



## Three Phase Rectifier Bridge Module

### Features

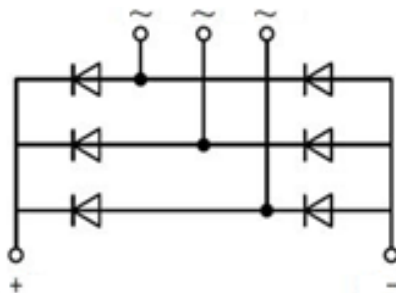
- Low forward voltage and leakage current
- Low inductance package
- High surge current capability

### Product Summary

| Parameter                        | Value | Unit |
|----------------------------------|-------|------|
| $V_{RRM}$                        | 1800  | V    |
| $I_D(@ T_C = 100^\circ\text{C})$ | 50    | A    |
| $I_{FSM}(@ t_p = 10\text{ms})$   | 500   | A    |
| $V_{FM}(\text{Max})$             | 1.40  | V    |

### Applications

- Field supply for DC motors
- Line rectifiers for transistorized AC motor controllers
- Non-controllable rectifiers for AC/DC converter



### Absolute Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                           | Conditions                                                | Symbol    | Values          | Unit                 |
|-------------------------------------|-----------------------------------------------------------|-----------|-----------------|----------------------|
| Repetitive peak reverse voltage     | $T_{vj} = 25^\circ\text{C}$                               | $V_{RRM}$ | 1800            | V                    |
| Non-repetitive peak reverse voltage | $T_{vj} = 25^\circ\text{C}$                               | $V_{RSM}$ | 1900            | V                    |
| Average forward current             | $T_C = 100^\circ\text{C}$                                 | $I_D$     | 50              | A                    |
| Forward surge current               | 1/2 cycle, Sine wave, 50Hz<br>$T_{vj} = 25^\circ\text{C}$ | $I_{FSM}$ | 500             | A                    |
| $I^2t$ value for fusing             |                                                           | $I^2t$    | 1250            | $\text{A}^2\text{s}$ |
| RMS isolation voltage               | A.C 50Hz(1s/1min)                                         | $V_{ISO}$ | 3600/3000       | V                    |
| Junction temperature range          |                                                           | $T_{vj}$  | $-40 \sim +150$ | $^\circ\text{C}$     |
| Storage temperature range           |                                                           | $T_{stg}$ | $-40 \sim +125$ | $^\circ\text{C}$     |

**Electrical Characteristics (@  $T_C = 25^\circ\text{C}$  unless otherwise specified)**

| Parameter               | Conditions                                                        | Symbol    | Values |      |      | Unit       |
|-------------------------|-------------------------------------------------------------------|-----------|--------|------|------|------------|
|                         |                                                                   |           | Min.   | Typ. | Max. |            |
| Peak forward voltage    | $I_F=50\text{A}$ , $t_P=380\mu\text{s}$                           | $V_{FM}$  |        | 1.20 | 1.40 | V          |
| Reverse leakage current | $V_R = V_{RRM}$ , $T_{vj} = 25^\circ\text{C}$                     | $I_{RRM}$ |        |      | 0.3  | mA         |
|                         | $V_R = V_{RRM}$ , $T_{vj} = 150^\circ\text{C}$                    |           |        |      | 5    | mA         |
| Threshold voltage       | $T_{vj} = 150^\circ\text{C}$ ,<br>for power loss calculation only | $V_{TO}$  |        |      | 0.92 | V          |
| Dynamic resistance      |                                                                   | $r_T$     |        |      | 4.6  | m $\Omega$ |

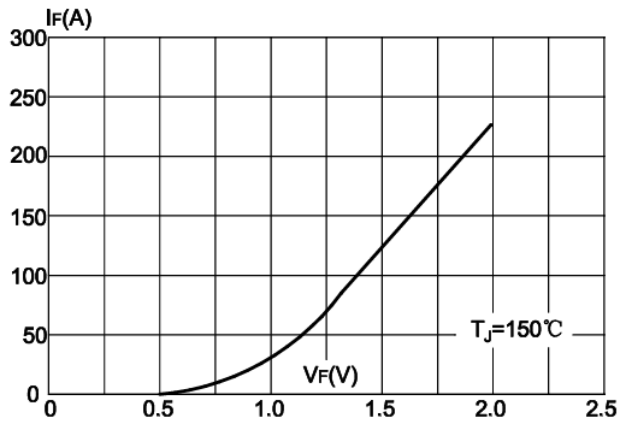
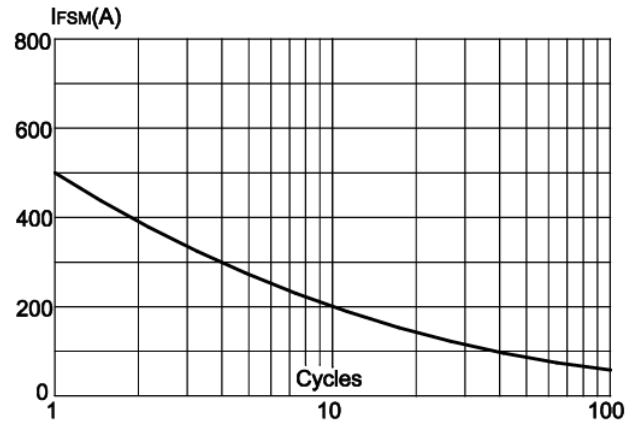
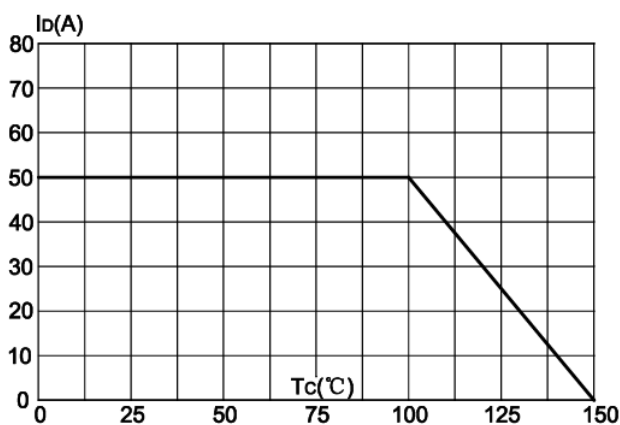
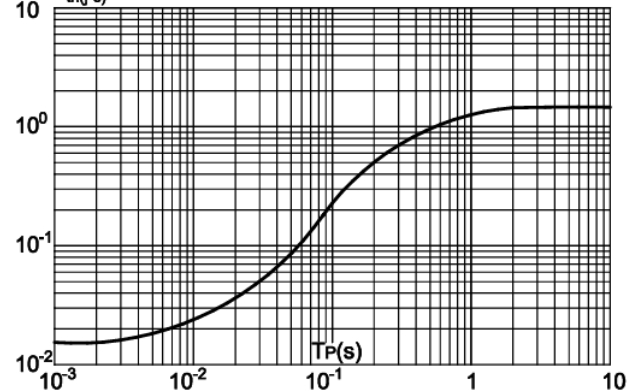
**Thermal Characteristics (@  $T_C = 25^\circ\text{C}$  unless otherwise specified)**

| Parameter                               | Conditions                             | Symbol        | Values |      |      | Unit |
|-----------------------------------------|----------------------------------------|---------------|--------|------|------|------|
|                                         |                                        |               | Min.   | Typ. | Max. |      |
| Thermal resistance,<br>junction to case | per diode                              | $R_{th(j-c)}$ |        |      | 1.45 | K/W  |
| Thermal resistance,<br>case to heatsink | per module                             | $R_{th(c-s)}$ |        |      | 0.07 | K/W  |
| Mounting torque                         | Module and heatsink fixed<br>torque M5 | M             | 4.25   |      | 5.75 | N·m  |
|                                         | Electrode to terminal screw<br>M5      | M             | 4.25   |      | 5.75 | N·m  |

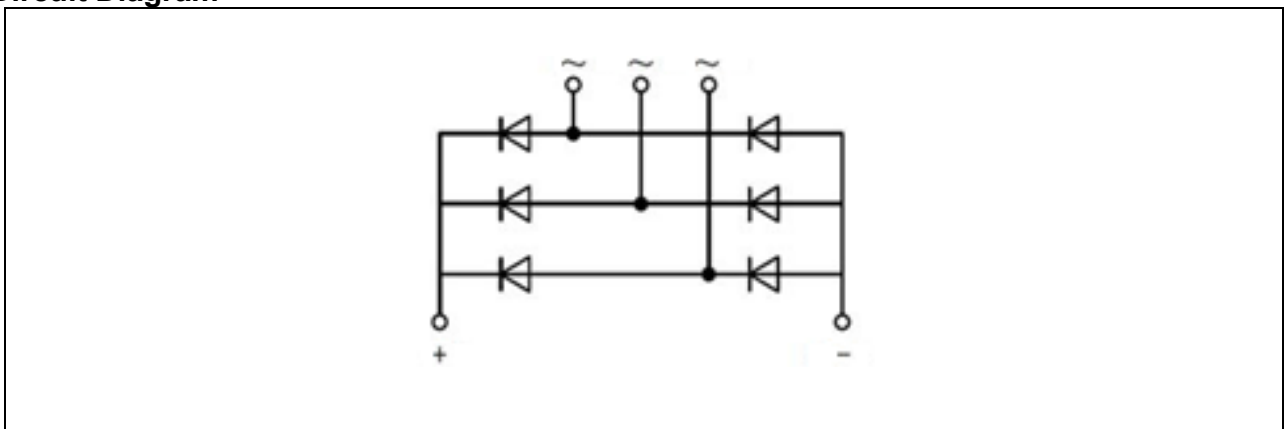
**Ordering Information**

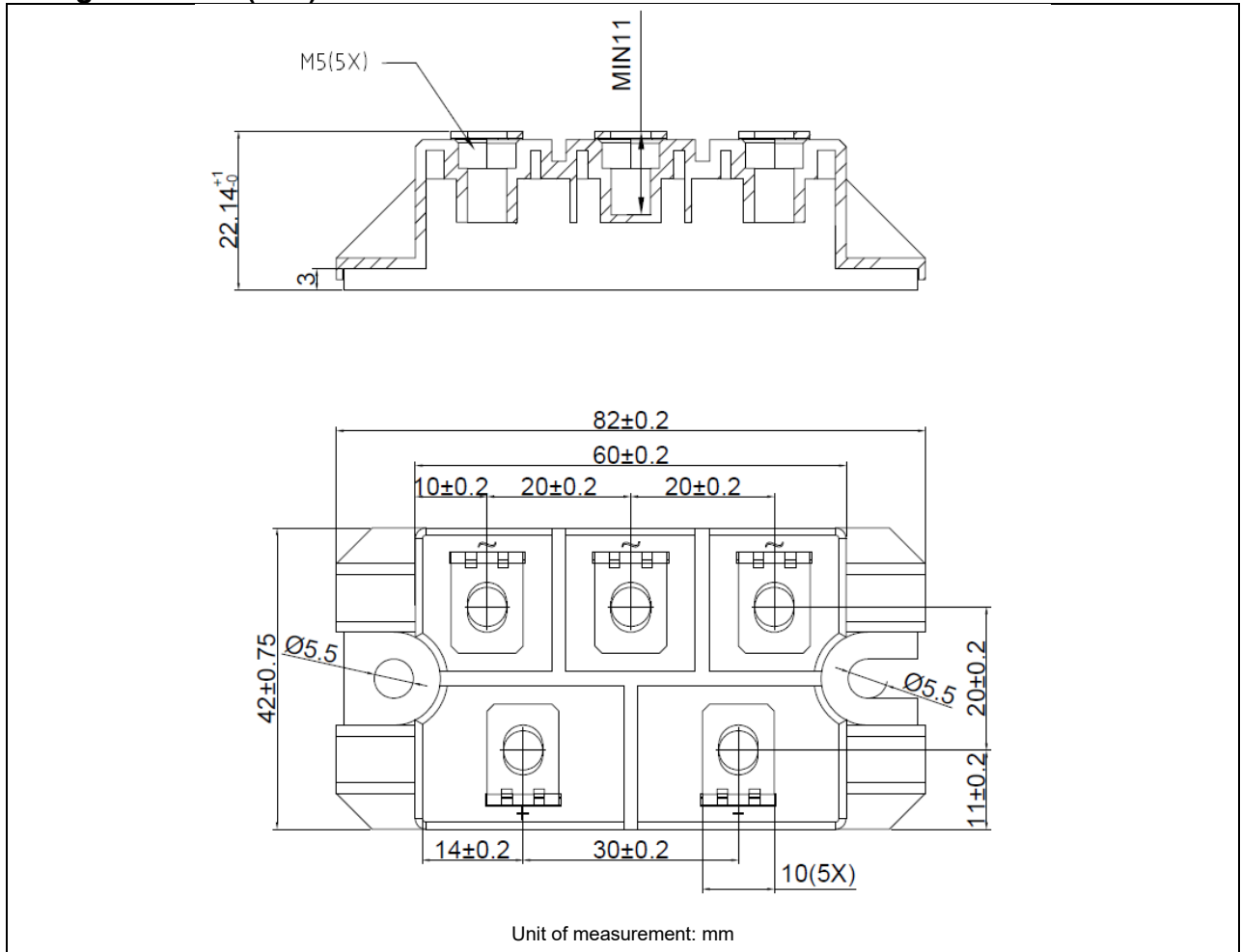
| Device      | Marking     | Package | Weight   | Inner Box | Per Carton |
|-------------|-------------|---------|----------|-----------|------------|
| JMD50TD18D3 | JMD50TD18D3 | D3      | 146g/PCS | 10PCS     | 90PCS      |

## Typical Electrical & Thermal Characteristics

**FIG.1: Forward characteristics(per diode)**

**FIG.2: Peak on-state surge current**

**FIG.3: Forward current vs. case temperature**

**FIG.4: Maximum transient thermal impedance**  
 $R_{th(j-c)}$  (°C/W) Junction-to-case(per diode)


## Circuit Diagram



**Package Outlines (mm)**




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