MMK150X300DA

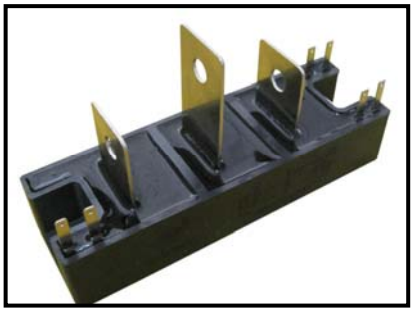
300V 150A Thyristor Module

RoHS Compliant

MACMIC **August 2014** **PRELIMINARY**

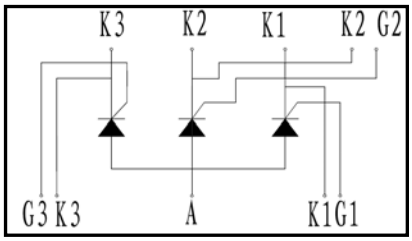
FEATURES

- ☐ High surge current
- ☐ Easy construction
- ☐ Non-isolated (Mounting base as common Anode terminal)
- ☐ High $I_{T(AV)}$



APPLICATIONS

- ☐ DC Motor Control and Drives
- ☐ Welders
- ☐ Power Converters
- ☐ Heat and Temperature Control



ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
V_{RRM}	Repetitive Peak Off-State Voltage		300	V
V_{DRM}	Repetitive Peak Reverse Voltage		300	V
$I_{T(AV)}$	Average On-State Current	Single phase,half wave, 180° conduction ,T_C=100°C	150	A
$I_{T(RMS)}$	R.M.S On-State Current		225	A
I_{TSM}	Surge On-State Current	1/2cycle,50Hz,peak value,non-repetitive	3300	A
I^2t		T_j =25°C, t=10ms (50Hz), sine, V_R=0	54000	A^2S
P_{GM}	Peak Gate Power Dissipation		12	W
$P_{G(AV)}$	Average Gate Power Dissipation		1.5	W
I_{FGM}	Peak Gate Current		3.5	A
V_{FGM}	Peak Gate Voltage (Forward)		12	V
V_{RGM}	Peak Gate Voltage (Reverse)		6	V
di/dt	Cirtical Rate of On-State Current	I_G=200mA, T_j =25°C, V_D =1/2V_{DRM}, dI_G=1A/μS	100	A/μS
T_j	Operating Junction Temperature		-40～150	℃
T_{STG}	Storage Temperature		-40～125	℃
Md	Mounting torque(M6)		3 to 5	N·m
	Terminal torque(M8)		7 to 10	N·m
Weight			205	g

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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{DRM}	Max.Repetitive Peak Off-State Current	V_D= V_R =300V, T_C=125°C				25	mA
I_{RRM}	Max.Repetitive Peak Reverse Current	Single phase,half wave				25	mA
V_{TM}	Max. Peak On-State Voltage	I_{TM}=450A,	T_C=25°C		1.15	1.5	V
		td=10ms,half sine	T_C=125°C		1.10	1.4	V
V_{GT}	Max. Gate Trigger Voltage	I_T=1A, V_D=6V	T_C=25°C		1.1	1.5	V
			T_C=125°C		0.9	1.3	V
I_{GT}	Max. Gate Trigger Current	I_T=1A, V_D=6V	T_C=25°C		75	120	mA
			T_C=125°C		50	80	mA
I_H	Holding Current	T_C=25℃			70		mA
V_{GD}	Min. Gate Non-Trigger Voltage	T_C =125°C, V_D =1/2V_{DRM}		0.35			V
dv/dt	Min. Critical Rate of Rise Off-State Voltage	T_C=125°C,V_D=2/3V_{DRM} Exponential wave		500			V/μS
R_{thjc}	Thermal resistance,Junction to case	Per Thyristor				0.2	℃/W

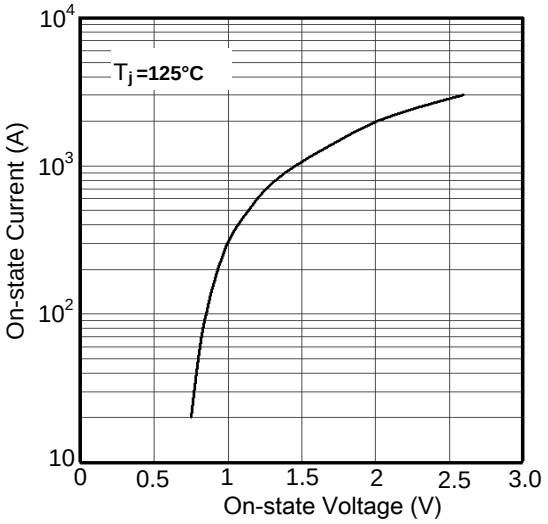


Figure1. On State Voltage Drop Characteristics

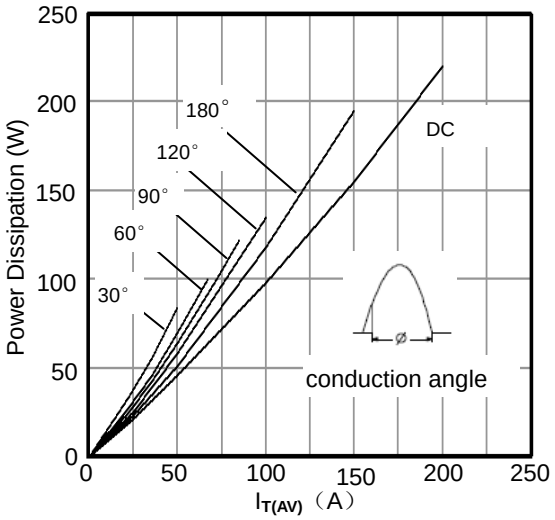


Figure2. Average On-State Current vs Power Dissipation

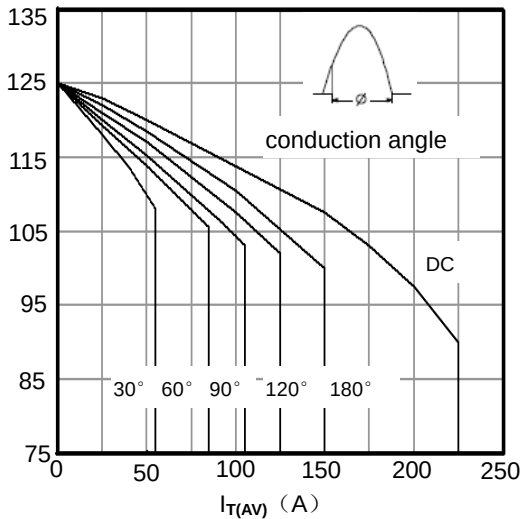


Figure3. Average On-State Current vs Maxinum Allowable Case Temperture

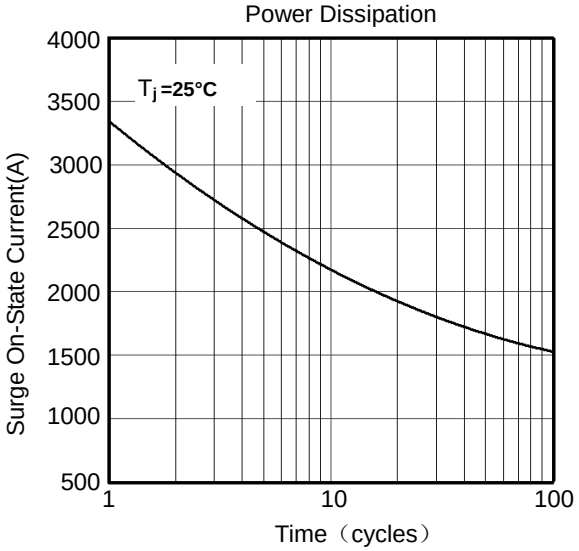


Figure4.Surge On-State Current Rating (Non-Repetitive)

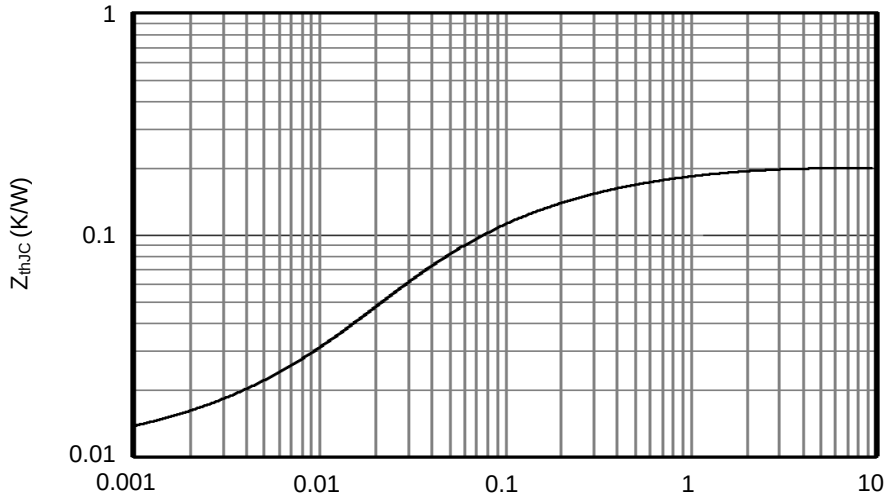
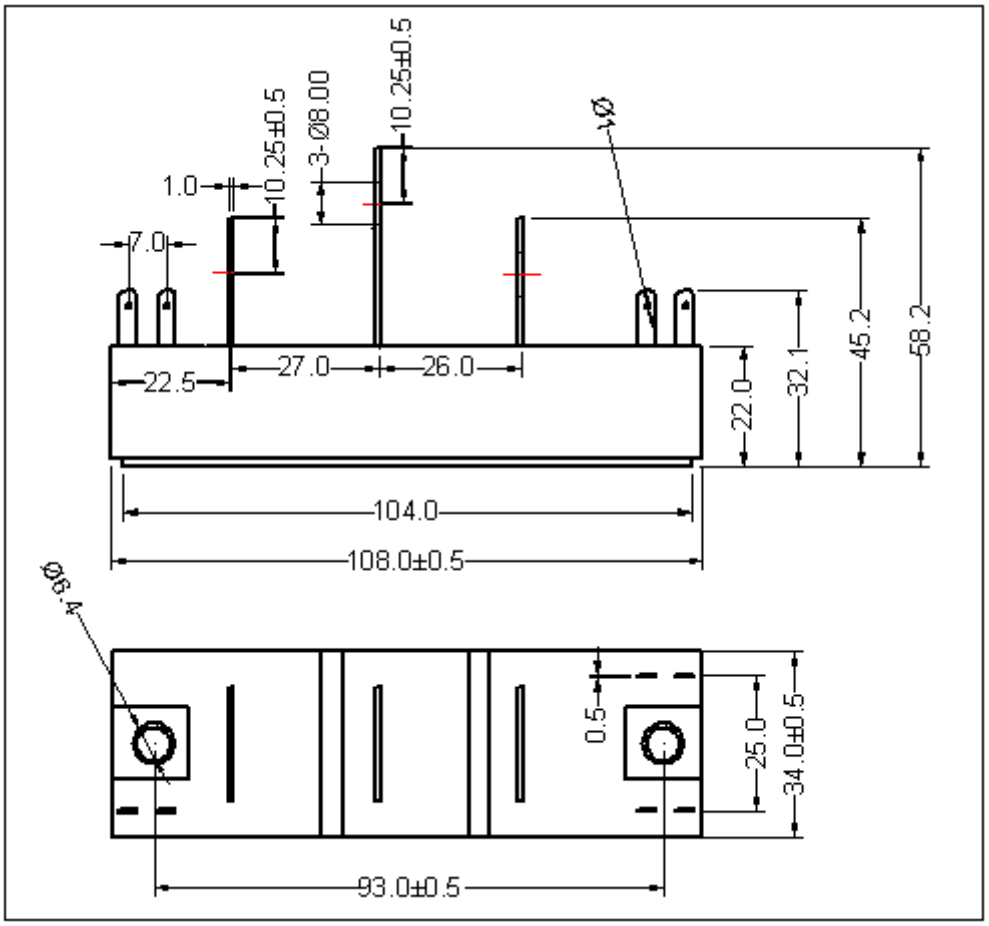


Figure5. Transient Thermal Impedance



Dimensions (mm)

Figure6. Package Outline