

## Rectifier Diode Module

|            |               |
|------------|---------------|
| $V_{RRM}$  | 1200 to 2000V |
| $I_{FAV}$  | 300 Amp       |
| $I_{FRMS}$ | 470 Amp       |



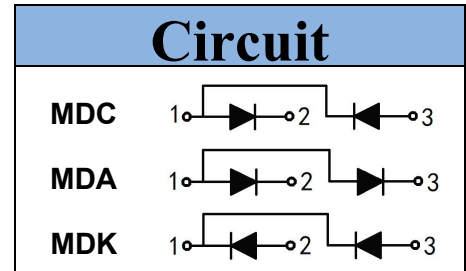
### Features

- 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        |             |             | $V_{RRM}$ | $V_{RSM}$ |
|-------------|-------------|-------------|-----------|-----------|
| MDC300GB-12 | MDA300GB-12 | MDK300GB-12 | 1200V     | 1300V     |
| MDC300GB-16 | MDA300GB-16 | MDK300GB-16 | 1600V     | 1700V     |
| MDC300GB-18 | MDA300GB-18 | MDK300GB-18 | 1800V     | 1900V     |
| MDC300GB-20 | MDA300GB-20 | MDK300GB-20 | 2000V     | 2100V     |

### Maximum Ratings

| Symbol     | Item                           | Conditions                                                                    | Values      | Unit                 |
|------------|--------------------------------|-------------------------------------------------------------------------------|-------------|----------------------|
| $I_{FAV}$  | Average Forward Current        | 180° Conduction Sin Half Wave, $T_c = 105^\circ\text{C}$                      | 300         | A                    |
| $I_{FRMS}$ | RMS Forward Current            |                                                                               | 470         | A                    |
| $I_{FSM}$  | Surge Forward Current          | $T_j = 25^\circ\text{C}$ , $t = 50\text{Hz}(10\text{ms})$ , $V_R = 0\text{V}$ | 10500       | A                    |
| $I^2t$     | Circuit Fusing Consideration   | $t = 10\text{ms}$ $T_j = 25^\circ\text{C}$                                    | 551250      | $\text{A}^2\text{s}$ |
| $V_{ISO}$  | 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(M6)                                                              | 5±15%       | N·m                  |
| $M_s$      |                                | To Heatsink(M6)                                                               | 5±15%       |                      |
| Weight     | Module (Approximately)         |                                                                               | 185         | g                    |

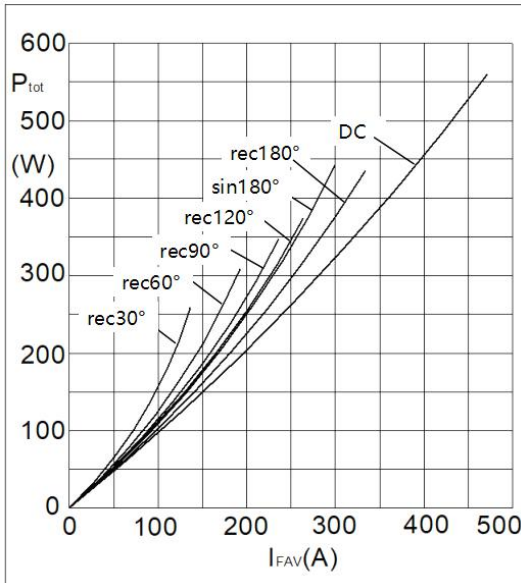
### Thermal Characteristics

| Symbol        | Item                   | Conditions                  | Values | Unit                      |
|---------------|------------------------|-----------------------------|--------|---------------------------|
| $R_{th(j-c)}$ | Thermal Impedance, Max | Junction to Case(Per Diode) | 0.10   | $^\circ\text{C}/\text{W}$ |
| $R_{th(c-s)}$ | Thermal Impedance, Max | Case to Heat Sink           | 0.05   | $^\circ\text{C}/\text{W}$ |

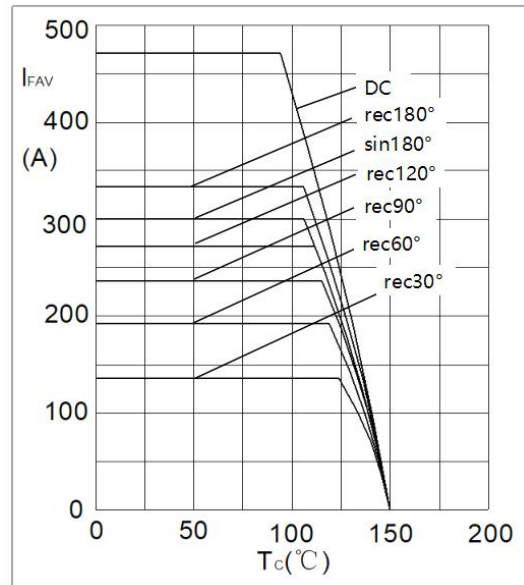
### Electrical Characteristics

| Symbol    | Item                                               | Conditions                                   | Values |      |      | Unit |
|-----------|----------------------------------------------------|----------------------------------------------|--------|------|------|------|
|           |                                                    |                                              | Min.   | Typ. | Max. |      |
| $V_{FM}$  | Forward Voltage Drop, Max                          | $T_j = 25^\circ\text{C}$ $I_F = 900\text{A}$ | —      | —    | 1.50 | V    |
| $I_{RRM}$ | Repetitive Peak Reverse Current, Max               | $T_j = 25^\circ\text{C}$ $V_R = V_{RRM}$     | —      | —    | 0.1  | mA   |
|           |                                                    | $T_j = 150^\circ\text{C}$ $V_R = V_{RRM}$    | —      | —    | 20   |      |
| $V_{T0}$  | 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  | $T_j = 125^\circ\text{C}$                    | 0.61   |      |      | mΩ   |

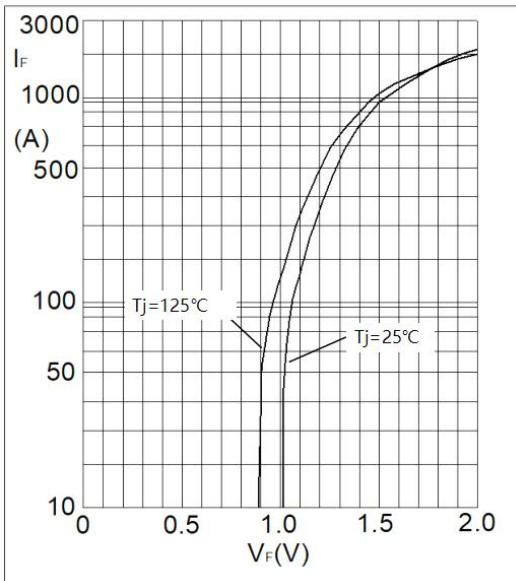
## Performance Curves



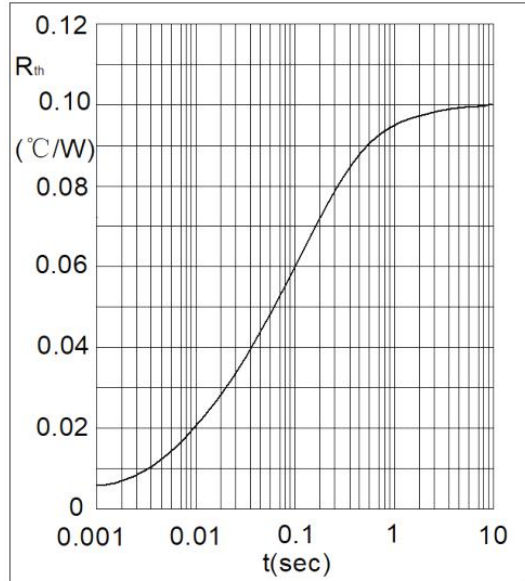
**Fig1. Power Dissipation**



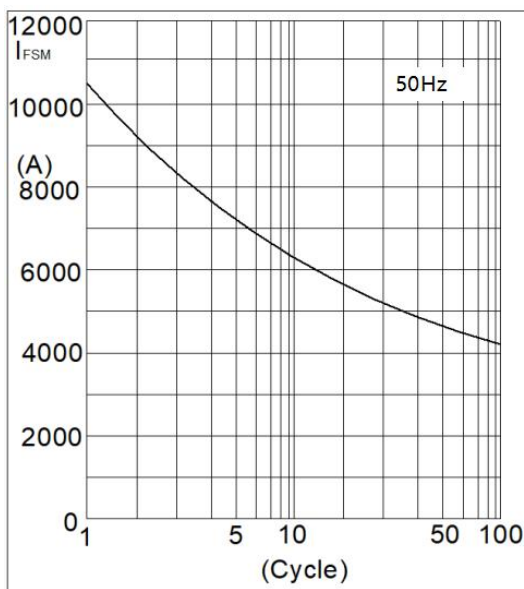
**Fig2. Forward Current Derating Curve**



**Fig3. Forward Characteristics**

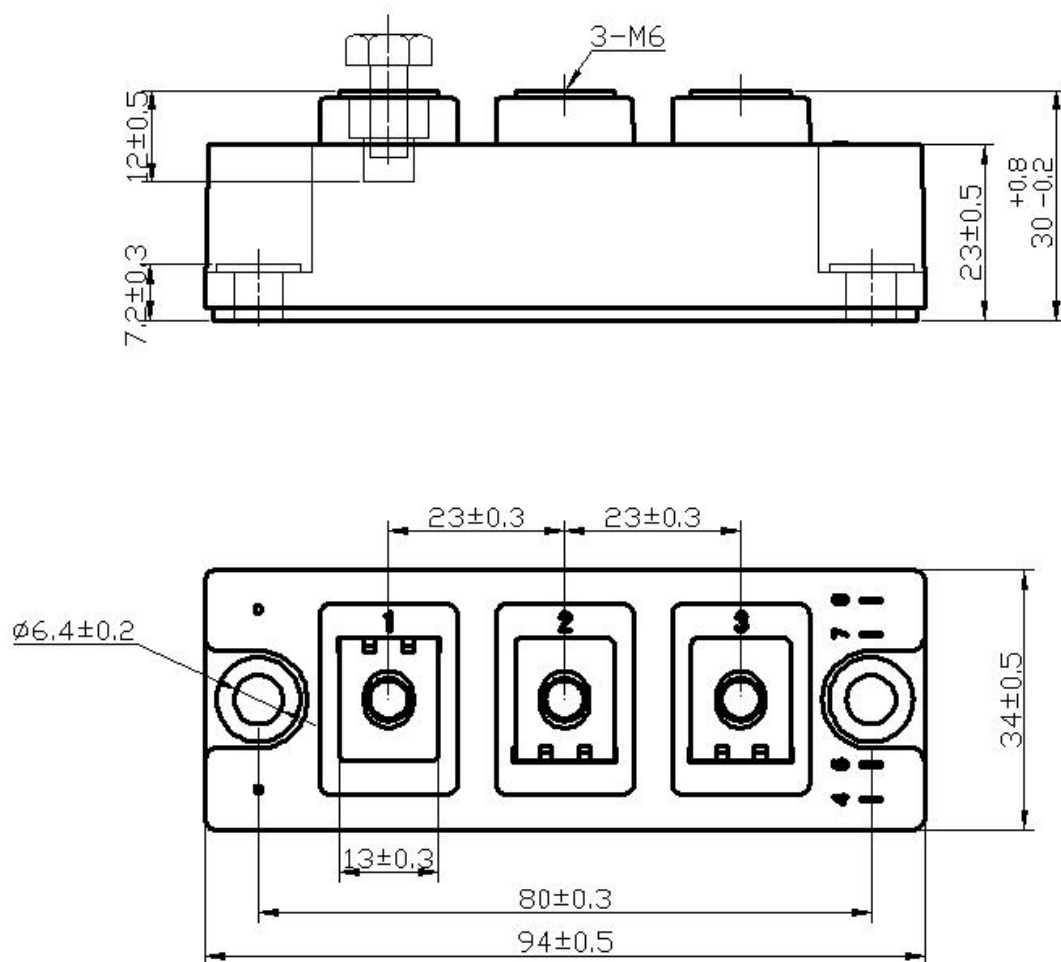


**Fig4. Transient Thermal impedance**



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

**CASE: M69GB**



### Dimensions in mm

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