



Micro Commercial Components®

Micro Commercial Components  
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**MD70K08D1**  
**MD70K12D1**  
**MD70K16D1**  
**MD70K18D1**

**70 Amp**  
**GLASS PASSIVATED**  
**RECTIFIER DIODE**  
**MODULES**  
**800~1800 Volts**

## Features

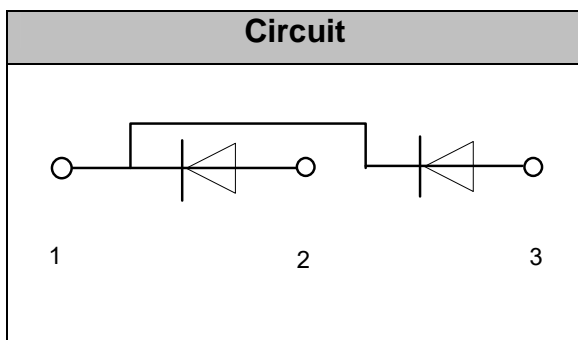
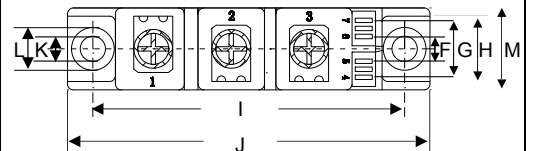
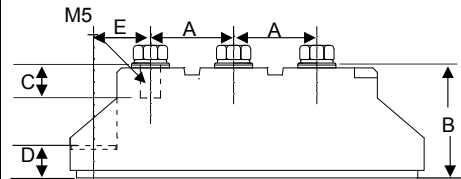
- Lead Free Finish/RoHS Compliant (NOTE 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Blocking Voltage:800 to 1800V
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- Glass passivated chip

## Applications

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



D1



| DIM | DIMENSIONS |       |       |       | NOTE |
|-----|------------|-------|-------|-------|------|
|     | INCHES     |       | MM    |       |      |
|     | MIN        | MAX   | MIN   | MAX   |      |
| A   | 0.768      | 0.807 | 19.50 | 20.50 |      |
| B   | 1.161      | 1.201 | 29.50 | 30.50 |      |
| C   | 0.335      | 0.374 | 8.50  | 9.50  |      |
| D   | 0.315      | 0.354 | 8.00  | 9.00  |      |
| E   | 0.594      | 0.630 | 15.10 | 16.00 |      |
| F   | 0.217      | 0.256 | 5.50  | 6.50  |      |
| G   | 0.531      | 0.571 | 13.50 | 14.50 |      |
| H   | 0.650      | 0.689 | 16.50 | 17.50 |      |
| I   | 3.130      | 3.169 | 79.50 | 80.50 |      |
| J   | 3.642      | 3.681 | 92.50 | 93.50 |      |
| K   |            | 0.256 |       | 6.50  | Φ    |
| L   | 0.413      | 0.453 | 10.50 | 11.50 |      |
| M   | 0.807      | 0.846 | 20.50 | 21.50 |      |

### Module Type

| TYPE      | VRRM  | VRSM  |
|-----------|-------|-------|
| MD70K08D1 | 800V  | 900V  |
| MD70K12D1 | 1200V | 1300V |
| MD70K16D1 | 1600V | 1700V |
| MD70K18D1 | 1800V | 1900V |

### Maximum Ratings

| Symbol            | Conditions                                       | Values     | Units            |
|-------------------|--|------------|------------------|
| IFAV              | Single phase ,half wave 180° conduction Tc=102°C | 70         | A                |
| IFSM              | t=10mS Tvj =45°C                                 | 1400       | A                |
| i <sup>2</sup> t  | t=10mS Tvj =45°C                                 | 9800       | A <sup>2</sup> s |
| V <sub>isol</sub> | a.c.50HZ;r.m.s.;1min                             | 3000       | V                |
| T <sub>vj</sub>   |  | -40 to 150 | °C               |
| T <sub>stg</sub>  |  | -40 to 125 | °C               |
| Mt                | To terminals(M5)                                 | 3±15%      | Nm               |
| Ms                | To heatsink(M6)                                  | 5±15%      | Nm               |
| Weight            | Module (Approximately)                           | 100        | g                |

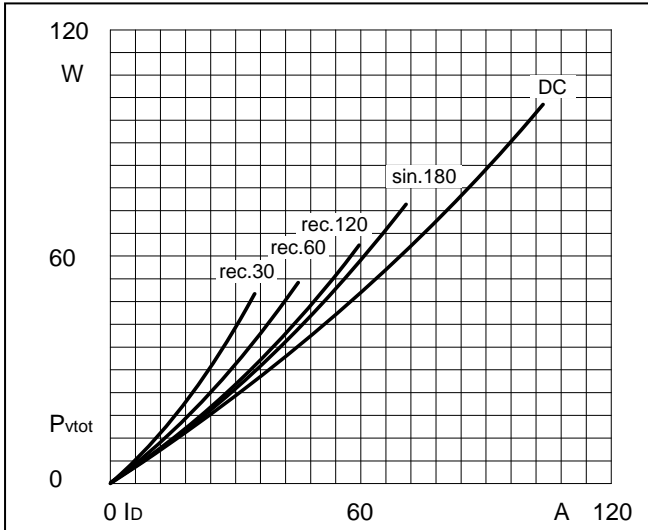
### Thermal Characteristics

| Symbol               | Conditions | Values | Units |
|----------------------|------------|--------|-------|
| R <sub>th(j-c)</sub> | Per diode  | 0.51   | °C/W  |
| R <sub>th(c-s)</sub> | Module     | 0.1    | °C/W  |

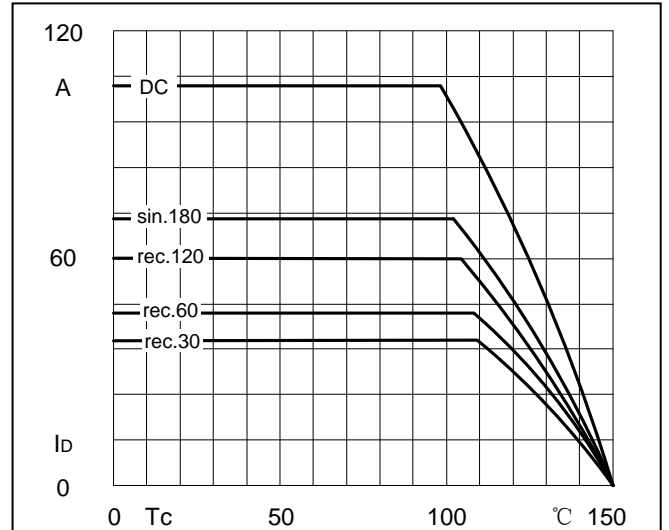
### Electrical Characteristics

| Symbol          | Conditions   | Values |      |      | Units |
|-----------------|--|--------|------|------|-------|
|                 |  | Min.   | Typ. | Max. |       |
| V <sub>FM</sub> | T=25°C I <sub>F</sub> =200A                              | —      | 1.20 | 1.30 | V     |
| I <sub>RD</sub> | T <sub>vj</sub> =150°C V <sub>RD</sub> =V <sub>RRM</sub> | —      | —    | 5    | mA    |

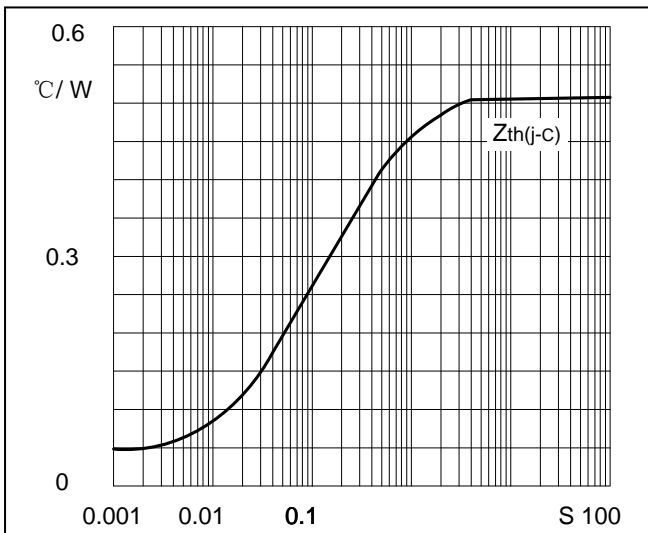
**Performance Curves**



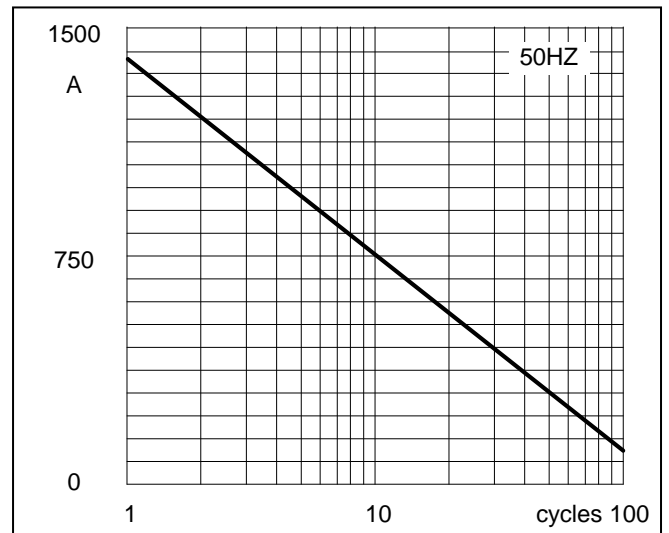
**Fig1. Power dissipation**



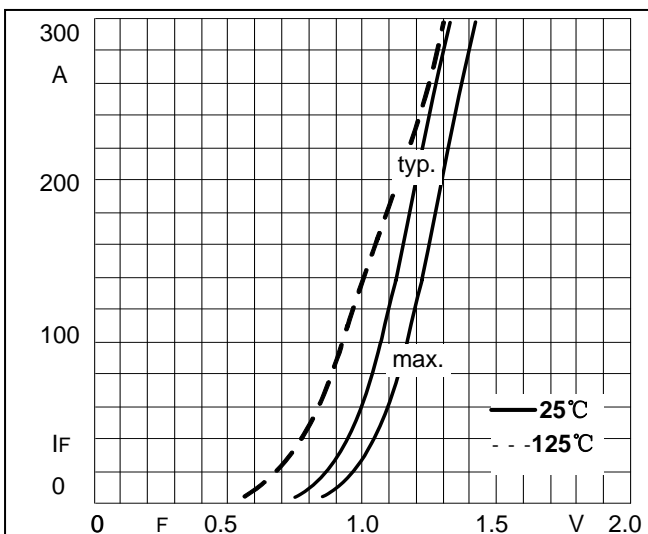
**Fig2. Forward Current Derating Curve**



**Fig3. Transient thermal impedance**



**Fig4. Max Non-Repetitive Forward Surge Current**



**Fig5. Forward Characteristics**



**Ordering Information :**

| Device         | Packing                     |
|----------------|-----------------------------|
| Part Number-BP | Bulk: 10PCS/BOX ;100PCS/CTN |

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