



FRED Modules

V_{RRM} 600V

I_{FAV} 150 A

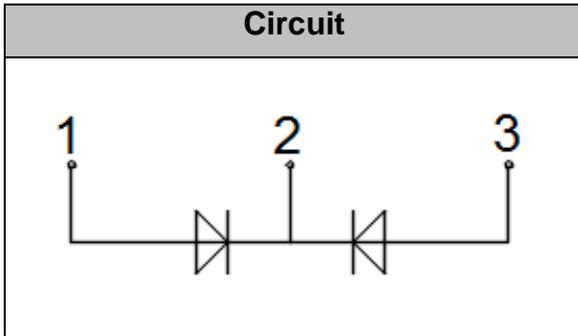
Applications

- 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
- Insulation Encapsulation

Circuit



Maximum Ratings

Symbol	Conditions	Values	Units
V _R		600	V
V _{RRM}		600	V
I _{F(AV)}	T _C =100°C, Per Diode	150	A
	T _C =100°C, Per Module	300	A
I _{F(RMS)}	T _C =100°C, Per Diode	212	A
I _{FSM}	1/2 Cycle, 50Hz, Sine	1400	A
	1/2 Cycle, 60Hz, Sine	1536	A
I ² t	T _J =45°C, t=10ms, 50Hz, Sine	9800	A ² s
	T _J =45°C, t=8.3ms, 60Hz, Sine		A ² s
P _D		480	W
Visol	AC, Ton=1min	3000	V
T _J		-40 to +150	°C
T _{STG}		-40 to +125	°C
Torque	Recommended (M6)	3±15%	N·m
Torque	Recommended (M6)	3±15%	N·m
Weight		100	g

Thermal Characteristics

Symbol	Conditions	Values	Units
R _{th(j-c)}	Junction-to-Case, Per Diode	0.32	°C/W
R _{th(j-c)}	Junction-to-Case, Per Module	0.16	°C/W



Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=600V$	--	--	1	mA
	$V_R=600V, T_J=125^\circ C$	--	--	5	mA
V_F	$I_F=150A$	--	1.30	1.50	V
	$I_F=150A, T_J=125^\circ C$	--	1.24	1.44	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	50	--	ns
t_{rr}	$V_R=300V, I_F=150A, di_F/dt=-200A/\mu s, T_J=25^\circ C$	--	130	--	ns
I_{RRM}		--	14	--	A
t_{rr}	$V_R=300V, I_F=150A, di_F/dt=-200A/\mu s, T_J=125^\circ C$	--	220	--	ns
I_{RRM}		--	22	--	A

Performance Curves

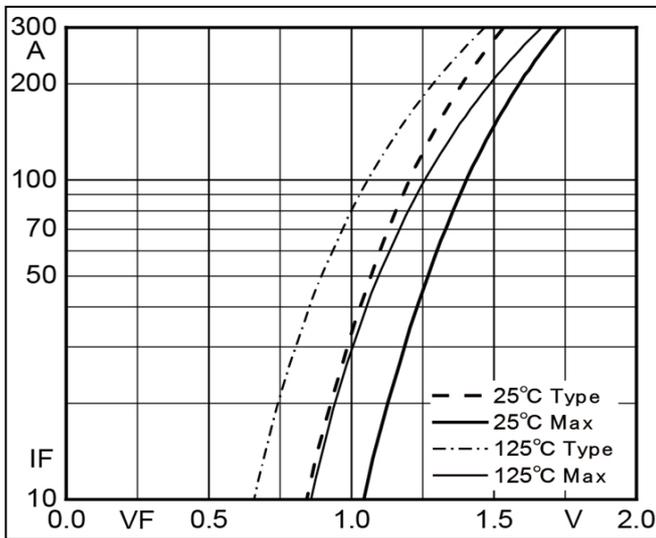


Fig1. Forward Voltage Drop vs Forward Current

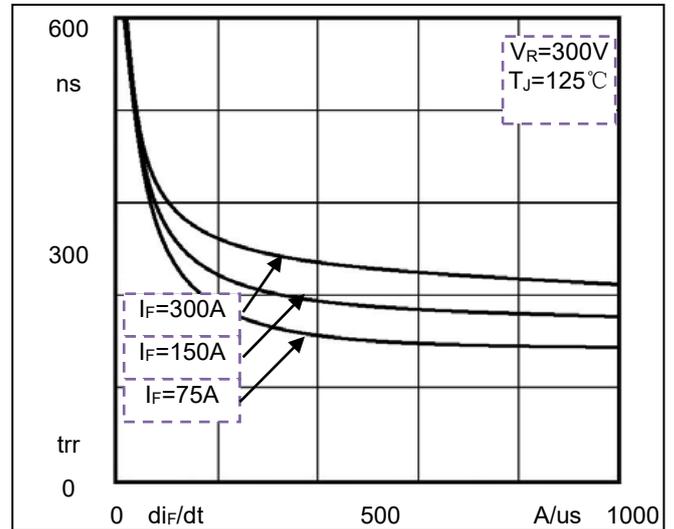


Fig2. Reverse Recovery Time vs di_F/dt

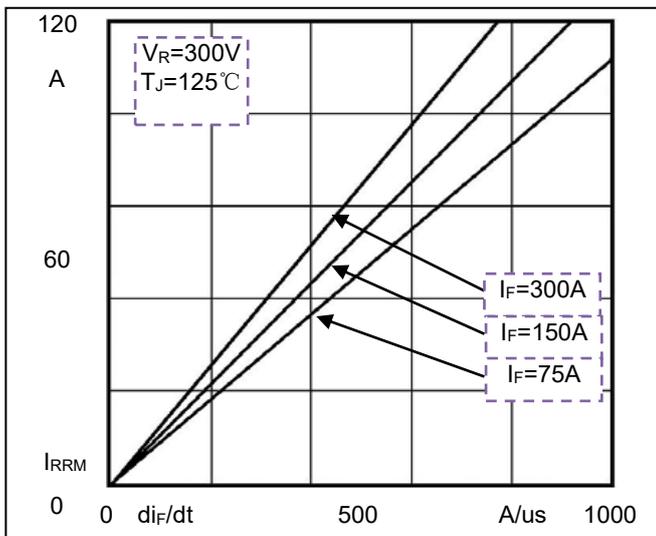


Fig3. Reverse Recovery Current vs di_F/dt

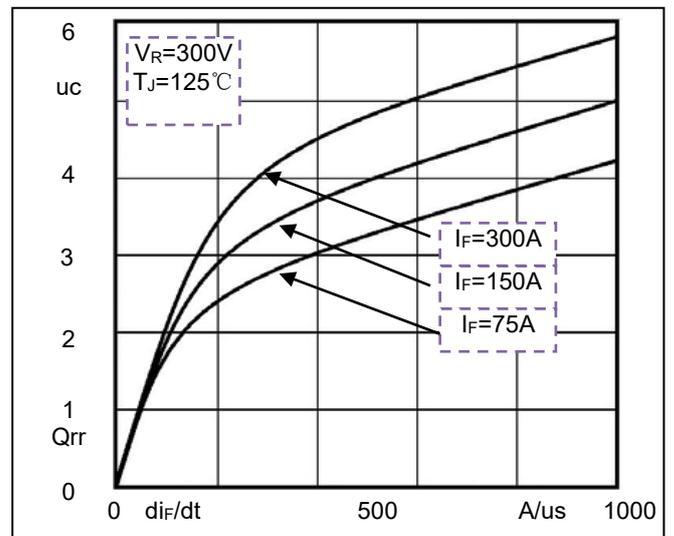
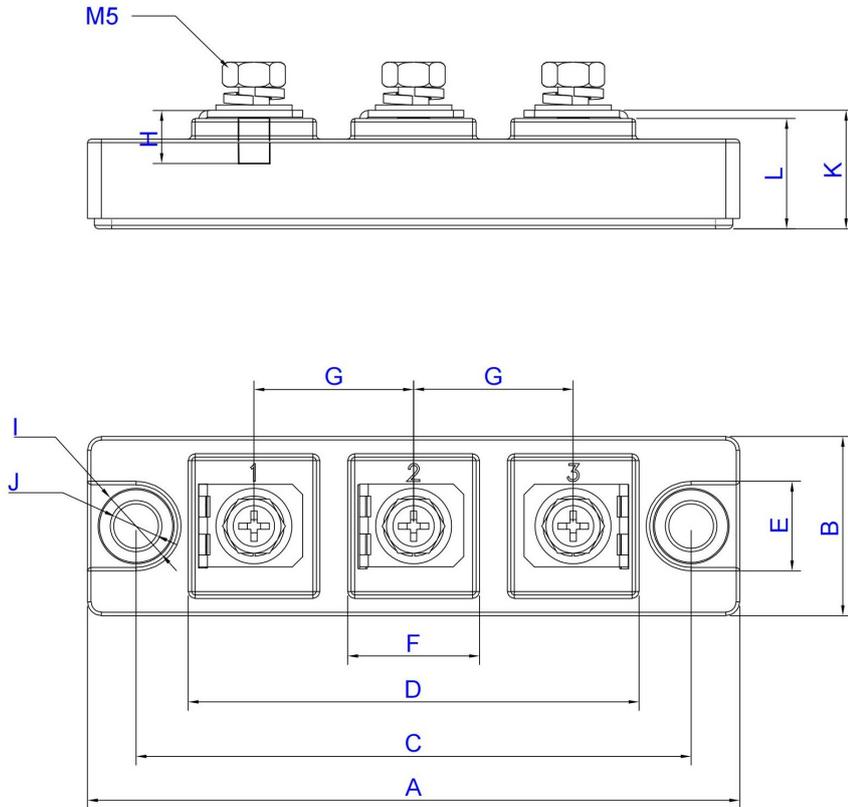


Fig4. Reverse Recovery Charge vs di_F/dt

Package Outline Information

CASE: F5



DIM	Min (mm)	Max (mm)	Note
A	93.5	94.5	
B	25.5	26.5	
C	79.5	80.5	
D	64.5	65.5	
E	12.5	13.5	
F	18.5	19.5	
G	22.5	23.5	
H	6	7	
I	10.5	11.5	∅
J	6	7	∅
K	16.5	17.5	
L	15.5	16.5	

Packing Standard

Item	Length: A (mm)	Width: B (mm)	Height: C (mm)	Quantity (PCS)
Inner Box	276	258	40	10
Outer Carton	545	295	240	120



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