



FRED Modules

V_{RRM} 600V

I_{FAV} 300 A

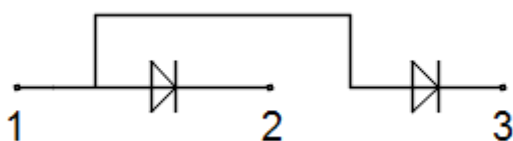
Applications

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

Features

- Soft Reverse Recovery Characteristics
- Ultrafast Reverse Recovery Time
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package

Circuit



Maximum Ratings

Symbol	Conditions	Values	Units
V_R		600	V
V_{RRM}		600	V
$I_{F(AV)}$	$T_C=110^{\circ}\text{C}$, Per Diode	300	A
$I_{F(RMS)}$	$T_C=110^{\circ}\text{C}$, Per Diode	420	A
I_{FSM}	1/2 Cycle, 50Hz, Sine	3000	A
	1/2 Cycle, 60Hz, Sine	3200	A
I^2t	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	45000	A^2s
	$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	51200	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)	4±15%	N·m
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Weight		160	g

Thermal Characteristics

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



Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=600V$	--	--	0.5	mA
	$V_R=600V, T_J=125^{\circ}C$	--	--	5	mA
V_F	$I_F=300A$	--	1.30	1.45	V
	$I_F=300A, T_J=125^{\circ}C$	--	1.21	1.26	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	55	--	ns
t_{rr}	$V_R=300V, I_F=300A, di_F/dt=-200A/\mu s, T_J=25^{\circ}C$	--	145	--	ns
I_{RRM}		--	17	--	A
t_{rr}	$V_R=300V, I_F=300A, di_F/dt=-200A/\mu s, T_J=125^{\circ}C$	--	240	--	ns
I_{RRM}		--	30	--	A

Performance Curves

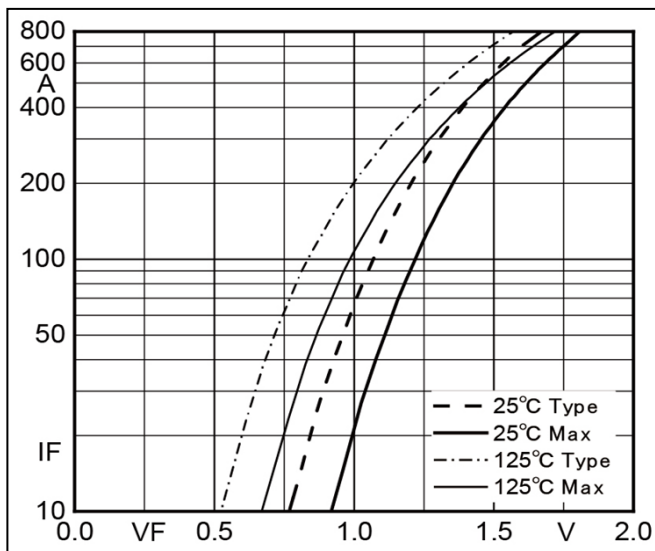


Fig1. Forward Voltage Drop vs Forward Current

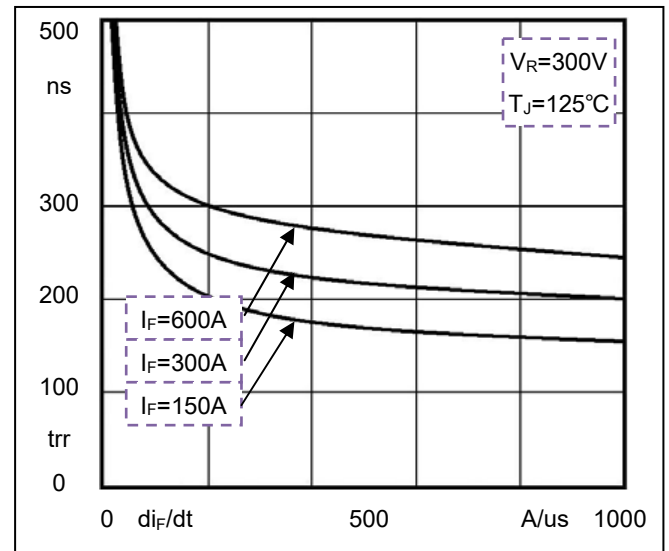


Fig2. Reverse Recovery Time vs di_F/dt

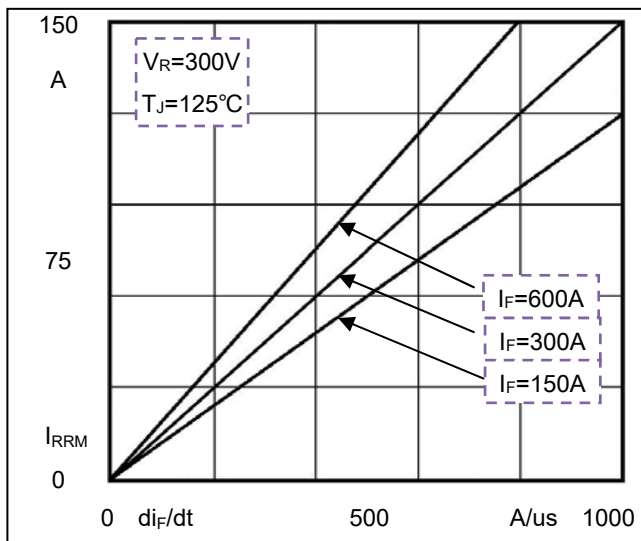


Fig3. Reverse Recovery Current vs di_F/dt

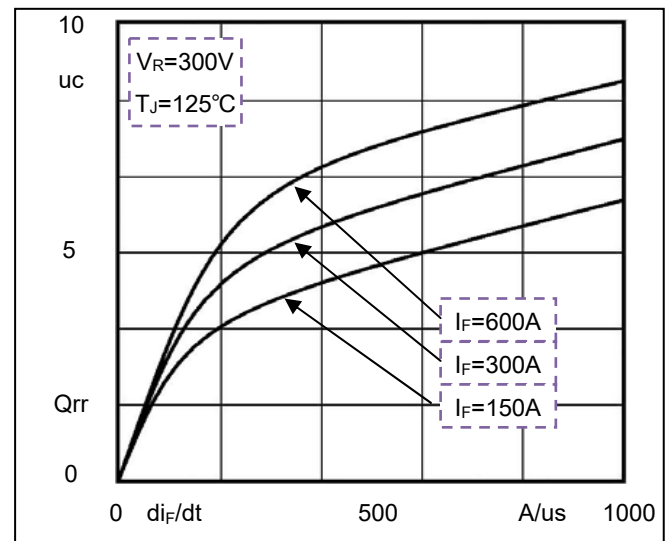
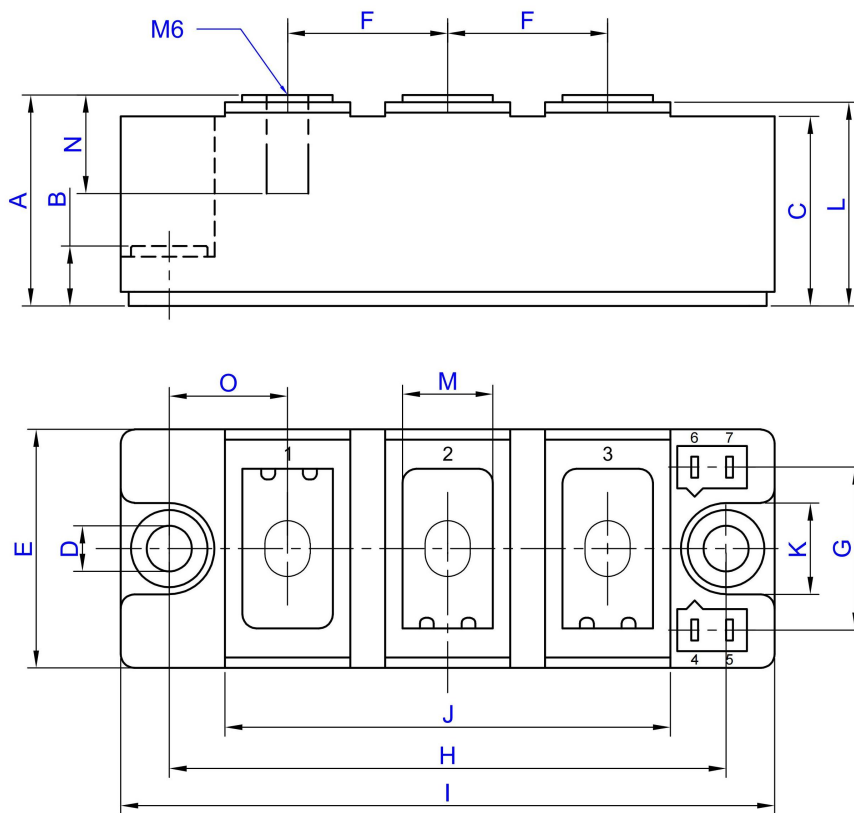


Fig4. Reverse Recovery Charge vs di_F/dt

Package Outline Information

CASE: F2



DIM	Min (mm)	Max (mm)	Note
A	29.5	30.5	
B	8.0	9.0	
C	26.5	27.5	
D	6.3	6.7	Ø
E	33.5	34.5	
F	22.8	23.2	
G	22.7	23.7	
H	79.5	80.5	
I	93.5	94.5	
J	63.5	64.5	
K	12.5	13.5	
L	28.5	29.5	
M	12.9	13.1	
N	13.5	14.5	
O	16.5	17.5	

Packing Standard

Item	Length: A (mm)	Width: B (mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	48	8
Outer Carton	545	295	240	80



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