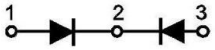
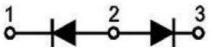
Fast Recovery Diode Module

Symbol	Value	Unit
V_R	600	V
I_{FAV}	600	Amp

MZK 

MZA 

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		600	V
V_{RRM}	Maximum Repetitive Reverse Voltage			
I_{FAV}	Average Forward Current	Rectangular,d=0.5, Tc=90℃,Per Leg	300	A
		Rectangular, d=0.5, Tc=90℃, Per Module	600	
I_{FRMS}	RMS Forward Current	Tc=90℃, Per Leg	420	A
I_{FSM}	Non-Repetitive Peak Surge Current	Tj = 25℃, t = 50Hz(10ms), VR = 0V, Per Leg	3000	A
I^2t	Circuit Fusing Consideration	t = 10ms T_j =25℃	45000	A^2s
V_{ISO}	Isolation Breakdown Voltage	AC 50Hz/60Hz; R.M.S; 1min	3000	V
P_{tot}	Total Power Dissipation	T_j =25℃	893	W
T_j	Operating Junction Temperature		-40 to +150	℃
T_{stg}	Storage Temperature		-40 to +125	℃
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
Rth(j-c)	Thermal Impedance, Max	Junction to Case(Per Leg)	0.14	℃/W

Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_{FM}	Forward Voltage Drop Per Leg, Max	Tj=25℃ , IF=300A	–	–	1.6	V
I_{RRM}	Repetitive Peak Reverse Current Per Leg, Max	Tj = 25℃ VR = VRRM	–	–	0.2	mA
		Tj = 150℃ VR = VRRM	–	–	10	
t_{rr}	Typical Reverse Recovery Time Per Leg	I_F = 0.5A, I_R = -1A, I_{RR} = -0.25A	–	150	–	ns
t_{rr}	Reverse Recovery Time	I_F=300A, V_R=300V, di_F/dt=-200A/μs, T_j = 25℃	–	160	–	ns
I_{RM}	Maximum Reverse Recovery Current	I_F=300A, V_R=300V, di_F/dt=-200A/μs, T_j = 125℃	–	17	–	A
t_{rr}	Reverse Recovery Time	T_j = 125℃	–	280	–	ns
I_{RM}	Maximum Reverse Recovery Current	T_j = 125℃	–	28	–	A
V_{T0}	Threshold Voltage, for power loss calculation only	I_F = 0.5A, I_R = -1A, I_{RR} = -0.25A	0.7			V
r_T	Slope Resistance, for power loss calculation only	I_F=300A, V_R=300V, di_F/dt =-200A/μs, T_j = 25℃	1.2			mΩ

Characteristics Diagram

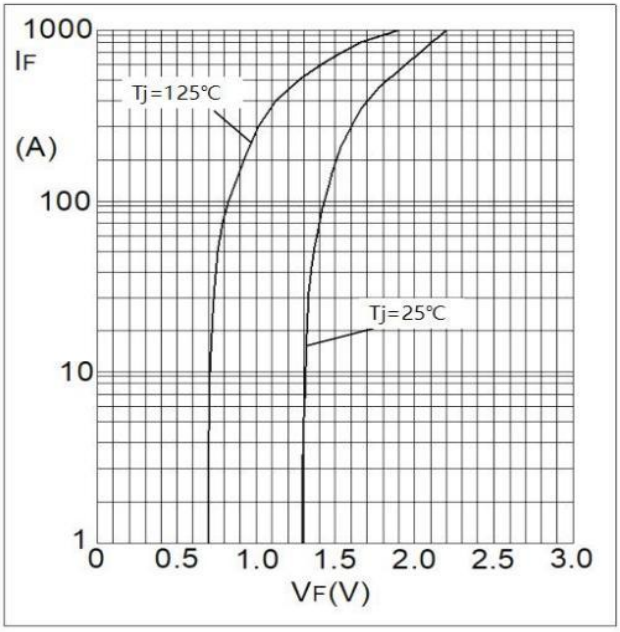


Fig1. Forward Characteristics

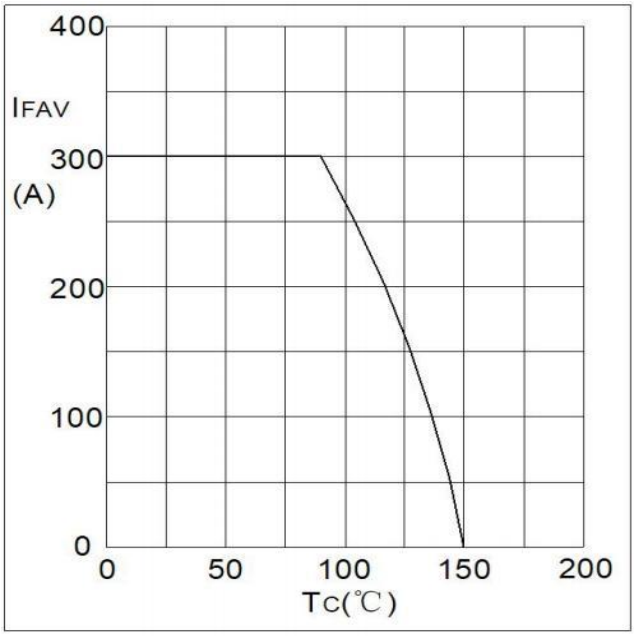


Fig2. Forward Current Derating Curve

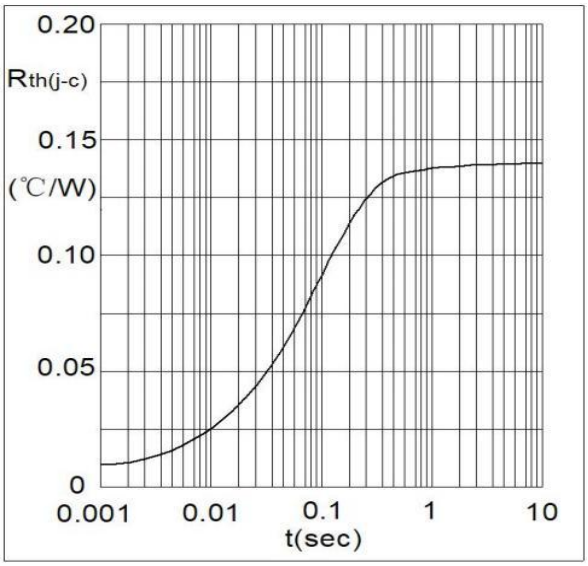


Fig3. Transient Thermal Impedance

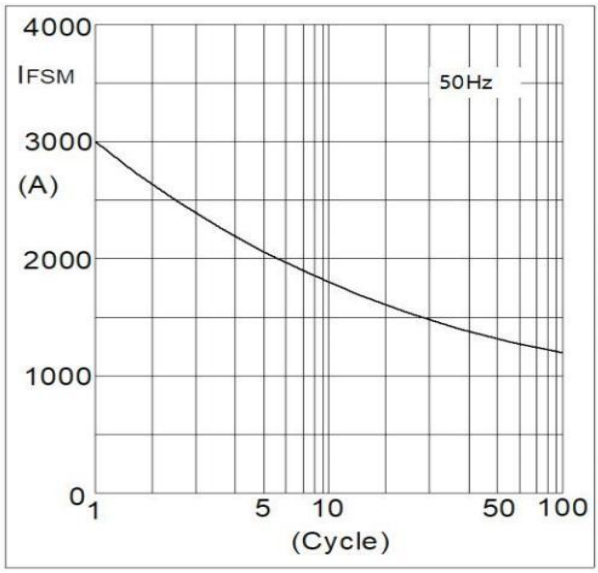


Fig4. Max Non-Repetitive Forward Surge Current

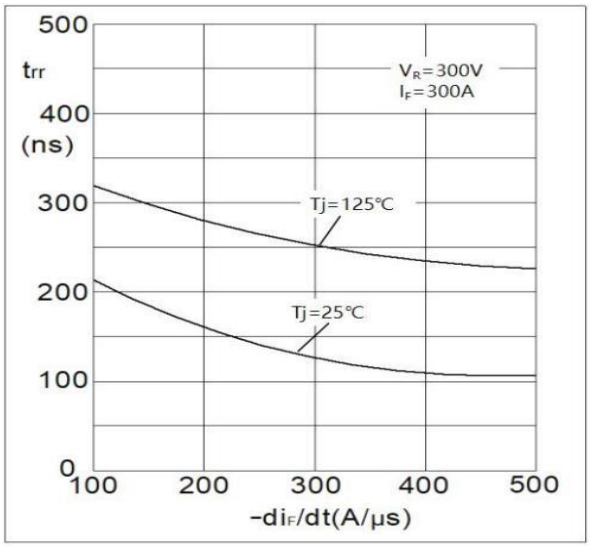


Fig5. Reverse Recovery Time VS diF/dt

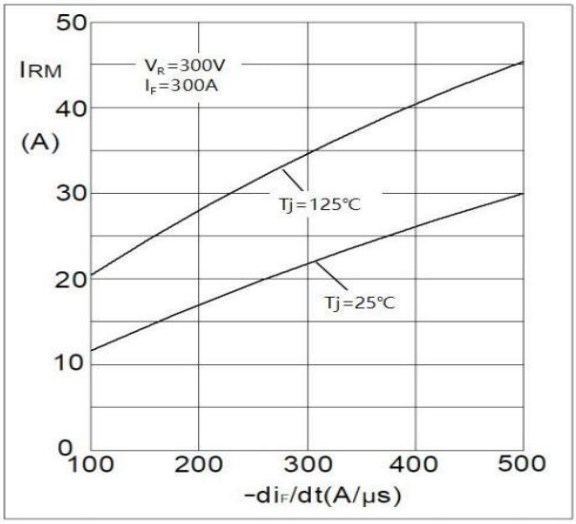


Fig6. Reverse Recovery Current VS diF/dt

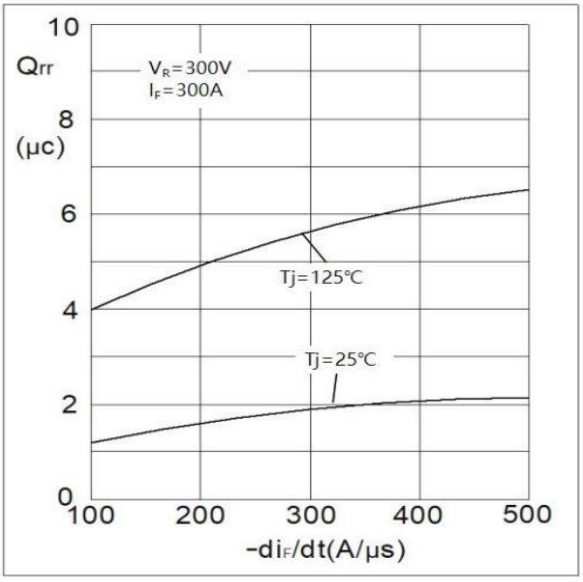
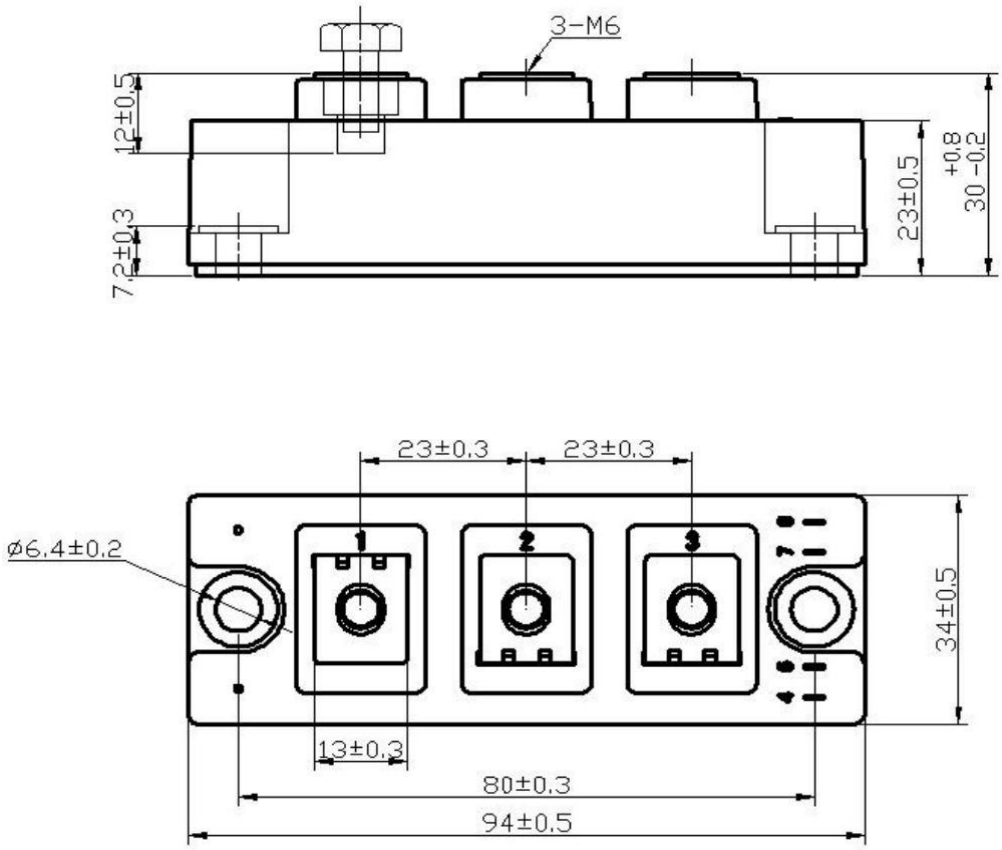


Fig7. Reverse Recovery Charge VS diF/dt

Package Outlines(Dimensions in mm)



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