

## Rectifier Diode Module

|            |               |
|------------|---------------|
| $V_{RRM}$  | 1200 to 2000V |
| $I_{FAV}$  | 250 Amp       |
| $I_{FRMS}$ | 390 Amp       |

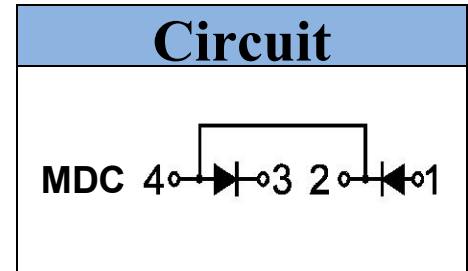


### Features

- Aluminum oxide DBC
- Glass passivated chip

### Applications

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



### Module Type

| Type      | $V_{RRM}$ | $V_{RSM}$ |
|-----------|-----------|-----------|
| MDC250-12 | 1200V     | 1300V     |
| MDC250-16 | 1600V     | 1700V     |
| MDC250-18 | 1800V     | 1900V     |
| MDC250-20 | 2000V     | 2100V     |

### Maximum Ratings

| Symbol     | Item                           | Conditions  | Values       | Unit                 |
|------------|--------------------------------|---|--------------|----------------------|
| $I_{FAV}$  | Average Forward Current        | 180° Conduction Sin Half Wave, $T_c = 106^\circ\text{C}$                      | 250          | A                    |
| $I_{FRMS}$ | RMS Forward Current            |   | 390          | A                    |
| $I_{FSM}$  | Surge Forward Current          | $T_j = 25^\circ\text{C}$ , $t = 50\text{Hz}(10\text{ms})$ , $V_R = 0\text{V}$ | 8000         | A                    |
| $I^2t$     | Circuit Fusing Consideration   | $t = 10\text{ms}$ $T_j = 25^\circ\text{C}$                                    | 320000       | $\text{A}^2\text{s}$ |
| $V_{ISO}$  | Isolation Breakdown Voltage    | AC 50Hz/60Hz; R.M.S; 1min   | 3000         | V                    |
| $T_j$      | Operating Junction Temperature |   | -40 to +150  | $^\circ\text{C}$     |
| $T_{stg}$  | Storage Temperature            |   | -40 to +125  | $^\circ\text{C}$     |
| $M_t$      | Mounting Torque                | To Terminals(M8)  | $7 \pm 15\%$ | N·m                  |
| $M_s$      |                                | To Heatsink(M6)   | $5 \pm 15\%$ |                      |
| Weight     | Module (Approximately)         |   | 460          | g                    |

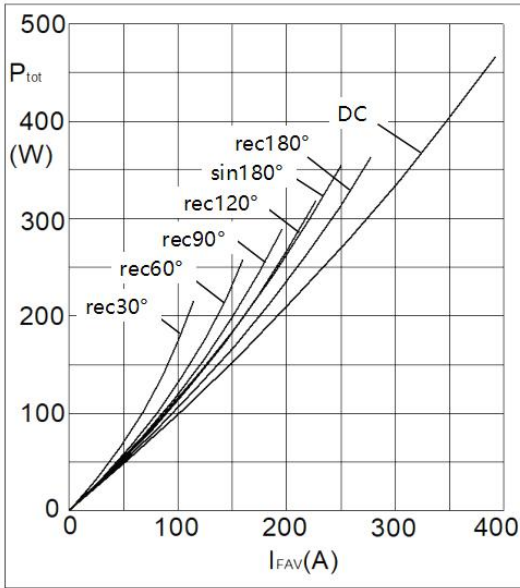
### Thermal Characteristics

| Symbol        | Item                   | Conditions                  | Values | Unit                      |
|---------------|------------------------|-----------------------------|--------|---------------------------|
| $R_{th(j-c)}$ | Thermal Impedance, Max | Junction to Case(Per Diode) | 0.12   | $^\circ\text{C}/\text{W}$ |
| $R_{th(c-s)}$ | Thermal Impedance, Max | Case to Heat Sink           | 0.05   | $^\circ\text{C}/\text{W}$ |

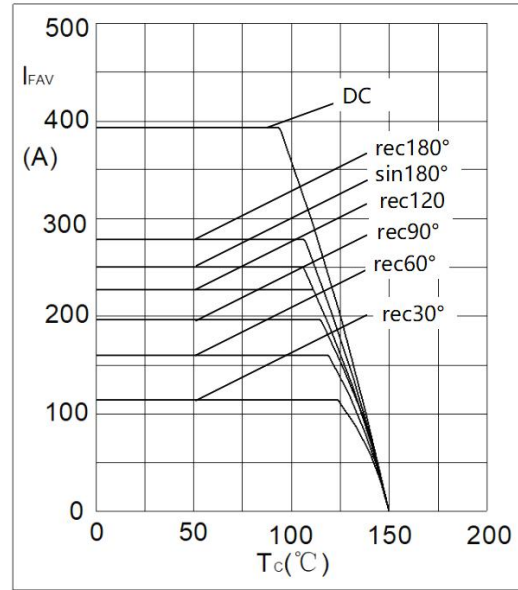
### Electrical Characteristics

| Symbol    | Item   | Conditions                                   | Values |      |      | Unit       |
|-----------|--|--|--------|------|------|------------|
|           |  |  | Min.   | Typ. | Max. |            |
| $V_{FM}$  | Forward Voltage Drop, Max                          | $T_j = 25^\circ\text{C}$ $I_F = 750\text{A}$ | —      | —    | 1.45 | V          |
| $I_{RRM}$ | Repetitive Peak Reverse Current, Max               | $T_j = 25^\circ\text{C}$ $V_R = V_{RRM}$     | —      | —    | 0.1  | mA         |
|           |  | $T_j = 150^\circ\text{C}$ $V_R = V_{RRM}$    | —      | —    | 15   |            |
| $V_{T0}$  | Threshold Voltage, for power loss calculation only | $T_j = 125^\circ\text{C}$                    | 0.90   |      |      | V          |
| $r_T$     | Slope Resistance, for power loss calculation only  | $T_j = 125^\circ\text{C}$                    | 0.73   |      |      | m $\Omega$ |

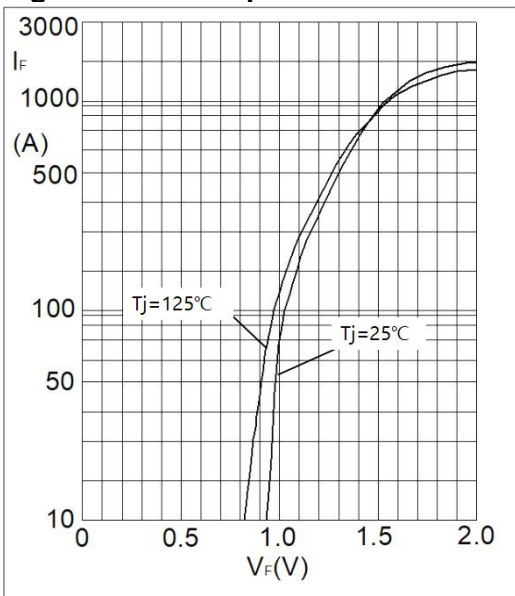
**Performance Curves**



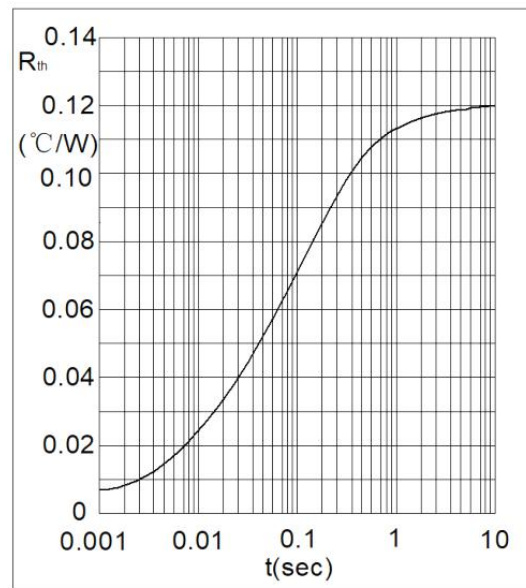
**Fig1. Power Dissipation**



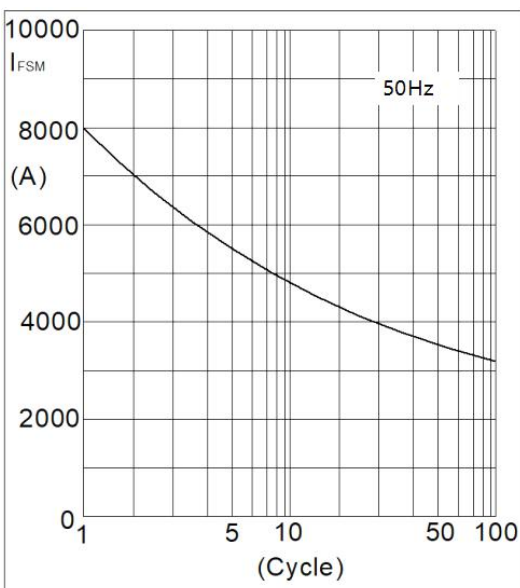
**Fig2. Forward Current Derating Curve**



**Fig3. Forward Characteristics**



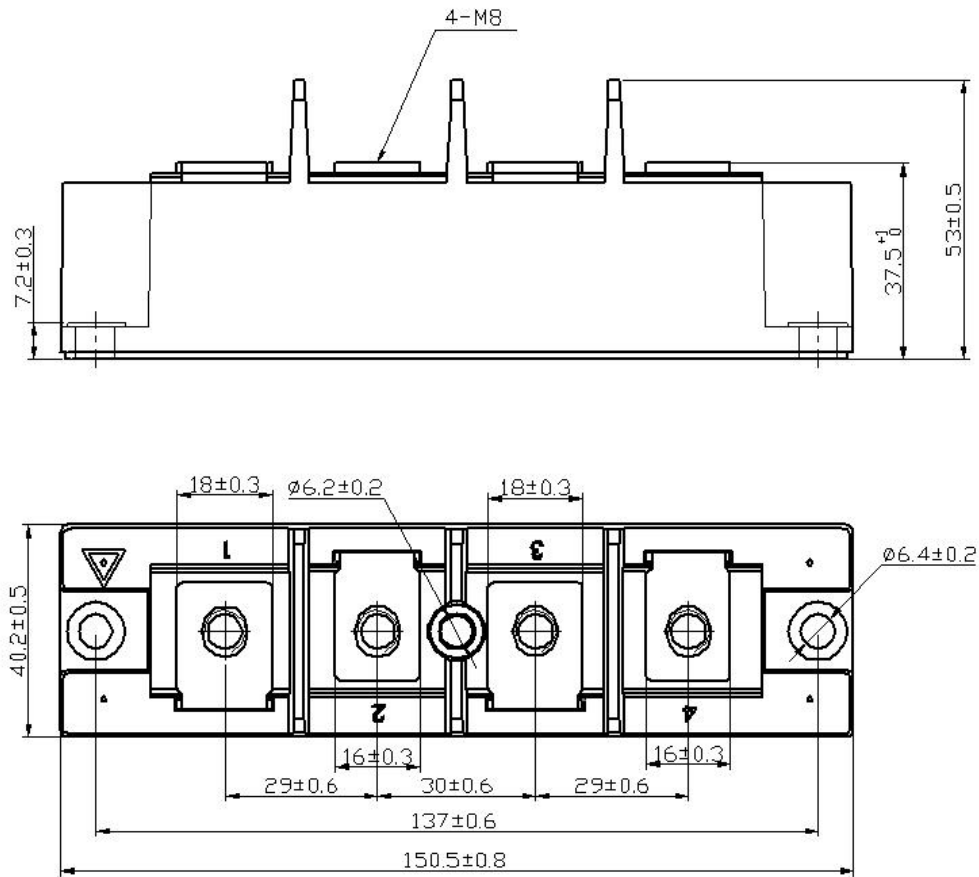
**Fig4. Transient Thermal impedance**



**Fig5. Max Non-Repetitive Forward Surge Current**

**Package Outline Information**

**CASE: M75**



**Dimensions in mm**

**\*IMPORTANT INFORMATION AND WARNINGS**

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