

Fast Recovery Diode Module

Symbol	Value	Unit
V_R	1200	V
I_{FAV}	600	A



Features

- Ultra-Fast Reverse Recovery Time
- Soft Reverse Recovery Characteristics
- Low Reverse Recovery Loss
- High System Power Density

Applications

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

Maximum Ratings

Symbol	Item	Conditions	Values	Unit
V_R	Maximum D.C. Reverse Voltage	-	1200	V
V_{RRM}	Maximum Repetitive Reverse Voltage	-		
I_{FAV}	Average Forward Current	Rectangular, $d=0.5$, $T_c=78^\circ\text{C}$, Per Leg	300	A
		Rectangular, $d=0.5$, $T_c=78^\circ\text{C}$, Per Module	600	
I_{FRMS}	RMS Forward Current	$T_c=78^\circ\text{C}$, Per Leg	420	A
I_{FSM}	Non-Repetitive Peak Surge Current	$t=50\text{Hz}(10\text{ms})$, $V_R=0\text{V}$, Per Leg, $T_j=25^\circ\text{C}$	2700	A
I^2t	Circuit Fusing Consideration	$t=10\text{ms}$, $T_j=25^\circ\text{C}$	36450	A^2s
V_{ISO}	Isolation Breakdown Voltage	AC 50Hz/60Hz, R.M.S, 1min	3000	V
P_{tot}	Total Power Dissipation	$T_j=25^\circ\text{C}$	962	W
T_j	Operating Junction Temperature	-	-40 to +150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-	-40 to +125	$^\circ\text{C}$
M_t	Mounting Torque	To Terminals(M6)	5±15%	N·m
M_s		To Heatsink(M6)	5±15%	
Weight	Module (Approximately)	-	185	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
$R_{th(j-c)}$	Thermal Impedance, Max	Junction to Case(Per Leg)	0.13	$^\circ\text{C}/\text{W}$

Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_{FM}	Forward Voltage Drop Per Leg, Max	$T_j=25^\circ\text{C}$, $I_F=300\text{A}$	-	-	2.2	V
I_{RRM}	Repetitive Peak Reverse Current Per Leg, Max	$T_j=25^\circ\text{C}$, $V_R=V_{RRM}$	-	-	0.2	mA
		$T_j=150^\circ\text{C}$, $V_R=V_{RRM}$	-	-	10	
t_{rr}	Typical Reverse Recovery Time Per Leg	$I_F=0.5\text{A}$, $I_R=-1\text{A}$, $I_{RR}=-0.25\text{A}$	-	200	-	ns
t_{rr}	Reverse Recovery Time	$I_F=300\text{A}$, $V_R=600\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=25^\circ\text{C}$	-	240	-	ns
I_{RM}	Maximum Reverse Recovery Current	$I_F=300\text{A}$, $V_R=600\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=25^\circ\text{C}$	-	22	-	A
t_{rr}	Reverse Recovery Time	$I_F=300\text{A}$, $V_R=600\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=125^\circ\text{C}$	-	410	-	ns
I_{RM}	Maximum Reverse Recovery Current	$I_F=300\text{A}$, $V_R=600\text{V}$, $di_F/dt=-200\text{A}/\mu\text{s}$, $T_j=125^\circ\text{C}$	-	30	-	A
V_{T0}	Threshold Voltage, for power loss calculation only	$T_j=125^\circ\text{C}$	0.7			V
r_T	Slope Resistance, for power loss calculation only	$T_j=125^\circ\text{C}$	1.08			m Ω

Characteristics Diagram

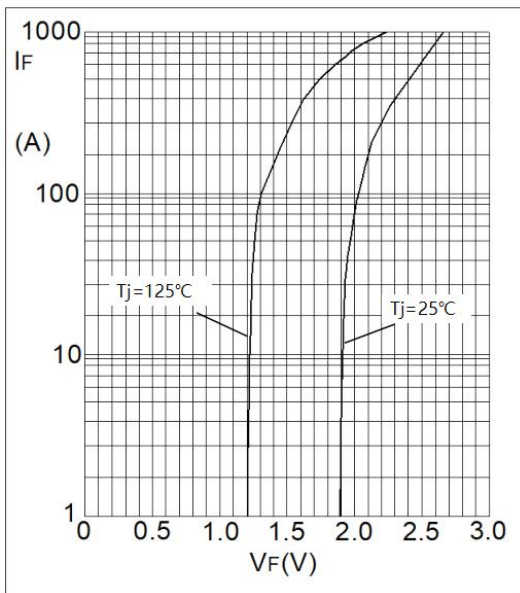


Fig1. Forward Characteristics

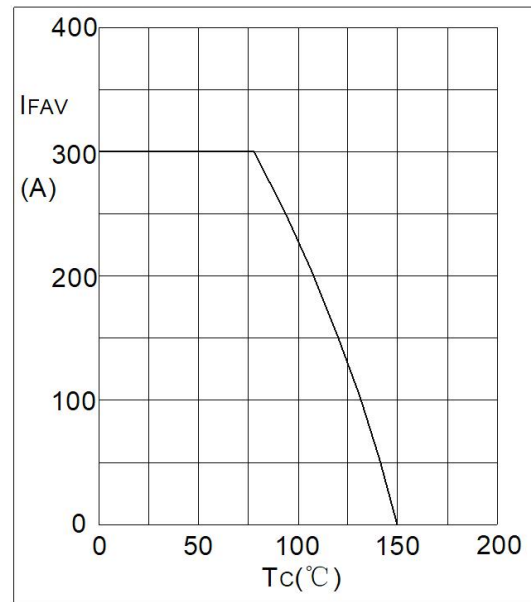


Fig2. Forward Current Derating Curve

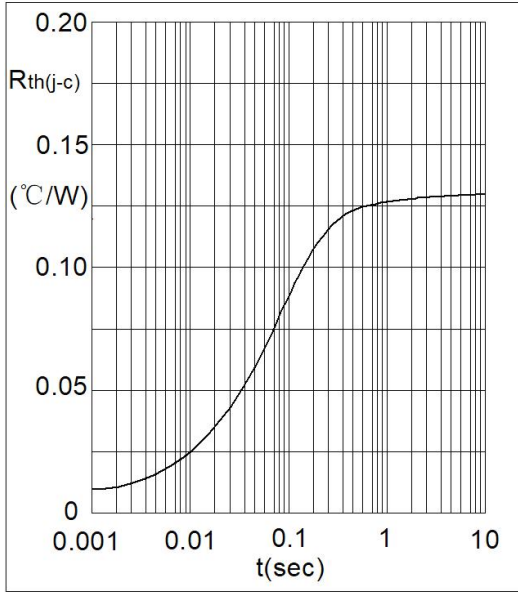


Fig3. Transient Thermal Impedance

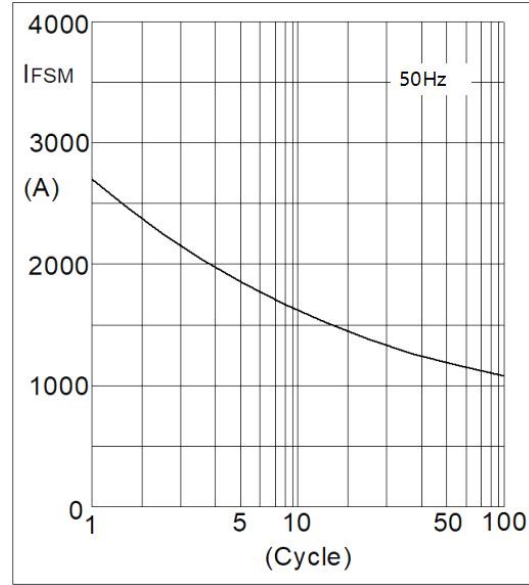


Fig4. Max Non-Repetitive Forward Surge Current

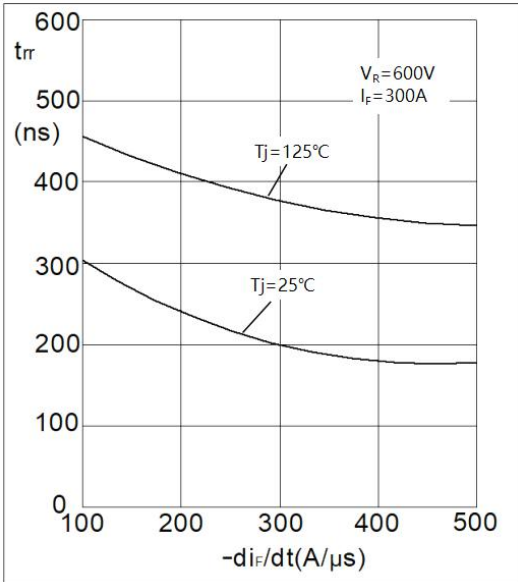


Fig5. Reverse Recovery Time VS di_F/dt

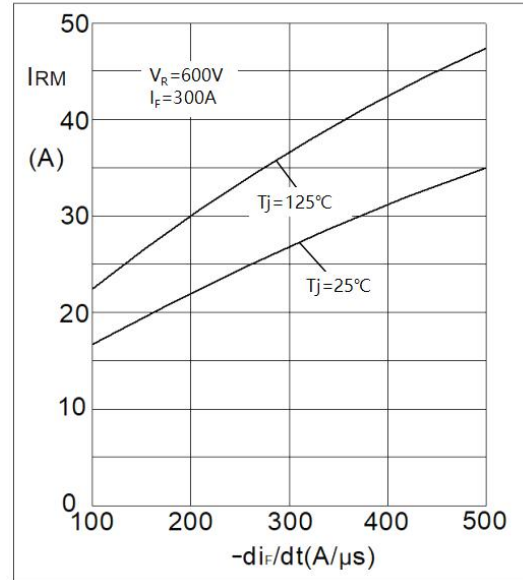


Fig6. Reverse Recovery Current VS di_F/dt

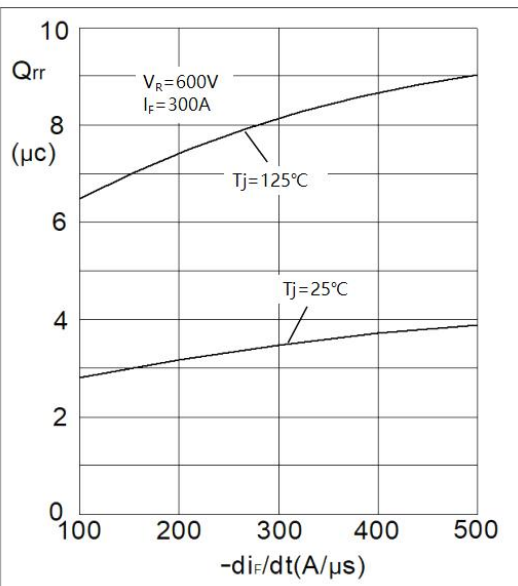
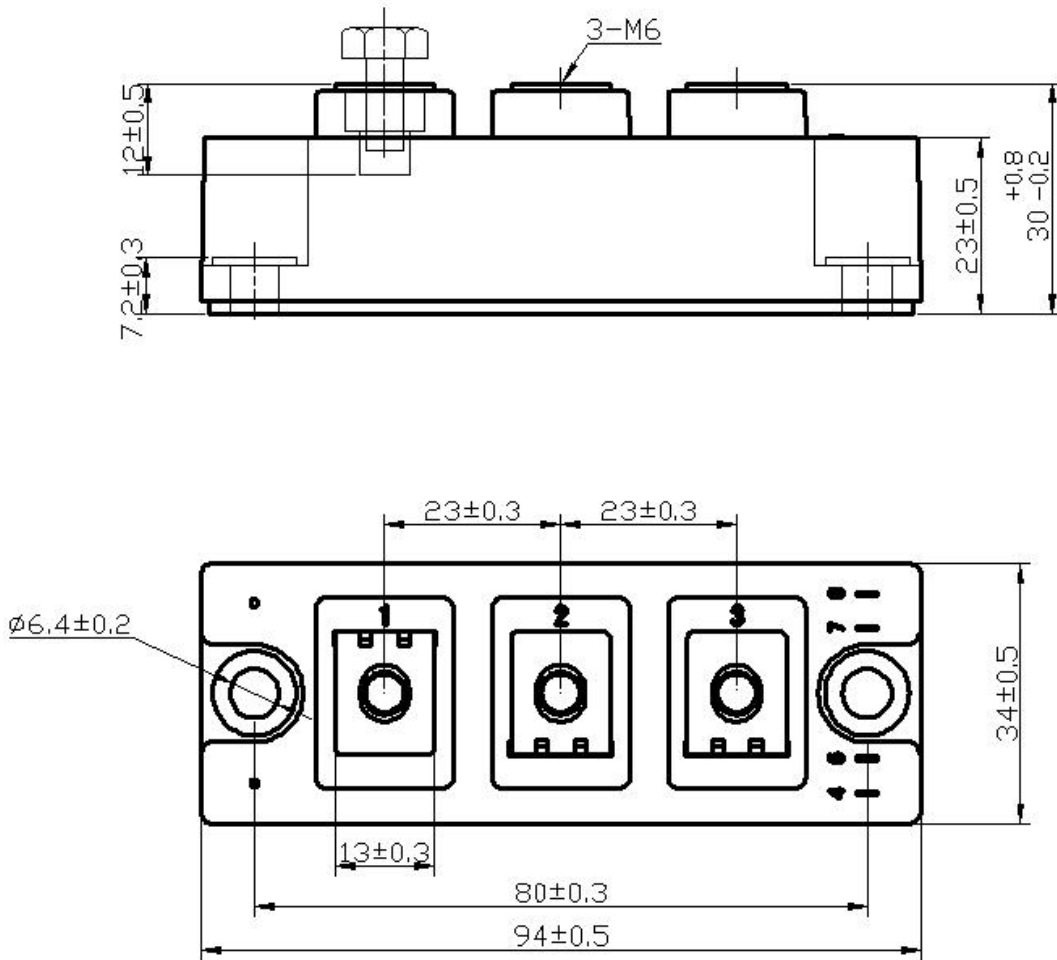


Fig7. Reverse Recovery Charge VS di_F/dt

Package Outlines M69GB (Dimensions in mm)



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