



# MHC/MHA/MHK/MHX90A 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

$I_{T(AV)}$	90A
$V_{DRM}/V_{RRM}$	600~1600 V
$I_{TSM}$	2.0KA
$I^2T$	20.4 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

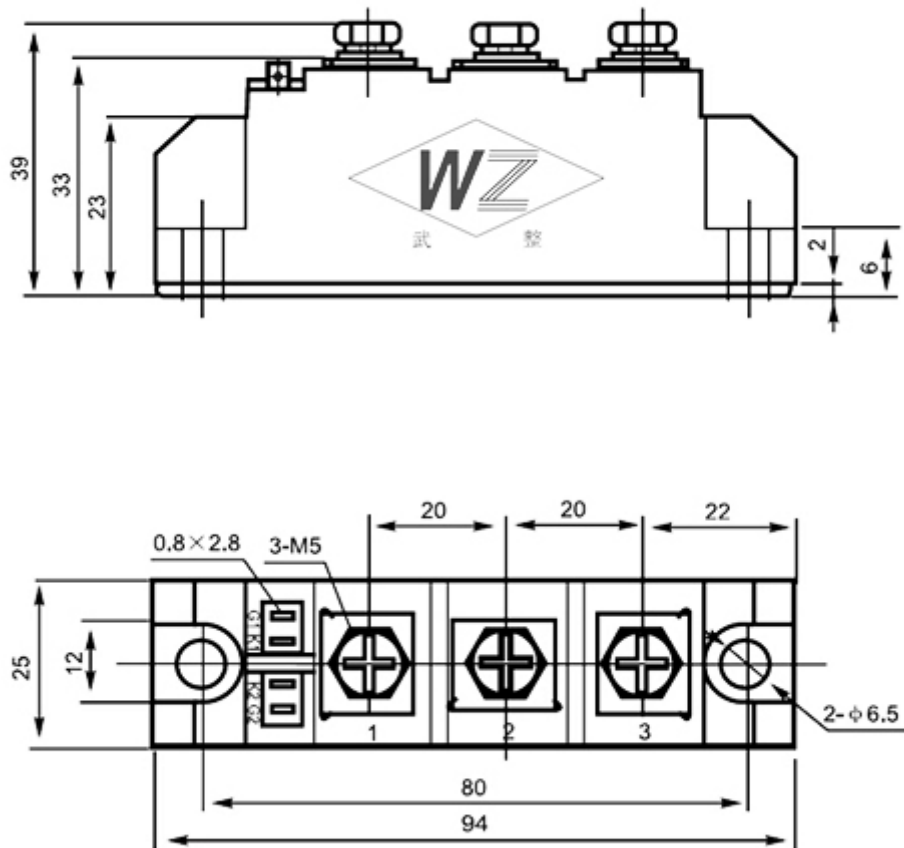
Symb.		parameter	Test Conditions	$T_{J(C)}$	Value	Unit
Current Ratings	$I_{T(AV)}$	average on-state current	180° half sine wave 50Hz Single side cooled $T_c=85^\circ C$	115	90	A
	$I_{T(RMS)}$	RMS on-state current		115	118	A
	$I_{TSM}$	Surge on-state current	10ms half sine wave $V_R=0.6V_{RRM}$	115	2.0	KA
	$I^2t$	I <sup>2</sup> T for fusing coordination		115	20.4	KA <sup>2</sup> S
Characteristics	$V_{DRM}$	Repetitive peak off-state voltage	$V_{DRM} \& V_{RRM}$ $t_p=10ms$	115	600-1600	V
	$V_{RRM}$	Repetitive peak reverse voltage	$V_{DSM} \& V_{RSM} = V_{DRM} \& V_{RRM} + 100V$			
	$I_{DRM}$ $I_{RRM}$	Repetitive peak current	$V_{DM} = V_{DRM}$ $V_{RM} = V_{RRM}$	115	Max.30	mA
	$V_{TO}$	Threshold voltage		115	Max.0.85	V
	$V_{TM}$	Peak on-state voltage	$I_{TM}=225A$	25	Max.2.20	V
	$r_T$	On-state slop resistance		115	Max.4.88	mΩ
Dynamic Parameters	$I_H$	Holding current	$V_A=12V, I_A=1A$	25	20-150	ma
	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	$I_{TM}=225A, \text{Gate pulse } t_r \leq 0.5\mu s$ $I_{GM}=1.5A$	115	Max.200	A/μs
	tq	Turn off time	$I_{TM}=75A, t_p=1000\mu s, V_R=50V$ $dv/dt=30V/\mu s, di/dt=-20A/\mu s$	115	15-35	μs
Gate Parameters	$I_{GT}$	Gate trigger current	$V_A=12V, I_A=1A$	25	30-150	mA
	$V_{GT}$	Gate trigger voltage		25	1.0-2.5	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.0.200	°C/W
$R_{th(c-h)}$	Thermal resistance case to heat sink	single side cooled	Min.0.08	°C/W
$V_{iso}$	isolated voltage		Min.2500	V
$F_m$	Thermal connection torque(M5)		Typ.6	N m
	Mounting force (M6)		Typ.6	N m
$T_{stg}$	Stored temperature		-40+125	°C
$W_t$	Weight		Typ.320	g

## Outline:

M2



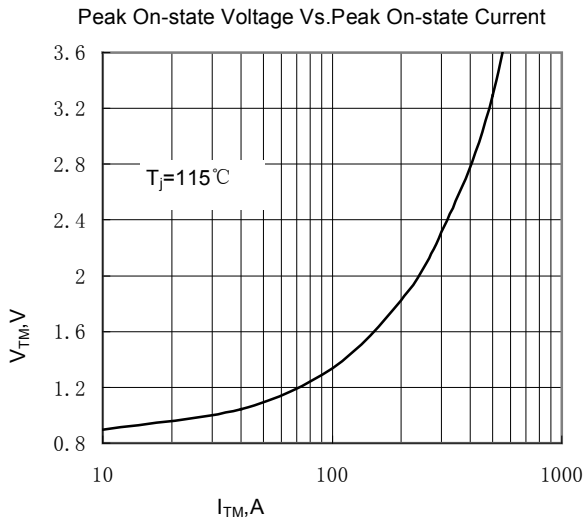


Fig.1

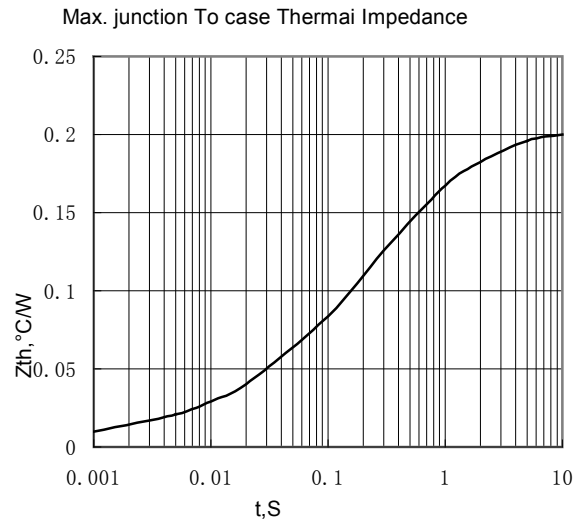


Fig.2

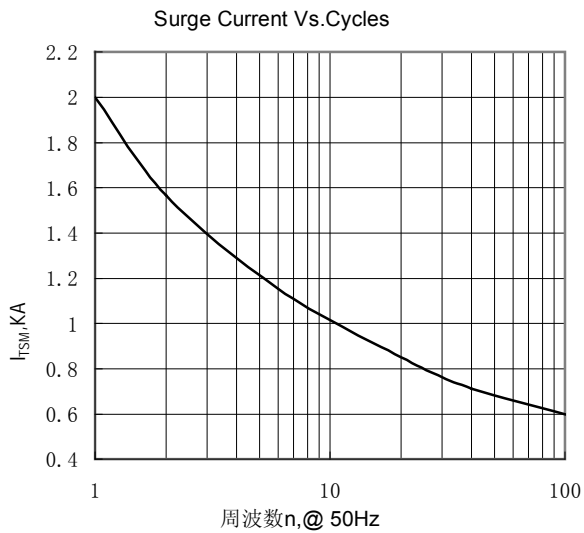


Fig.3

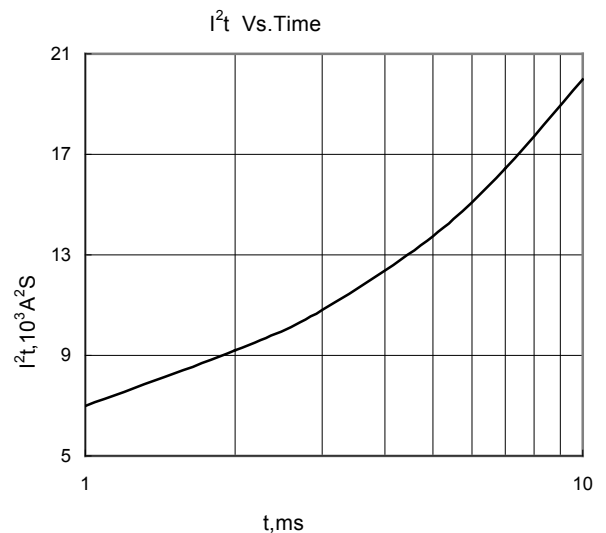


Fig.3  $I^2t$

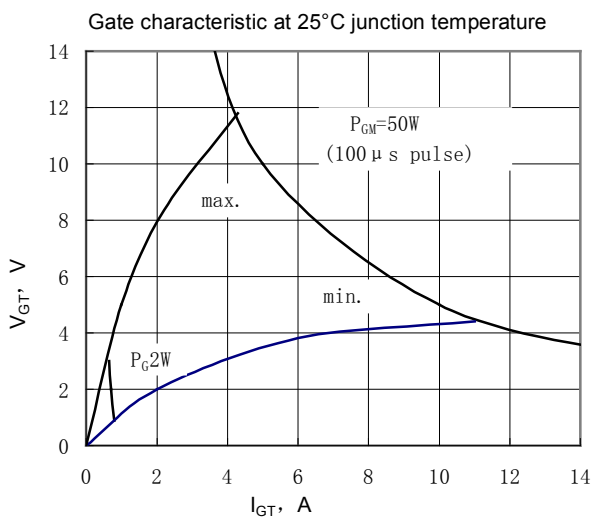


Fig.5

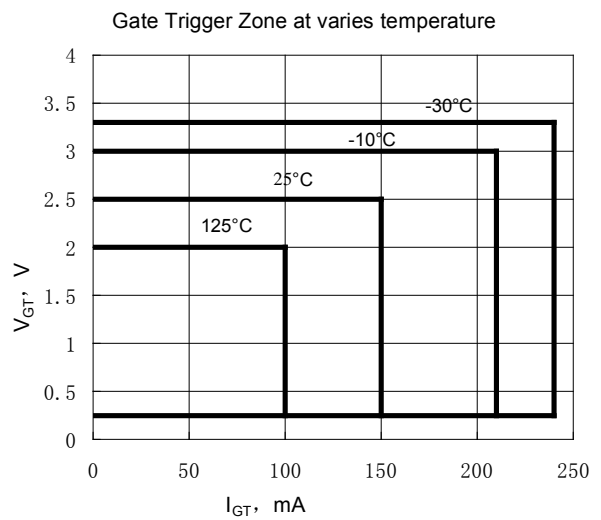


Fig.6

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