



FRED Modules

V_{RRM} 600V

I_{FAV} 60A

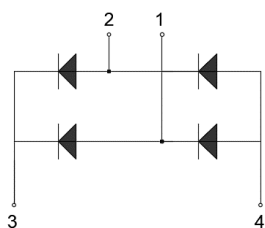
Applications

- 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
- Popular SOT-227 Package

Circuit



Maximum Ratings

Symbol	Conditions	Values	Units
V _R		600	V
V _{RRM}		600	V
I _D	Single phase ,half wave 180°conduction T _c =85°C	60	A
I _{FSM}	1/2 Cycle , 50Hz, Sine	380	A
I ² t	T _J =45°C, t=10ms, 50Hz, Sine	720	A ² s
P _D	T _c =25°C	152	W
T _J		-40 to +150	°C
T _{STG}		-40 to +125	°C
Visol	3000V AC 1min	1	mA
Torque	To Sink Recommended (M4)	0.7~1.1	N·m
Torque	To Terminal Recommended (M4)	0.7~1.1	N·m
Weight		26	g

Thermal Characteristics

Symbol	Conditions	Values	Units
R _{th(j-c)}	Per diode	1	°C/W
R _{th(j-c)}	Per module	0.25	°C/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=600V$	--	--	0.1	mA
	$V_R=600V, T_J=125^{\circ}C$	--	--	2	mA
V_F	$I_F=30A$	--	1.65	1.8	V
	$I_F=30A, T_J=125^{\circ}C$	--		1.7	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	24		ns

Performance Curves

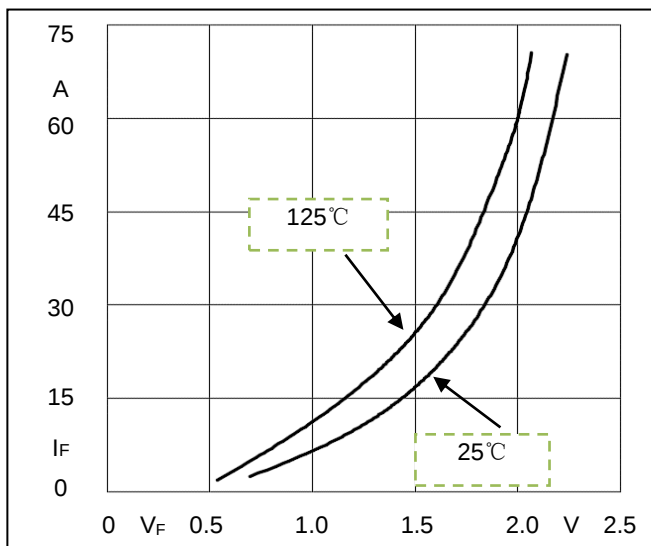


Fig1. Forward Voltage Drop vs Forward Current

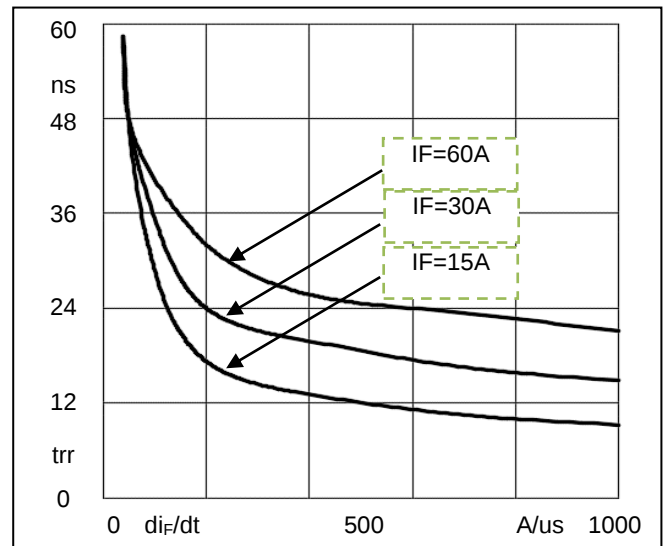


Fig2. Reverse Recovery Time vs di_F/dt

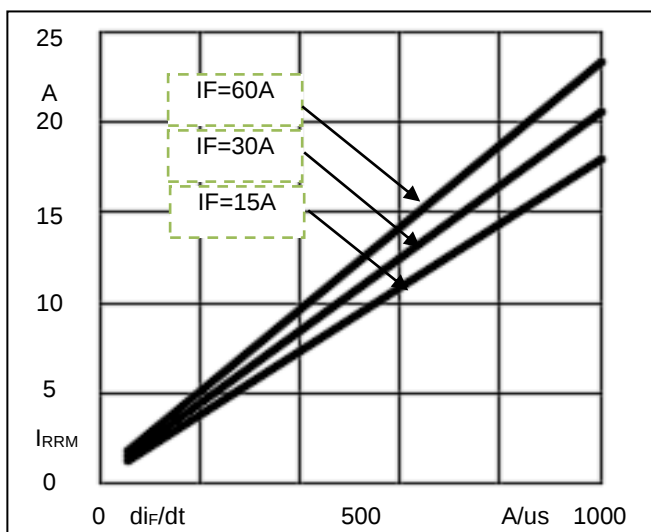


Fig3. Reverse Recovery Current vs di_F/dt

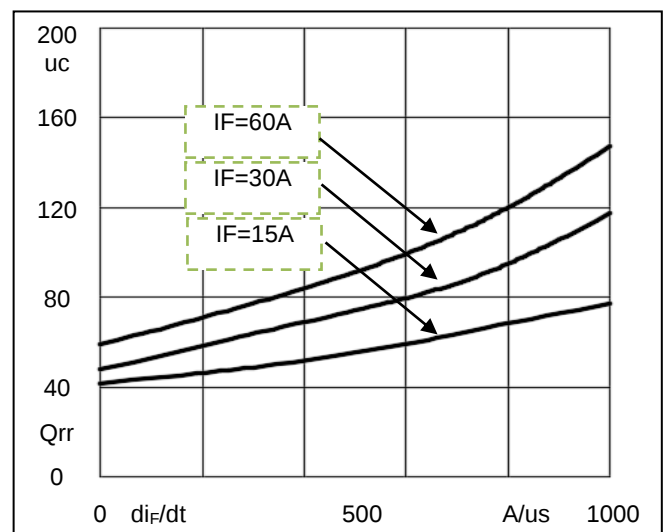


Fig4. Reverse Recovery Charge vs di_F/dt

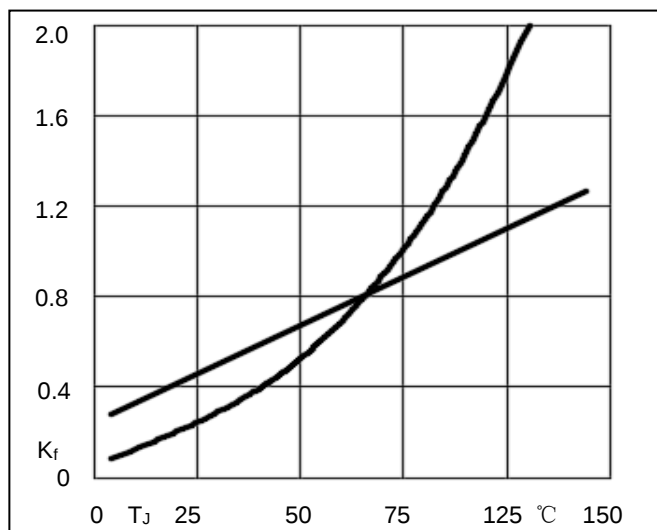


Fig5. Dynamic Parameters vs Junction Temperature

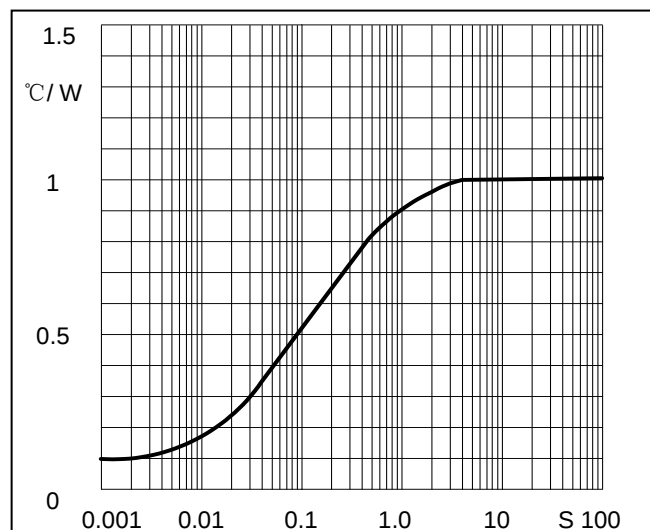


Fig6. Transient Thermal Impedance

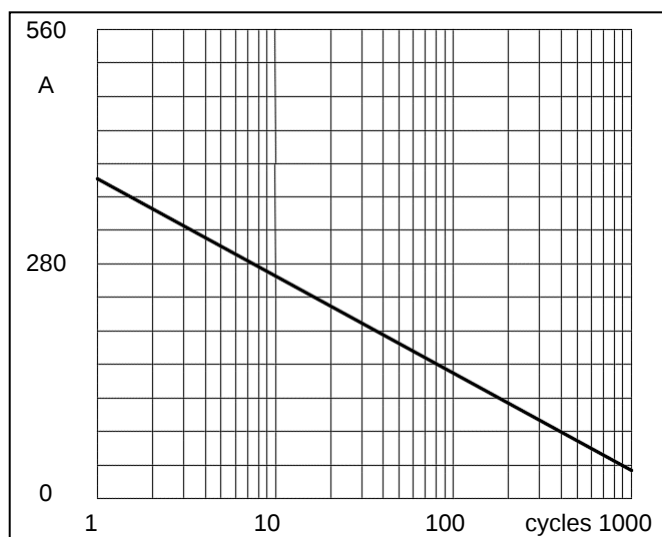
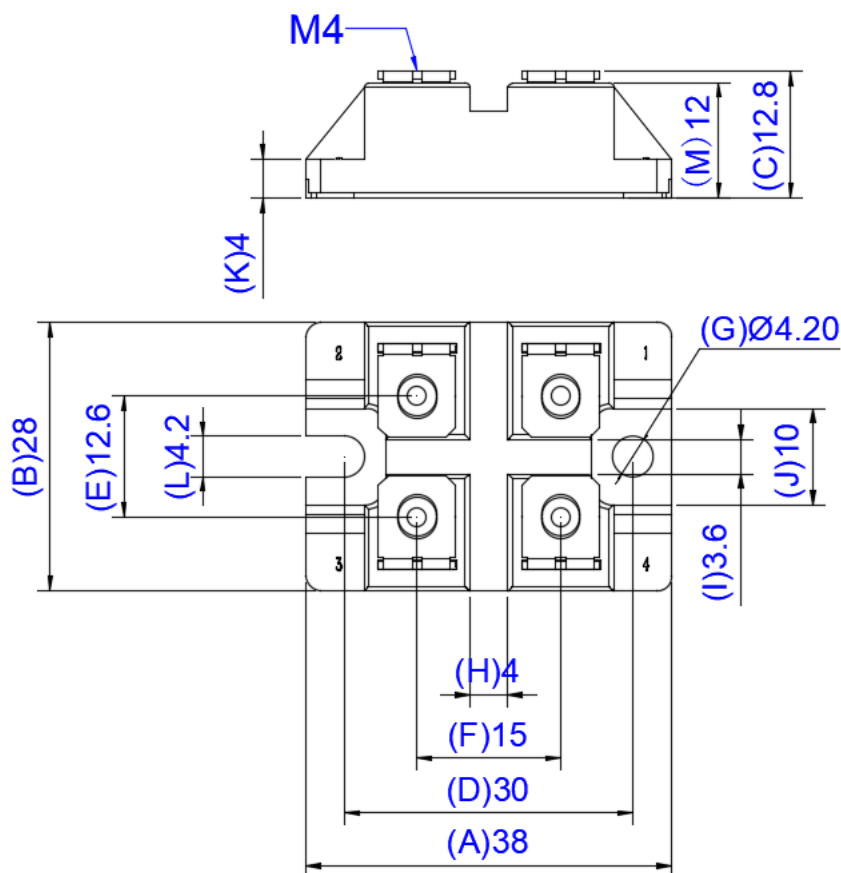


Fig7. Max Non-Repetitive Forward Surge Current

Package Outline Information

CASE: FJ

Dimensions in mm



SMAF		
Dim	Min	Max
A	37.5	38.5
B	27.5	28.5
C	12.8	13.5
D	29.5	30.5
E	12.1	13.1
F	14.5	15.5
G	4	4.4
H	3.8	4.2
I	3.4	3.8
J	9.5	10.5
K	4	4.5
L	4	4.4
M	12	12.5