



### Features:

- Isolated mounting base 2500V~
- Pressure contact technology with Increased power cycling capability
- Space and weight savings

### Typical Applications

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

| $V_{DSM} V_{RSM}$ | $V_{DRM}, V_{RRM}$ | Type & Outline  |
|-------------------|--------------------|-----------------|
| 1300 V            | 1200 V             | MTC40-12-223F3B |
| 1500 V            | 1400 V             | MTC40-14-223F3B |
| 1700 V            | 1600 V             | MTC40-16-223F3B |
| 1900 V            | 1800 V             | MTC40-18-223F3B |

| SYMBOL                 | CHARACTERISTIC                             | TEST CONDITIONS                                                   | $T_J(^{\circ}C)$ | VALUE |      |       | UNIT              |
|------------------------|--------------------------------------------|-------------------------------------------------------------------|------------------|-------|------|-------|-------------------|
|                        |                                            |                                                                   |                  | Min   | Type | Max   |                   |
| $I_{T(AV)}$            | Mean on-state current                      | 180° half sine wave 50Hz<br>Single side cooled, $T_c=85^{\circ}C$ | 125              |       |      | 40    | A                 |
| $I_{T(RMS)}$           | RMS on-state current                       |                                                                   | 125              |       |      | 63    | A                 |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current                    | at $V_{DRM}$<br>at $V_{RRM}$                                      | 125              |       |      | 8     | mA                |
| $I_{TSM}$              | Surge on-state current                     | 10ms half sine wave                                               | 125              |       |      | 1.15  | KA                |
| $I^2t$                 | $I^2t$ for fusing coordination             | $V_R=60\%V_{RRM}$                                                 |                  |       |      | 6.60  | $A^2s \cdot 10^3$ |
| $V_{TO}$               | Threshold voltage                          |                                                                   | 125              |       |      | 0.85  | V                 |
| $r_T$                  | On-state slop resistance                   |                                                                   |                  |       |      | 5.57  | mΩ                |
| $V_{TM}$               | Peak on-state voltage                      | $I_{TM}=120A$                                                     | 25               |       |      | 1.60  | V                 |
| $t_{gr}$               | Gate control delay time                    | $V_D=0.67V_{DRM}$                                                 | 25               |       | 2    |       | μs                |
| $dv/dt$                | Critical rate of rise of off-state voltage | $V_{DM}=67\%V_{DRM}$                                              | 125              |       |      | 800   | V/μs              |
| $di/dt$                | Critical rate of rise of on-state current  | Gate source 1.5A<br>$t_r \leq 0.5\mu s$ Repetitive                | 125              |       |      | 50    | A/μs              |
| $I_{GT}$               | Gate trigger current                       | $V_A=12V, I_A=1A$                                                 | 25               | 30    |      | 100   | mA                |
| $V_{GT}$               | Gate trigger voltage                       |                                                                   |                  | 0.7   |      | 2.5   | V                 |
| $I_H$                  | Holding current                            |                                                                   |                  | 10    |      | 120   | mA                |
| $I_L$                  | Latching current                           | $V_A=12V, \text{Gate source } 1.5A, t_r \leq 0.5\mu s, 50Hz$      | 25               |       | 300  | 600   | mA                |
| $V_{GD}$               | Non-trigger gate voltage                   | $V_{DM}=V_{DRM}$                                                  | 125              |       |      | 0.25  | V                 |
| $I_{GD}$               | Non-trigger gate current                   |                                                                   |                  |       |      | 5     | mA                |
| $R_{th(j-c)}$          | Thermal resistance<br>Junction to case     | Single side cooled                                                |                  |       |      | 0.650 | $^{\circ}C/W$     |
| $R_{th(c-h)}$          | Thermal resistance<br>case to heatsink     | Single side cooled                                                |                  |       |      | 0.2   | $^{\circ}C/W$     |
| $V_{iso}$              | Isolation voltage                          | 50Hz, R.M.S, $t=1min, I_{iso}: 1mA(MAX)$                          |                  | 2500  |      |       | V                 |
| $F_m$                  | Thermal connection torque(M5)              |                                                                   |                  |       | 4.0  |       | N·m               |
|                        | Mounting torque(M6)                        |                                                                   |                  |       | 6.0  |       | N·m               |
| $T_{vj}$               | junction temperature                       |                                                                   |                  | -40   |      | 125   | $^{\circ}C$       |
| $T_{stg}$              | Stored temperature                         |                                                                   |                  | -40   |      | 125   | $^{\circ}C$       |
| $W_t$                  | Weight                                     |                                                                   |                  |       | 172  |       | g                 |
| Outline                | 223F3B                                     |                                                                   |                  |       |      |       |                   |

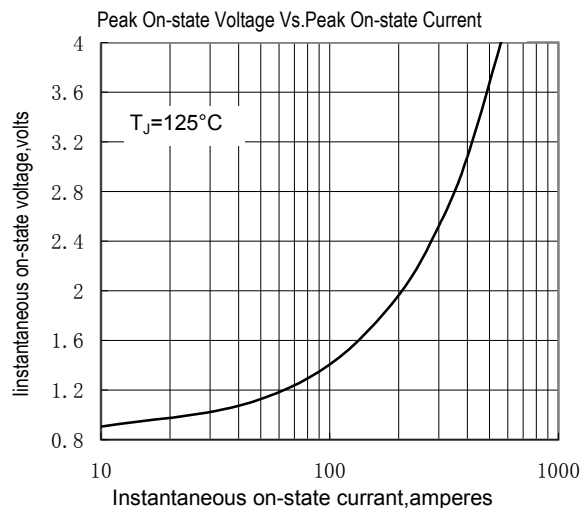


Fig.1

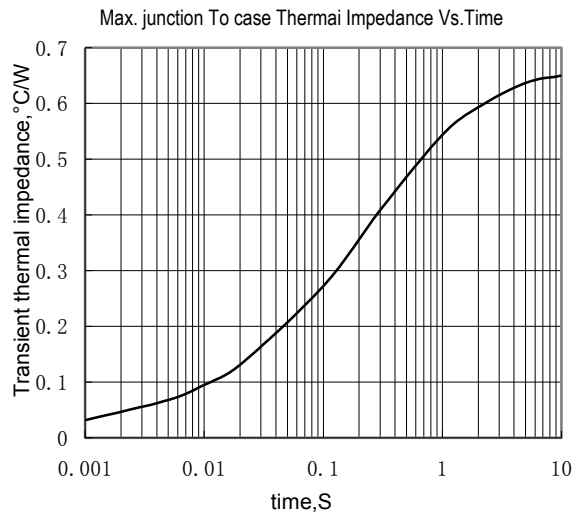


Fig.2

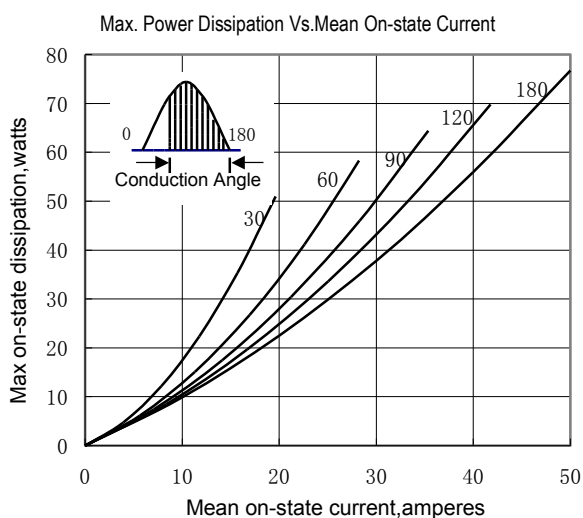


Fig.3

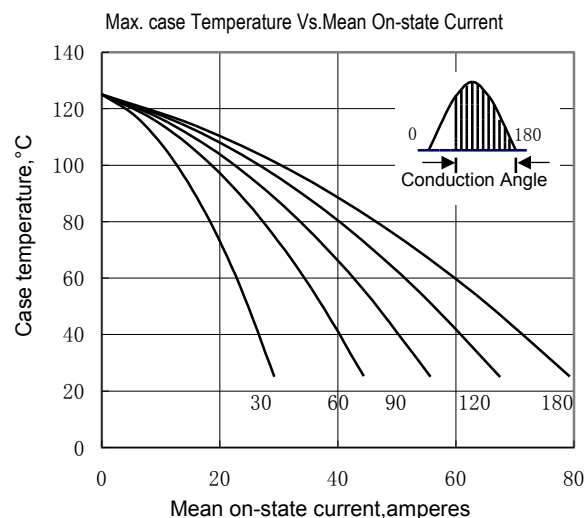


Fig.4

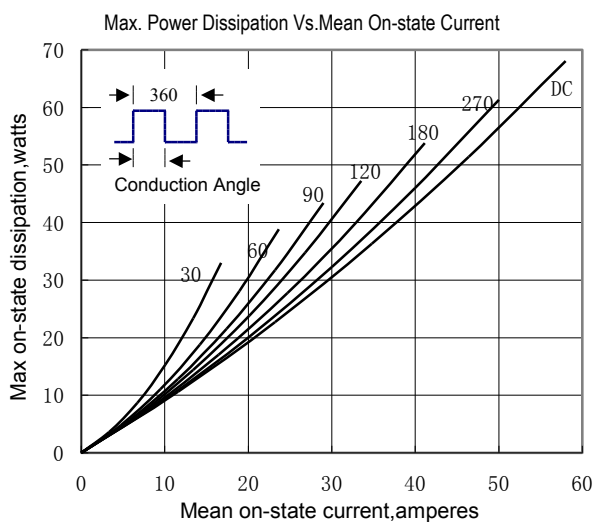


Fig.5

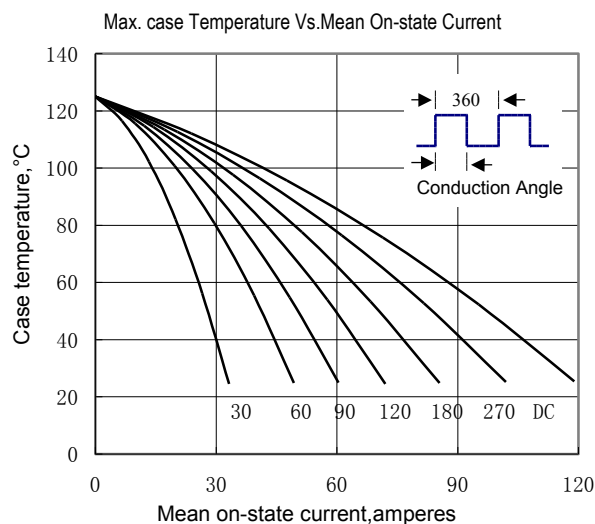


Fig.6

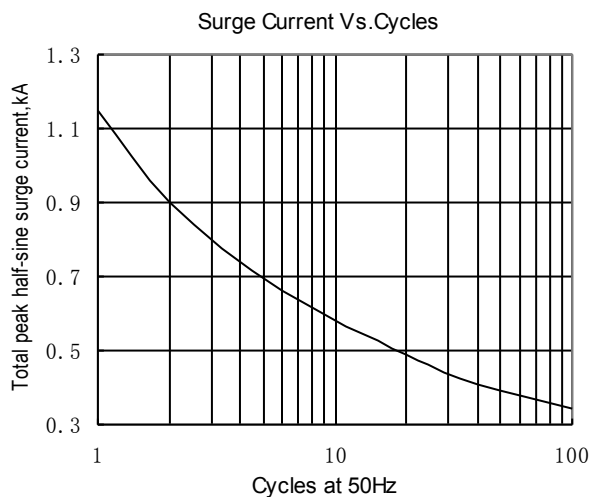


Fig.7

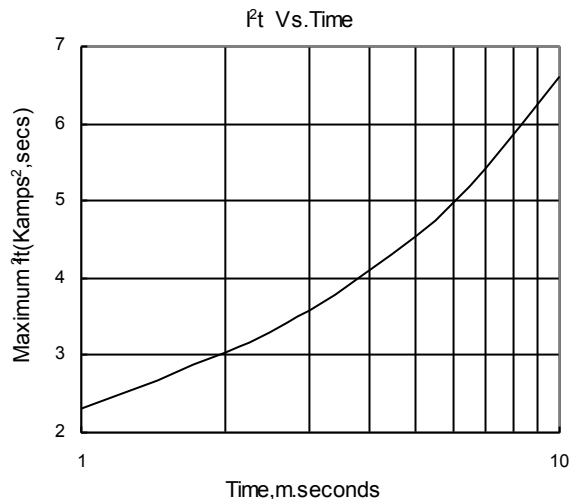


Fig.8

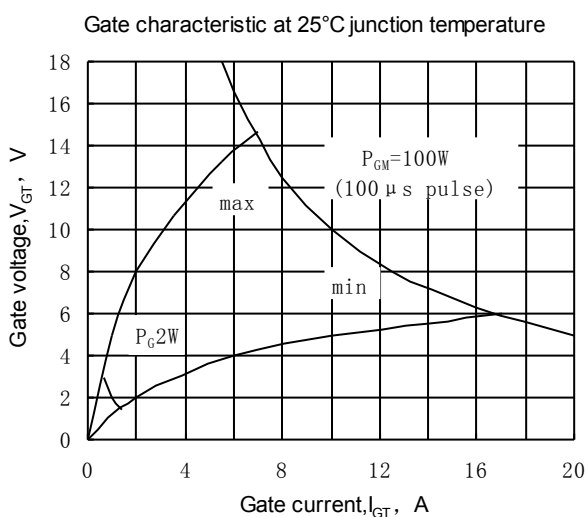


Fig.9

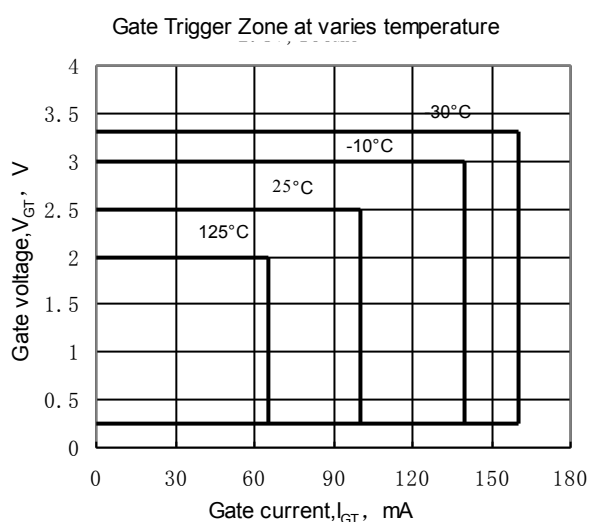
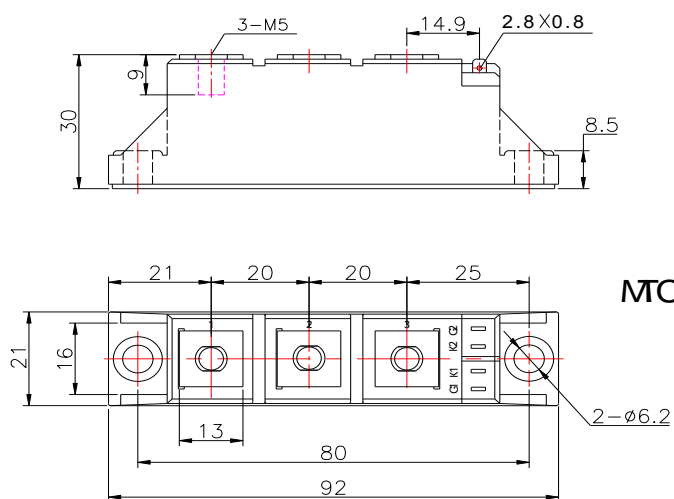


Fig.10

### Outline:



MTC(B)

