



# MTG/MTY160A

## Non-Insulated Type Thyristor Module

### Features

Non-insulated type, Baseboard servers as the public electrode  
 Full crimping structure, super temperature characteristics and power cycle capability  
 Lower forward voltage drop

|                   |                      |
|-------------------|----------------------|
| $I_{T(AV)}$       | 160 A                |
| $V_{DRM}/V_{RRM}$ | 400-2600 V           |
| $I_{TSM}$         | 5.6KA                |
| $I^2T$            | 160KA <sup>2</sup> S |

### Application

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

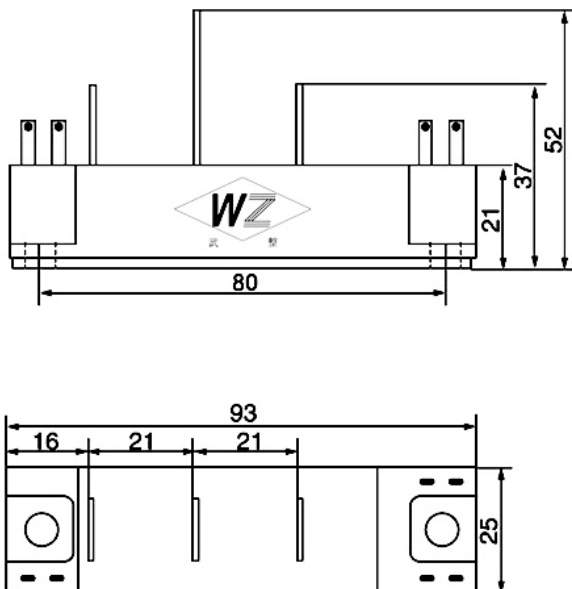
| Symb.              |                        | parameter  | Test Conditions   | $T_{J(°C)}$ | Value    | Unit              |
|--------------------|------------------------|--|---|-------------|----------|-------------------|
| Current Ratings    | $I_{T(AV)}$            | average on-state current   | 180° half sine wave 50Hz<br>Single side cooled $T_c=110^\circ C$  | 140         | 160      | A                 |
|                    | $I_{T(RMS)}$           | RMS on-state current   |   | 140         | 251      | A                 |
|                    | $I_{TSM}$              | Surge on-state current   | 10ms half sine wave $V_R=0.6V_{RRM}$  | 140         | 5.60     | KA                |
|                    | $I^2t$                 | I <sup>2</sup> T for fusing coordination                             |   | 140         | 160      | KA <sup>2</sup> S |
| Characteristics    | $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $V_{DRM} \& V_{RRM} t_p=10ms$<br>$V_{DSM} \& V_{RSM} = V_{DRM} \& V_{RRM} + 100V$                               | 140         | 400-2600 | V                 |
|                    | $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current  | $V_{DM} = V_{DRM}$<br>$V_{RM} = V_{RRM}$  | 140         | Max.12   | mA                |
|                    | $V_{TO}$               | Threshold voltage  |   | 140         | Max.0.80 | V                 |
|                    | $V_{TM}$               | Peak on-state voltage  | $I_{TM}=480A$   | 25          | Max.1.43 | V                 |
|                    | $r_T$                  | On-state slop resistance   |   | 140         | Max.1.15 | mΩ                |
|                    | $I_H$                  | Holding current  | $V_A=12V, I_A=1A$   | 25          | 20-200   | ma                |
| Dynamic Parameters | dv/dt                  | Critical rate of rise of off-state voltage                           | $V_{DM}=67\% V_{DRM}$   | 140         | Max.800  | V/μs              |
|                    | di/dt                  | Critical rate of rise of on-state current                            | $I_{TM}=330A$ , Gate trigger current amplitude $I_{GM}=1.5A$ , gate trigger current rise time $t_r \leq 1\mu s$ | 140         | Max.100  | A/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   | $V_{DM}=67\% V_{DRM}$   | 140         | Min.0.2  | V                 |

## Thermal & Mechanical Data

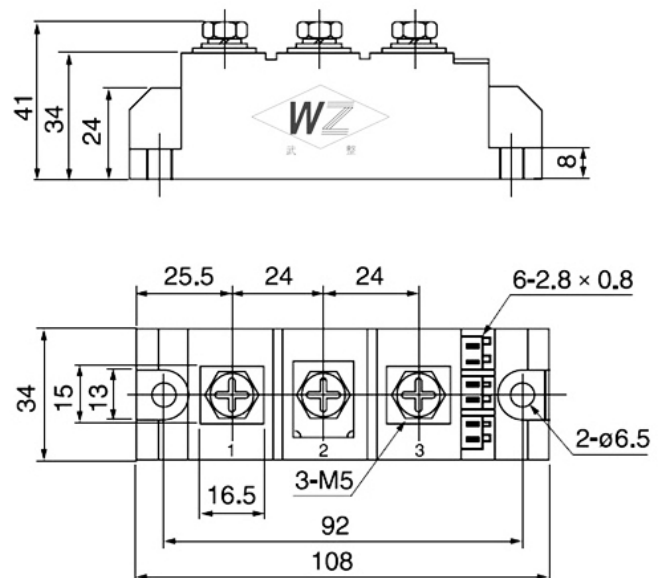
| Symb.         | parameter                            | Test Conditions    | Value     | Unit                        |
|---------------|--------------------------------------|--------------------|-----------|-----------------------------|
| $R_{th(j-c)}$ | Thermal resistance Junction to case  | single side cooled | Max.0.150 | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(c-h)}$ | Thermal resistance case to heat sink | single side cooled | Max.0.04  | $^{\circ}\text{C}/\text{W}$ |
| $F_m$         | Terminal connection torque(M5)       |                    | Min.12    | N m                         |
|               | Mounting force (M6)                  |                    | Max.6.0   | N m                         |
| $T_{stg}$     | Stored temperature                   |                    | -40+125   | $^{\circ}\text{C}$          |
| $W_t$         | Weight                               |                    | 680       | g                           |

### Outline:

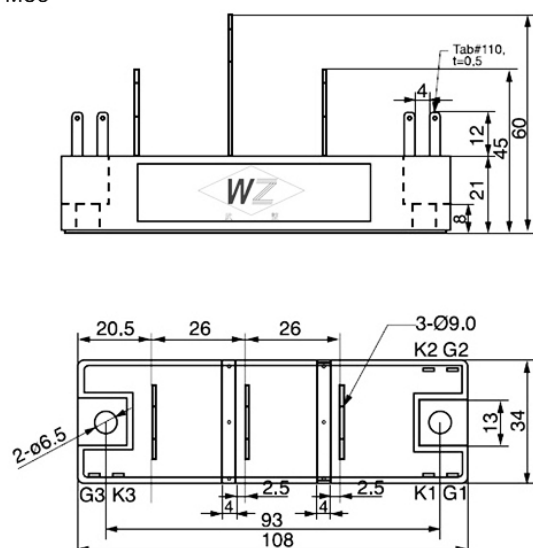
M36



M37



M38



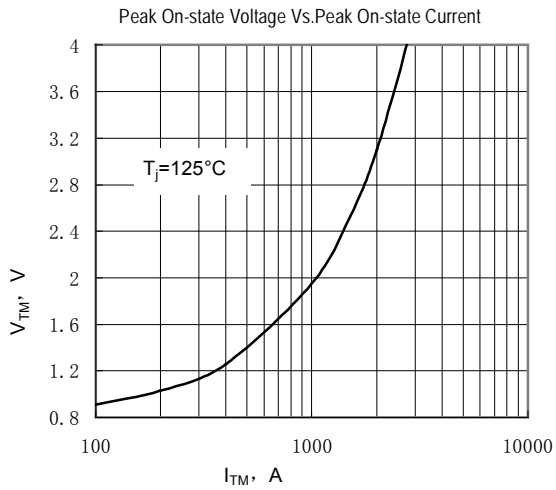


Fig.1

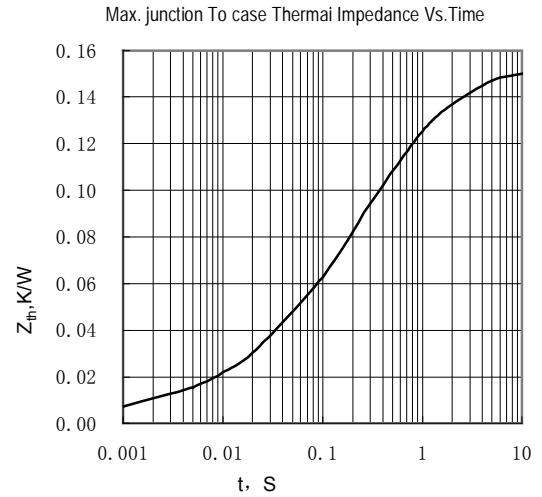


Fig.2

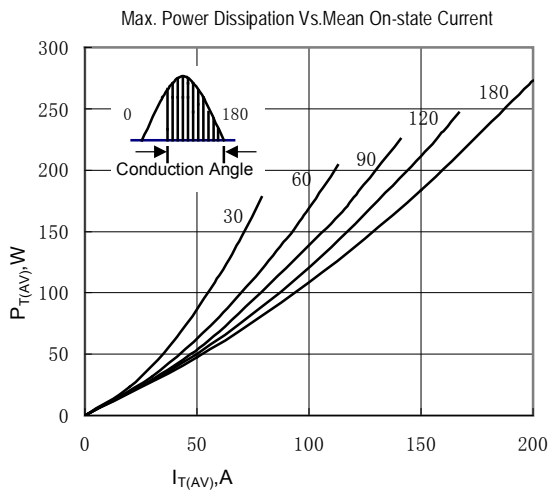


Fig.3

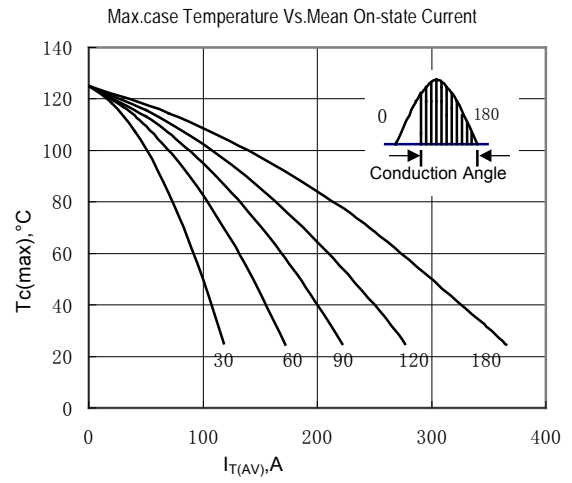


Fig.4

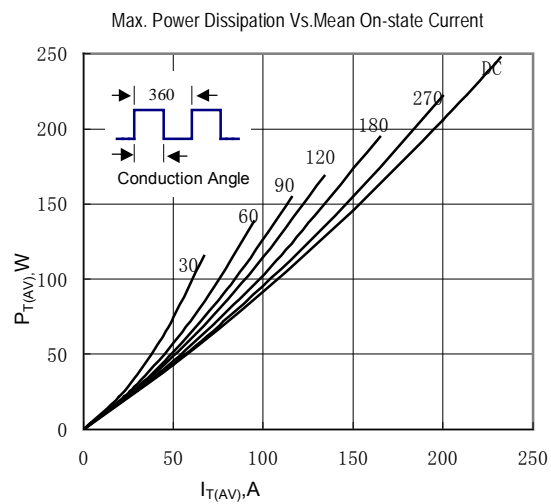


Fig.5

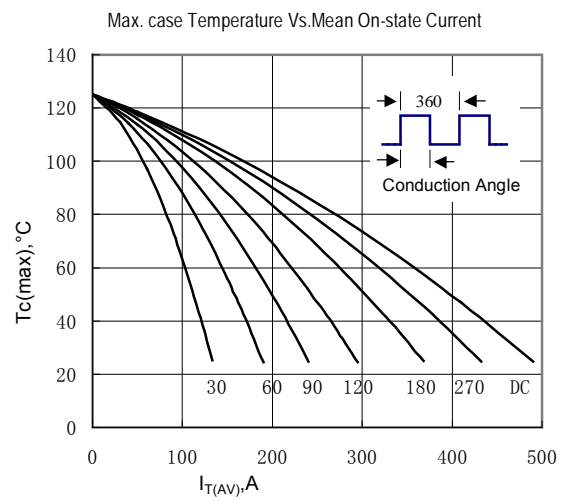


Fig.6

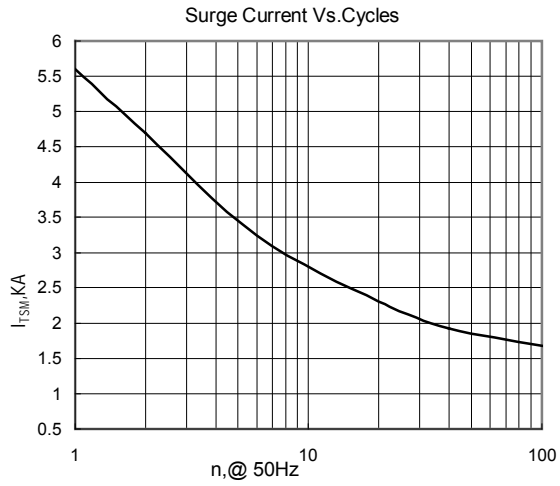


Fig.7

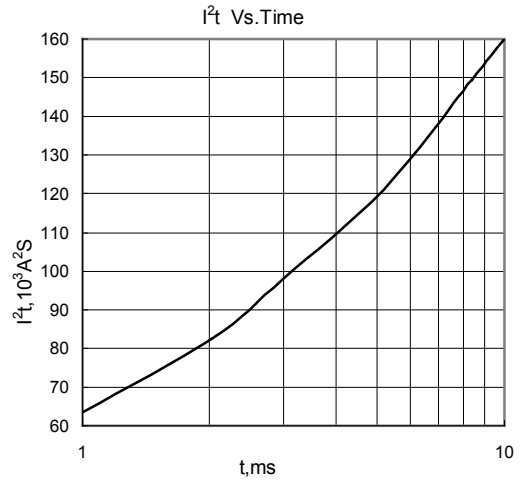


Fig.8

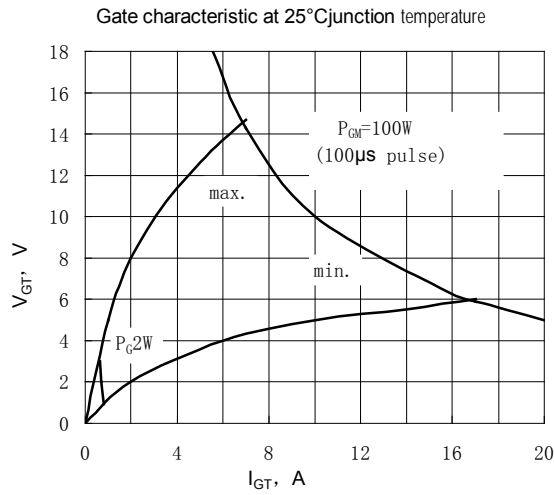


Fig.9

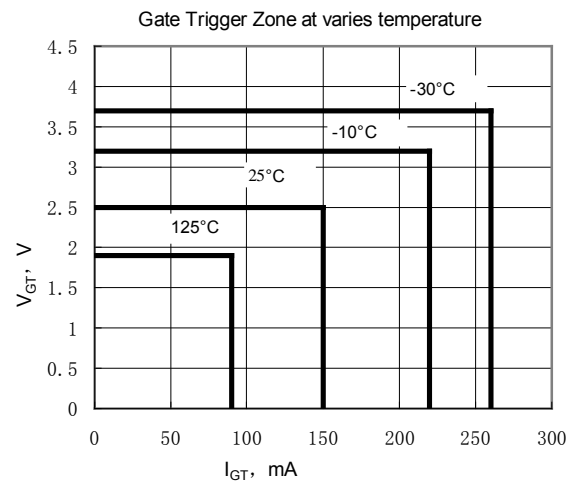


Fig.10

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