



# MHC/MHA/MHK/MHX300A FAST THYRISTOR/DIODE MODULE

## Features

Isolated mounting base 2500V  
Compact structure and light weight savings  
Full crimping structure, super temperature characteristics and power cycle capability

$I_{T(AV)}$	300A
$V_{DRM}/V_{RRM}$	600~1600 V
$I_{TSM}$	7.8KA
$I^2T$	310 KA <sup>2</sup> S

## Application

AC/DC Motor Control  
Various rectifying power suppliers  
Industry Heating Regulation  
Light Dimming  
Contactless Switches  
Motor Soft Start  
Welding Device

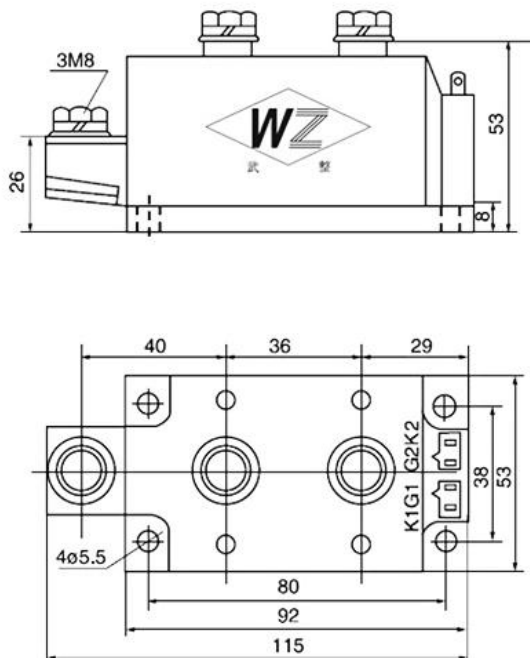
Symb.		parameter	Test Conditions	$T_{J(c)}$	Value	Unit
Current Ratings	$I_{T(AV)}$	average on-state current	180 °half sine wave 50Hz Single side cooled $T_c=85\text{ }^\circ\text{C}$	115	300	A
	$I_{T(RMS)}$	RMS on-state current		115	471	A
	$I_{TSM}$	Surge on-state current	10ms half sine wave $V_R=0.6V_{RRM}$	115	7.8	KA
	$I^2t$	I <sup>2</sup> T for fusing coordination		115	310	KA <sup>2</sup> S
Characteristics	$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage Repetitive peak reverse voltage	$V_{DRM}\&V_{RRM}$ $t_p=10\text{ms}$ $V_{DSM}\&V_{RSM}=V_{DRM}\&V_{RRM}+100\text{V}$	115	600-1600	V
	$I_{DRM}$ $I_{RRM}$	Repetitive peak current	$V_{DM}=V_{DRM}$ $V_{RM}=V_{RRM}$	115	Max.80	mA
	$V_{TO}$	Threshold voltage		115	Max.0.90	V
	$V_{TM}$	Peak on-state voltage	$I_{TM}=900\text{A}$	25	Max.1.75	V
	$r_T$	On-state slop resistance		115	Max.0.74	mΩ
	$I_H$	Holding current	$V_A=12\text{V}, I_A=1\text{A}$	25	20-200	ma
Dynamic Parameters	dv/dt	Critical rate of rise of off-state voltage	$V_{DM}=67\%V_{DRM}$	115	Max.800	V/μs
	di/dt	Critical rate of rise of on-state current	$I_{TM}=900\text{A}$ , Gate pulse $t_r \leq 0.5\mu\text{s}$ $I_{GM}=1.5\text{A}$	115	Max.200	A/μs
	tq	Turn-off time	$I_{TM}=300\text{A}, t_p=1000\mu\text{s}, V_R=50\text{V}$ $dv/dt=30\text{V}/\mu\text{s}, di/dt=-20\text{A}/\mu\text{s}$		15-35	
Gate Parameters	$I_{GT}$	Gate trigger current	$V_A=12\text{V}, I_A=1\text{A}$	25	30-200	mA
	$V_{GT}$	Gate trigger voltage		25	1.0-3.0	V
	$V_{GD}$	Non-trigger gate voltage	$V_{DM}=67\%V_{DRM}$	115	Min.0.2	V

## Thermal & Mechanical Data

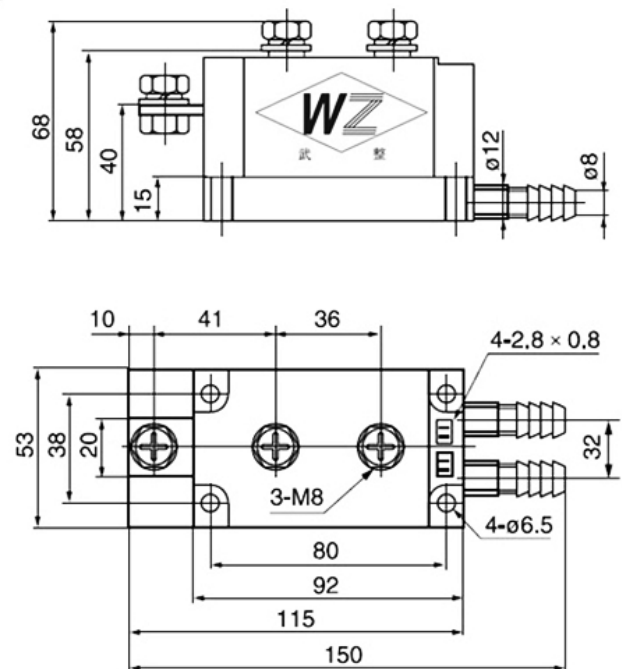
Symb.	parameter	Test Conditions	Value	Unit
$R_{th(j-c)}$	Thermal resistance Junction to case	single side cooled	Max.0.070	°C/W
$R_{th(c-h)}$	Thermal resistance case to heat sink	single side cooled	Min.0.024	°C/W
$V_{iso}$	isolated voltage		Min.2500	V
$F_m$	Thermal connection torque(M5)		Typ.12	N m
	Mounting force (M6)		Typ.6	N m
$T_{stg}$	Stored temperature		-40+125	°C
$W_t$	Weight		1350	g

### Outline:

M4



M8



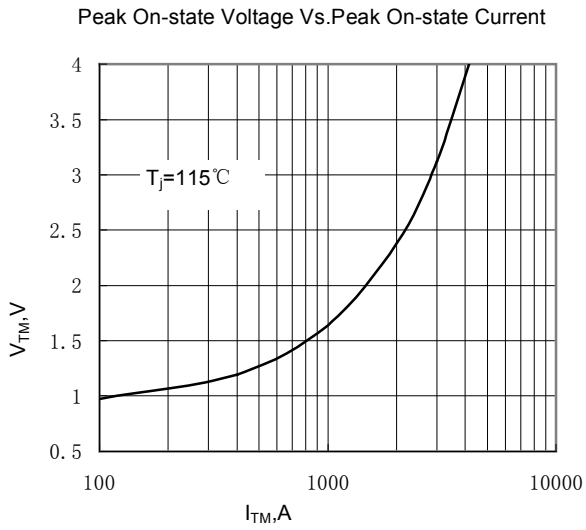


Fig.1

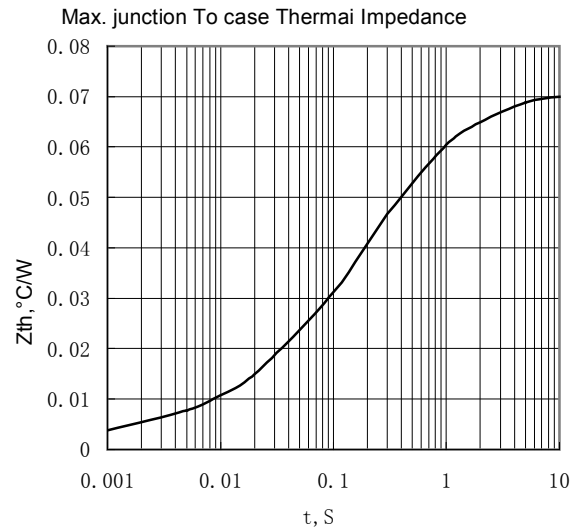


Fig.2

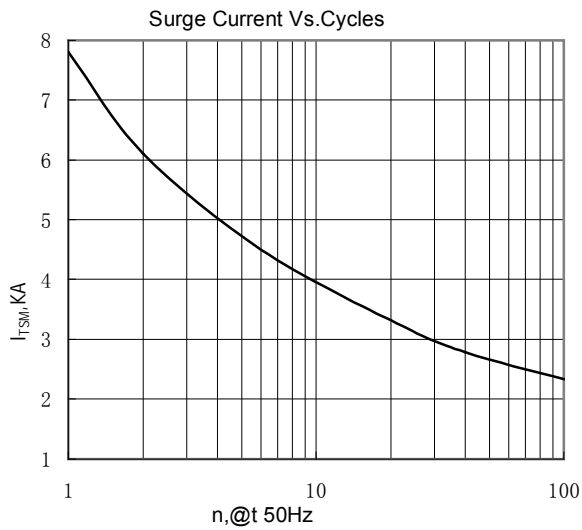


Fig.3

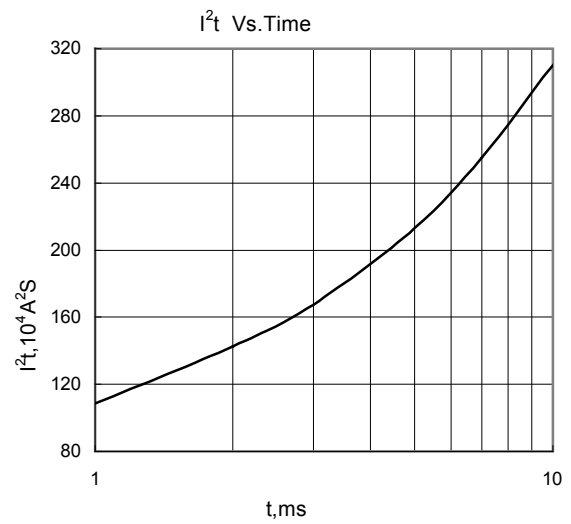


Fig.3 ft

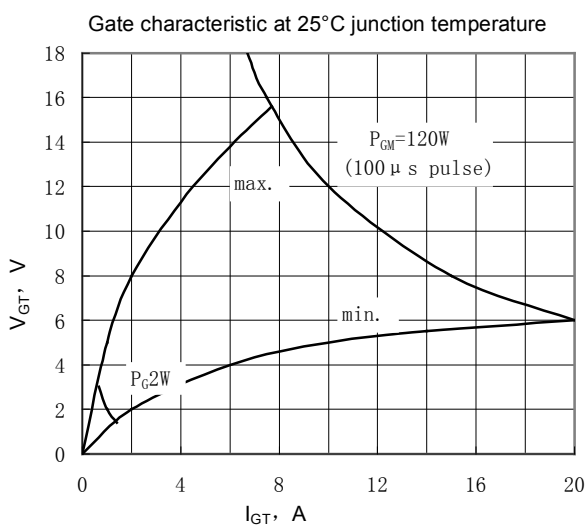


Fig.5

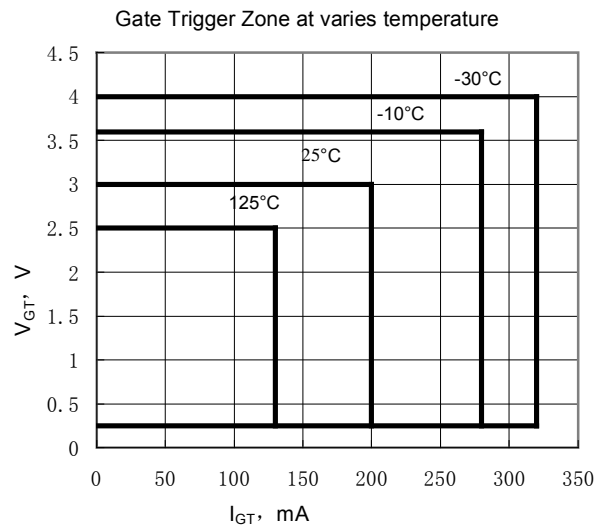


Fig.6

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