

**Features:**

- n Isolated mounting base 3000V~
- n Pressure contact technology with Increased power cycling capability
- n Space and weight saving

**Typical Applications**

- n AC/DC Motor drives
- n Various rectifiers
- n DC supply for PWM inverter

| V <sub>RRM</sub> ,V <sub>DRM</sub> | Type & Outline  |                 |
|------------------------------------|-----------------|-----------------|
| 800V                               | MTx500-08-406F3 | MFx500-08-406F3 |
| 1000V                              | MTx500-10-406F3 | MFx500-10-406F3 |
| 1200V                              | MTx500-12-406F3 | MFx500-12-406F3 |
| 1400V                              | MTx500-14-406F3 | MFx500-14-406F3 |
| 1600V                              | MTx500-16-406F3 | MFx500-16-406F3 |
| 1800V                              | MTx500-18-406F3 | MFx500-18-406F3 |
| 1800V                              | MT500-18-406F3G |                 |

MTx stands for any type of **MTC, MTA, MTK**  
 MFx stands for any type of **MFC, MFA, MFK**

| SYMBOL                               | CHARACTERISTIC                             | TEST CONDITIONS   | T <sub>j</sub> (°C) | VALUE |      |       | UNIT                             |
|--------------------------------------|--|---|---------------------|-------|------|-------|----------------------------------|
|                                      |  |   |                     | Min   | Type | Max   |                                  |
| I <sub>T(AV)</sub>                   | Mean on-state current                      | 180° half sine wave 50Hz<br>Single side cooled, T <sub>HS</sub> =55°C | 125                 |       |      | 500   | A                                |
| I <sub>T(RMS)</sub>                  | RMS on-state current                       |   |                     |       |      | 785   | A                                |
| I <sub>DRM</sub><br>I <sub>RRM</sub> | Repetitive peak current                    | at V <sub>DRM</sub><br>at V <sub>RRM</sub>                            | 125                 |       |      | 35    | mA                               |
| I <sub>TSM</sub>                     | Surge on-state current                     | V <sub>R</sub> =60%V <sub>RRM</sub> ,t=10ms half sine.                | 125                 |       |      | 14.5  | kA                               |
| I <sup>2</sup> t                     | I <sup>2</sup> t for fusing coordination   |   | 125                 |       |      | 1051  | 10 <sup>3</sup> A <sup>2</sup> s |
| V <sub>TO</sub>                      | Threshold voltage                          |   | 125                 |       |      | 0.80  | V                                |
| r <sub>T</sub>                       | On-state slope resistance                  |   |                     |       |      | 0.64  | mΩ                               |
| V <sub>TM</sub>                      | Peak on-state voltage                      | I <sub>TM</sub> =1500A  | 25                  |       |      | 1.90  | V                                |
| dv/dt                                | Critical rate of rise of off-state voltage | V <sub>DM</sub> =67%V <sub>DRM</sub>                                  | 125                 |       |      | 1000  | V/μs                             |
| di/dt                                | Critical rate of rise of on-state current  | Gate source 1.5A<br>t <sub>r</sub> ≤0.5μs Repetitive                  | 125                 |       |      | 200   | A/μs                             |
| I <sub>GT</sub>                      | Gate trigger current                       | V <sub>A</sub> =12V, I <sub>A</sub> =1A                               | 25                  | 30    |      | 200   | mA                               |
| V <sub>GT</sub>                      | Gate trigger voltage                       |   |                     | 0.8   |      | 3.0   | V                                |
| I <sub>H</sub>                       | Holding current                            |   |                     | 10    |      | 200   | mA                               |
| I <sub>L</sub>                       | Latching current                           |   |                     |       |      | 1000  | mA                               |
| V <sub>GD</sub>                      | Non-trigger gate voltage                   | V <sub>DM</sub> =67%V <sub>DRM</sub>                                  | 125                 |       |      | 0.20  | V                                |
| R <sub>th(j-c)</sub>                 | Thermal resistance<br>Junction to case     | Single side cooled per chip   |                     |       |      | 0.085 | °C/W                             |
| R <sub>th(c-h)</sub>                 | Thermal resistance<br>case to heatsink     | Single side cooled per chip   |                     |       |      | 0.040 | °C/W                             |
| V <sub>iso</sub>                     | Isolation voltage                          | 50Hz,R.M.S,t=1min,I <sub>iso</sub> :1mA(MAX)                          |                     | 3000  |      |       | V                                |
| F <sub>m</sub>                       | Terminal connection torque(M12)            |   |                     | 12    |      | 14    | N·m                              |
|                                      | Mounting torque(M6)                        |   |                     | 4.5   |      | 6     | N·m                              |
| T <sub>vj</sub>                      | Junction temperature                       |   |                     | -40   |      | 125   | °C                               |
| T <sub>stg</sub>                     | Stored temperature                         |   |                     | -40   |      | 125   | °C                               |
| W <sub>t</sub>                       | Weight                                     |   |                     |       | 1580 |       | g                                |
| Outline                              | 406F3                                      |   |                     |       |      |       |                                  |

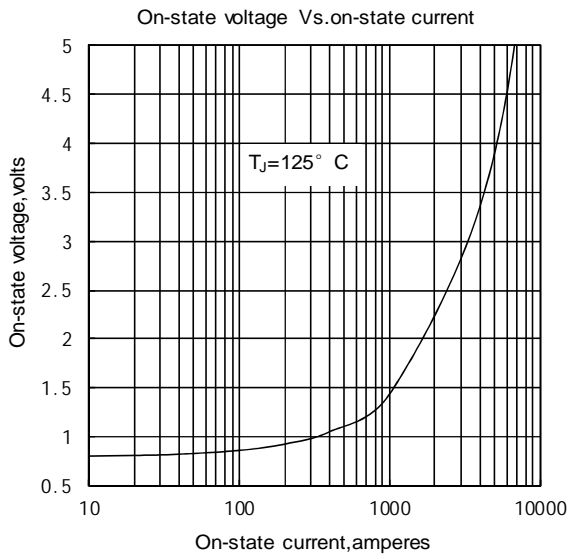


Fig.1

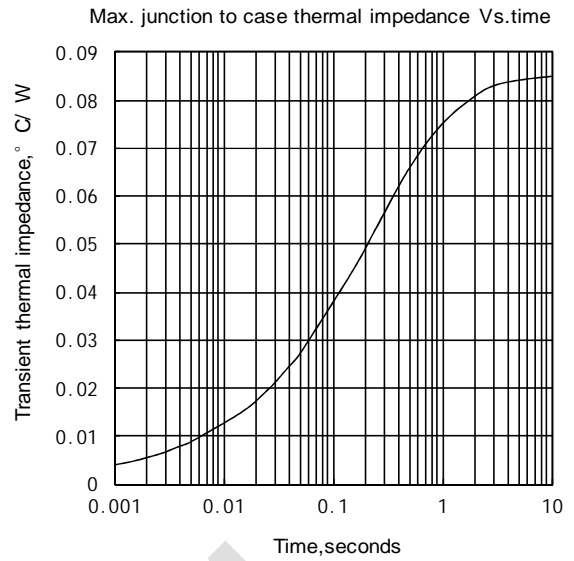


Fig.2

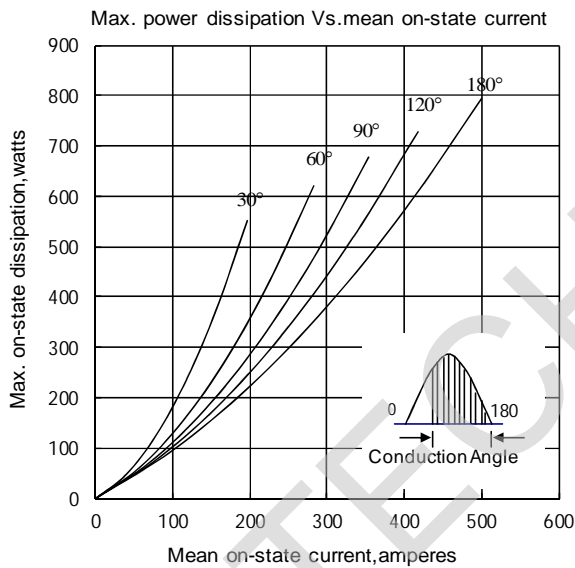


Fig.3

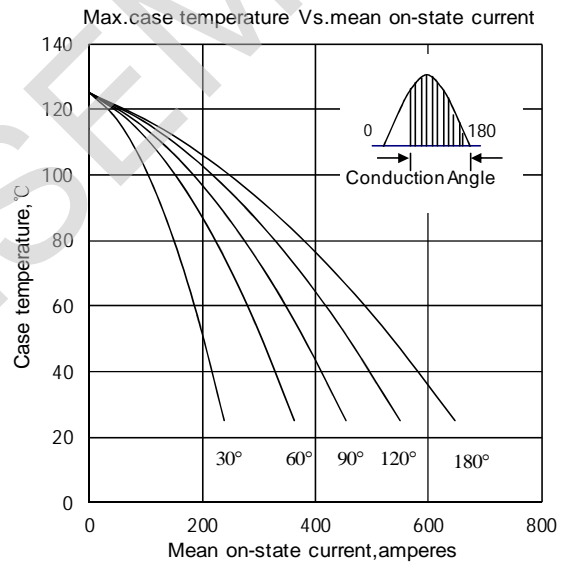


Fig.4

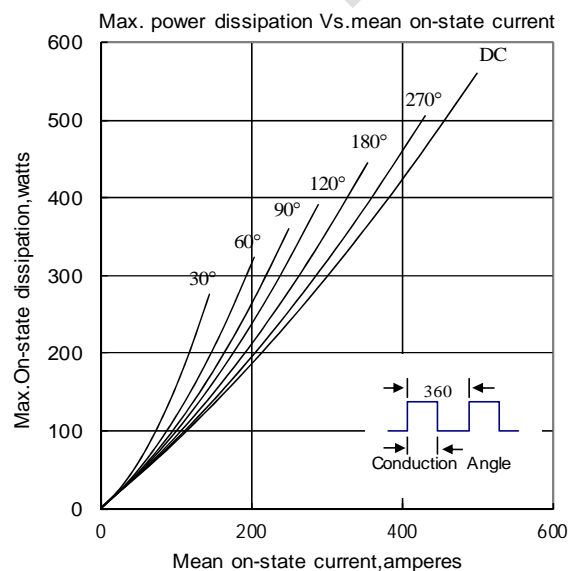


Fig.5

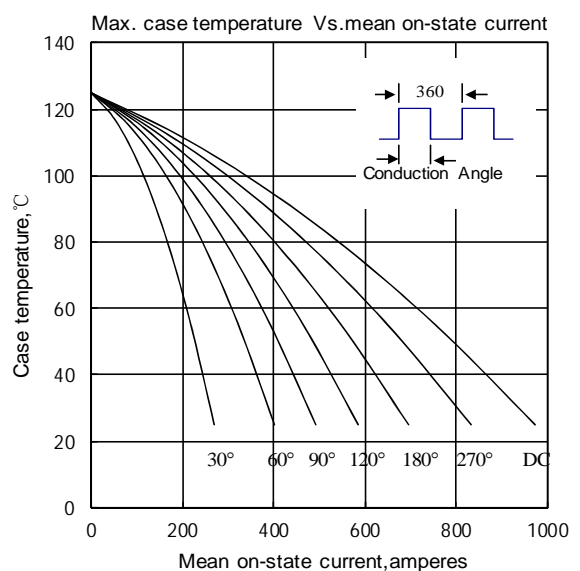


Fig.6

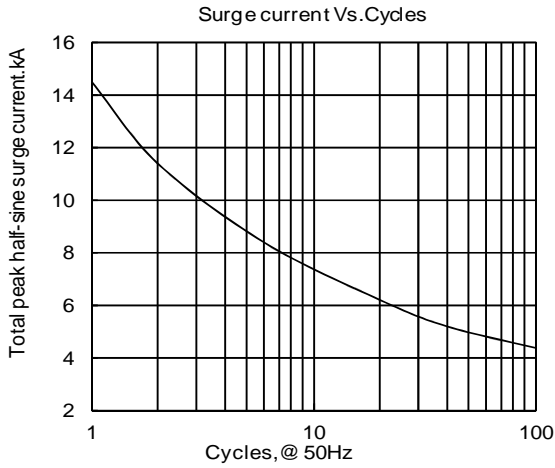


Fig 7

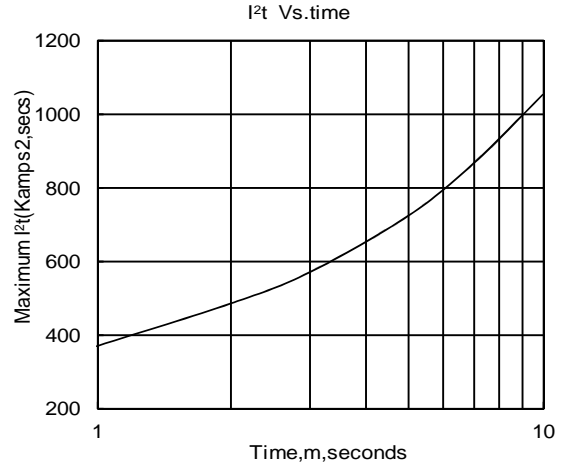


Fig 8

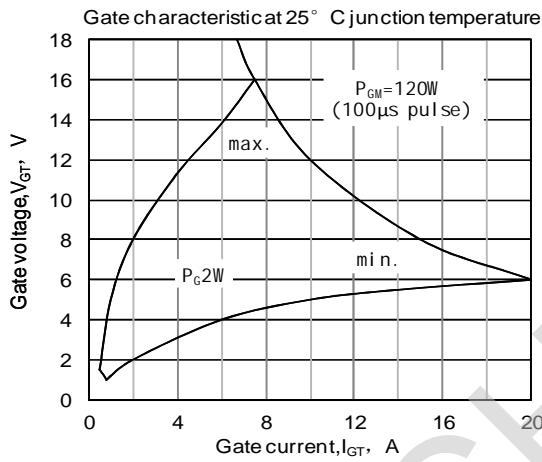


Fig 9

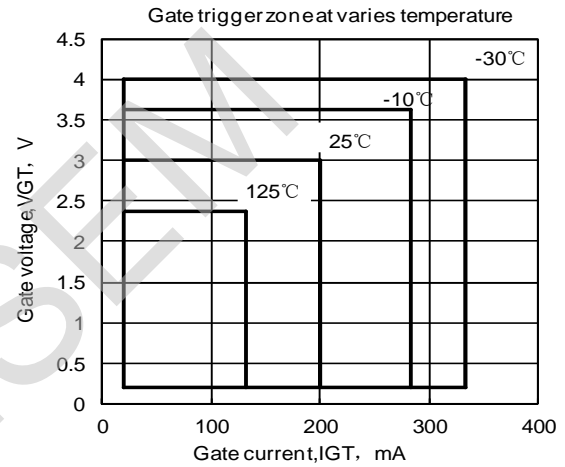
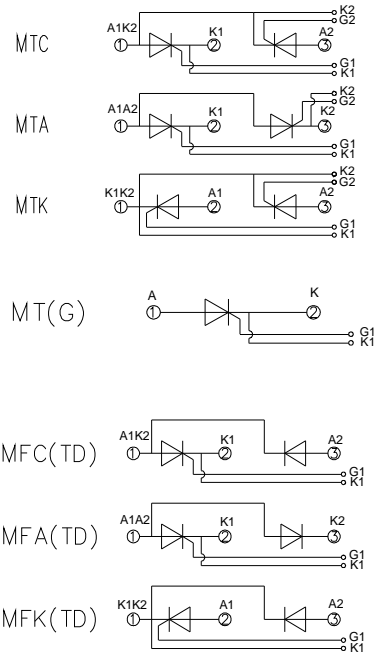
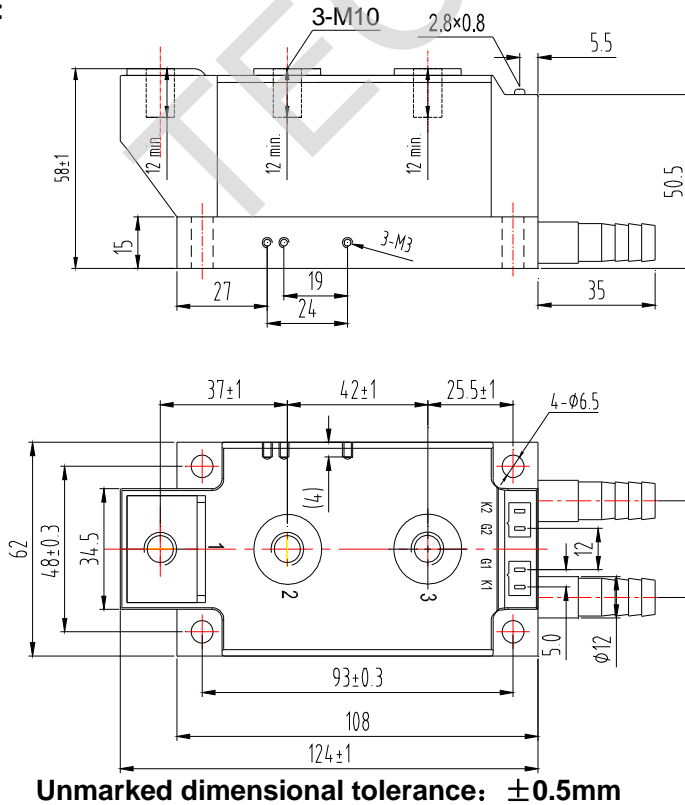


Fig 10

Outline:



TECHSEM reserves the right to change specifications without notice.