



FRED Modules

V_{RRM} 600V
I_{FAV} 2×60A

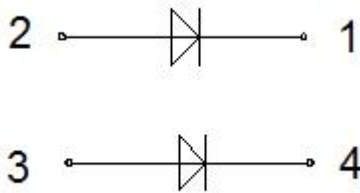
Applications

- 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 _{F(AV)}	T _C =90°C, Per diode	60	A
	T _C =90°C, Per Module	120	A
	T _C =90°C, 20KHz, Per Module	80	A
I _{F(RMS)}	T _C =90°C, Per diode	84	A
I _{FSM}	1/2 Cycle, 50Hz, Sine	550	A
	1/2 Cycle, 60Hz, Sine	600	A
I ² t	T _J =45°C, t=10ms, 50Hz, Sine	1512	A ² s
	T _J =45°C, t=8.3ms, 60Hz, Sine	1800	A ² s
P _D	T _C =25°C	208	W
T _J		-40 to +150	°C
T _{STG}		-40 to +125	°C
Visol	3600V AC 1s	1	mA
Torque	To Sink Recommended (M4)	0.7~1.5	N·m
Torque	To Terminal Recommended (M4)	0.7~1.1	N·m
Weight		27	g

Thermal Characteristics

Symbol	Conditions	Values	Units
R _{th(j-c)}	Per diode	0.6	°C/W

Electrical Characteristics

Symbol	Conditions	Values			Units
		Min.	Typ.	Max.	
I_{RM}	$V_R=600V$	--	--	0.1	mA
	$V_R=600V, T_J=125^{\circ}C$	--	--	1	mA
V_F	$I_F=60A$	--	1.25	1.4	V
	$I_F=60A, T_J=125^{\circ}C$	--	1.05	1.25	V
t_{rr}	$I_F=1A, V_R=30V, di_F/dt=-200A/\mu s$	--	50	60	ns
t_{rr}	$V_R=300V, I_F=60A, di_F/dt=-200A/\mu s, T_J=25^{\circ}C$	--	75	--	ns
I_{RRM}		--	7.2	--	A
t_{rr}	$V_R=300V, I_F=60A, di_F/dt=-200A/\mu s, T_J=125^{\circ}C$	--	135	--	ns
I_{RRM}		--	16	--	A

Performance Curves

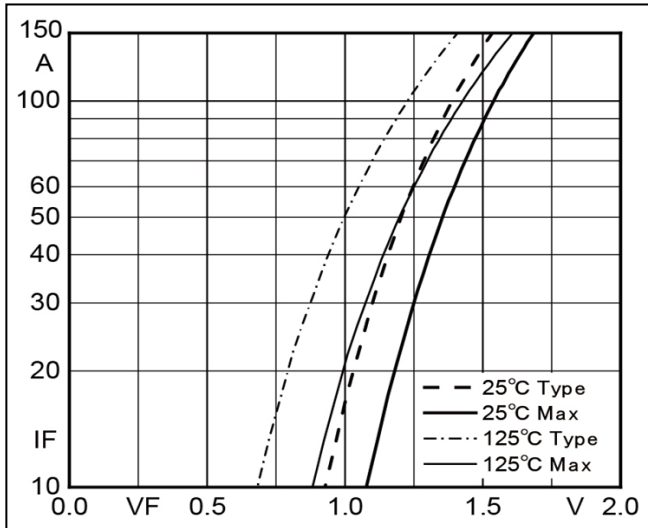


Fig1. Forward Voltage Drop vs Forward Current

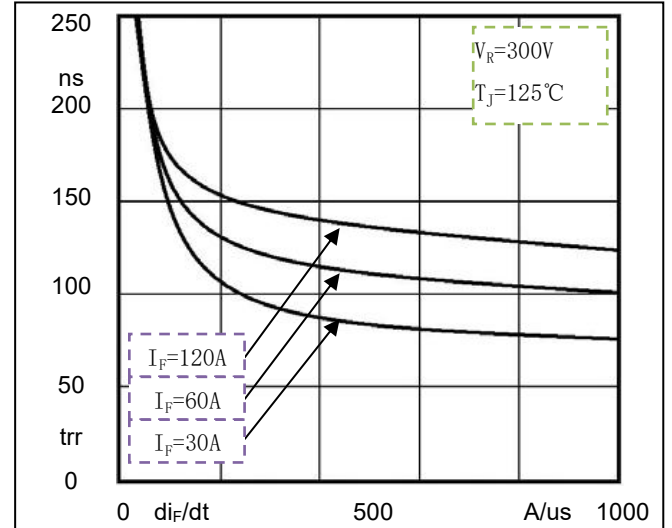


Fig2. Reverse Recovery Time vs di_F/dt

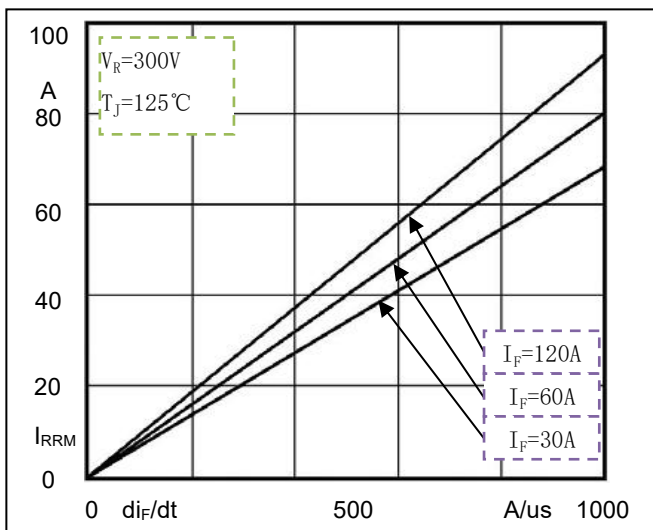


Fig3. Reverse Recovery Current vs di_F/dt

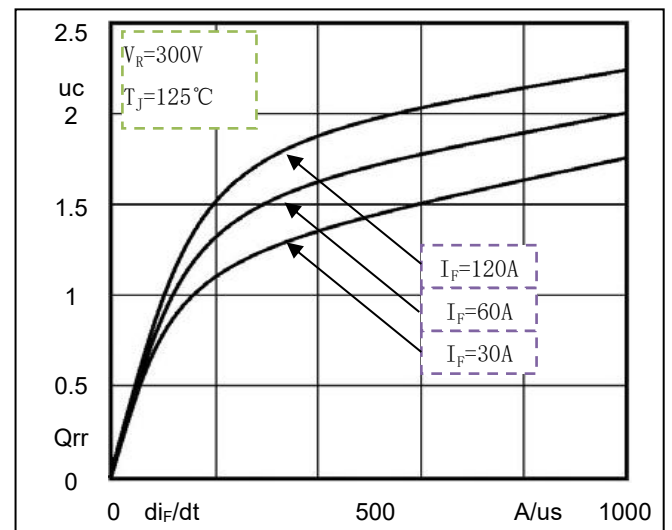


Fig4. Reverse Recovery Charge vs di_F/dt

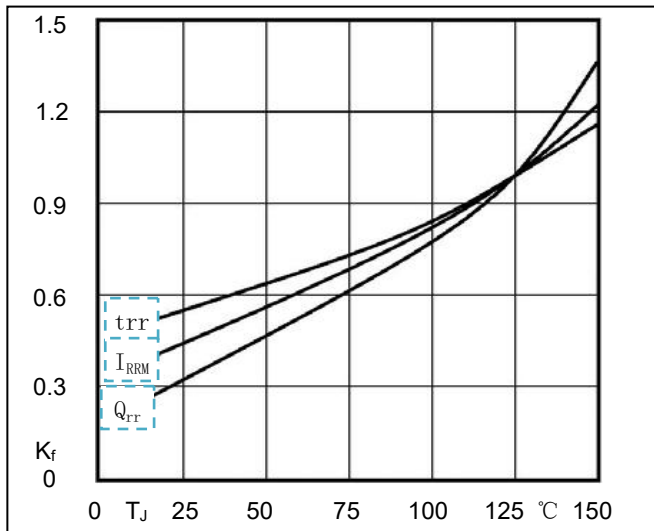


Fig5. Dynamic Parameters vs Junction Temperature

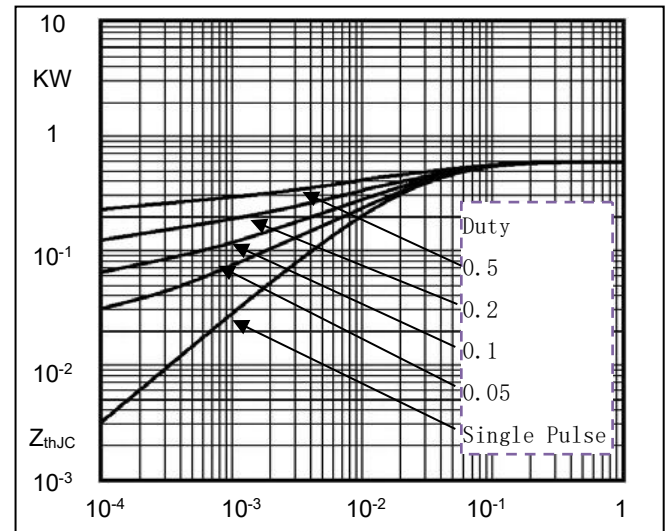
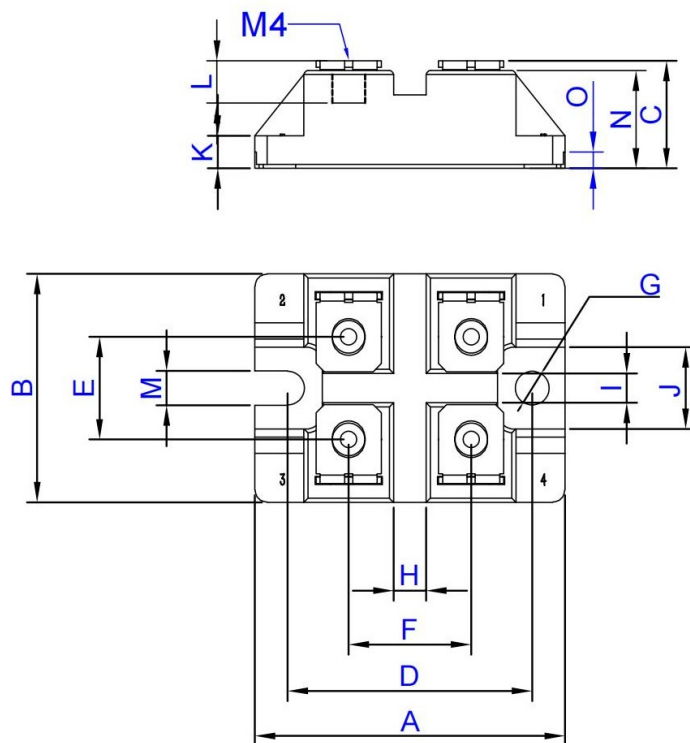


Fig6. Transient Thermal Impedance

Package Outline Information

CASE: FJ



DIM	Min (mm)	Max (mm)	Note
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	4.0	4.4	Ø
H	3.7	4.3	
I	3.3	3.9	
J	9.5	10.5	
K	3.7	4.3	
L	5.0	5.5	
M	4.0	4.4	
N	11.7	12.3	
O	1.8	2.2	



Packing Standard

Item	Length: A (mm)	Width: B (mm)	Height: C (mm)	Quantity (PCS)
Inner EPE	252	246	25	25
Inner Box	290	252	40	25
Outer Carton	300	270	280	150

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