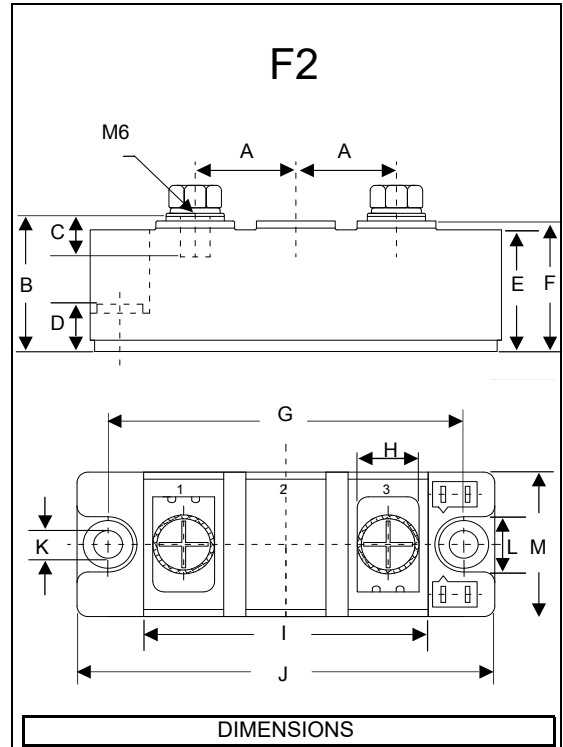
- Lead Free Finish/RoHS Compliant (NOTE 1)("P" Suffix designates RoHS Compliant. See ordering information)
- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

**Applications**

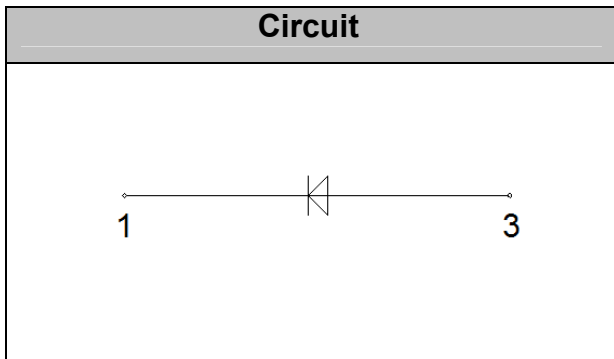
- Inversion Welder
- Uninterruptible Power Supply (UPS)
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Power Factor Correction (PFC) Circuit
- Converter & Chopper



**500 Amp  
FRED Modules  
1200 Volts**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	



## Maximum Ratings

Symbol	Conditions	Values	Units
$V_R$		1200	V
$V_{RRM}$		1200	V
$I_{F(AV)}$	$T_C=90^{\circ}\text{C}$ ,	500	A
$I_{F(RMS)}$	$T_C=90^{\circ}\text{C}$ ,	700	A
$I_{FSM}$	1/2 Cycle , 50Hz, Sine	5000	A
	1/2 Cycle , 60Hz, Sine	5250	A
$I^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	125000	$\text{A}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine		
$P_D$		1200	W
$T_J$		-40 to +150	$^{\circ}\text{C}$
$T_{STG}$		-40 to +125	$^{\circ}\text{C}$
Torque	Module-to-Sink Recommended (M6)	4.5	N·m
Torque	Module Electrodes Recommended (M6)	4.5	N·m
Weight		160	g

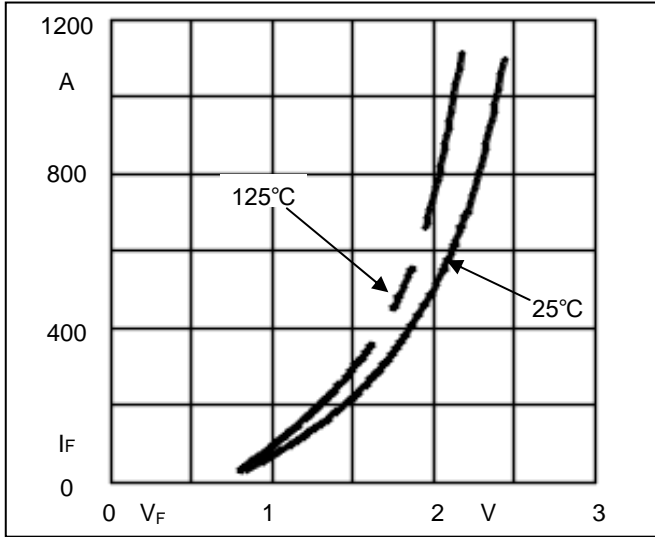
## Thermal Characteristics

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

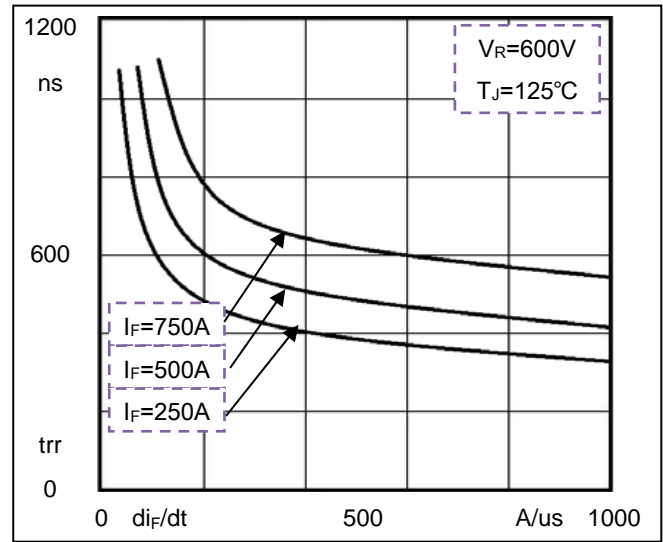
## Electrical Characteristics

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
$V_F$	$I_F=500\text{A}$	--	1.85	2	V
	$I_F=500\text{A}$ , $T_J=125^{\circ}\text{C}$	--	1.7	1	V
$trr$	$I_F=1\text{A}$ , $V_R=30\text{V}$ , $di_F/dt=-200\text{A}/\mu\text{s}$	--	80	--	ns
$trr$	$V_R=600\text{V}$ , $I_F=500\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=25^{\circ}\text{C}$	--	200	--	ns
$I_{RRM}$		--	18	--	A
$trr$	$V_R=600\text{V}$ , $I_F=500\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $T_J=125^{\circ}\text{C}$	--	600	--	ns
$I_{RRM}$		--	40	--	A

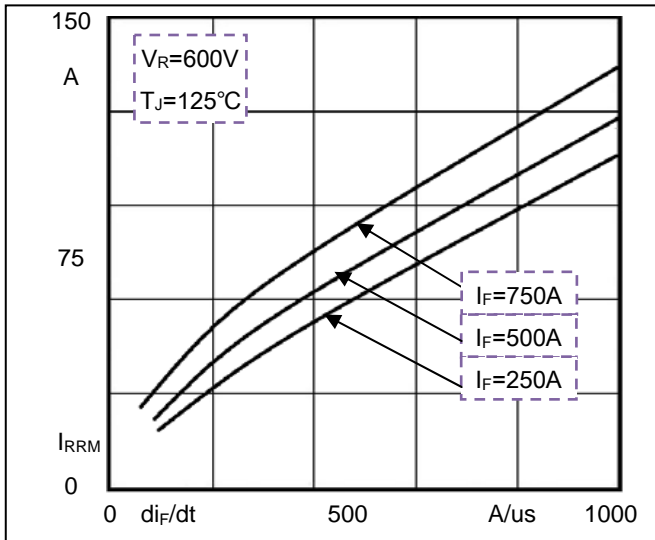
**Performance Curves**



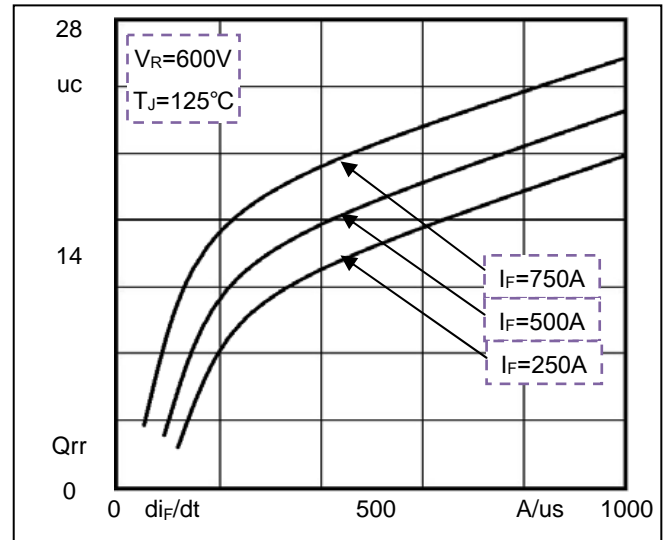
**Fig1. Forward Voltage Drop vs Forward Current**



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



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



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