



## Diode Module

### Features

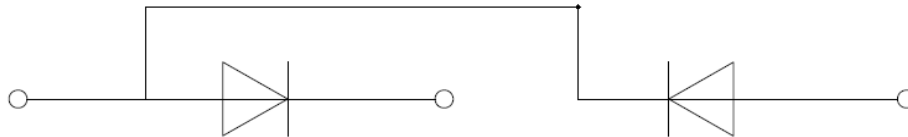
- A package of series of two diodes
- Heat transfer through alumina ceramic and metal substrate
- Welding by vacuum welding technology, which provide high reliability

### Product Summary

| Parameter                                  | Value | Unit |
|--|-------|------|
| $V_{RRM}$                                  | 2000  | V    |
| $I_{F(AV)}$ (@ $T_C = 100^\circ\text{C}$ ) | 250   | A    |
| $I_{FSM}$ (@ $t_p = 10\text{ms}$ )         | 8000  | A    |
| $V_{FM(Max)}$                              | 1.60  | V    |

### Applications

- AC converter
- Inverter
- DC motor



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

| Parameter                           | Conditions                  | Symbol      | Values     | Unit                 |
|-------------------------------------|-----------------------------|-------------|------------|----------------------|
| Repetitive peak reverse voltage     | $T_{vj} = 25^\circ\text{C}$ | $V_{RRM}$   | 2000       | V                    |
| Non-repetitive peak reverse voltage | $T_{vj} = 25^\circ\text{C}$ | $V_{RSM}$   | 2100       | V                    |
| Average forward current             | $T_C = 100^\circ\text{C}$   | $I_{F(AV)}$ | 250        | A                    |
| Forward surge current               | 1/2 cycle, Sine wave, 50Hz  | $I_{FSM}$   | 8000       | A                    |
| $I^2t$ value for fusing             | $T_{vj} = 25^\circ\text{C}$ | $I^2t$      | 320000     | $\text{A}^2\text{s}$ |
| RMS isolation voltage               | A.C 50Hz(1s/1min)           | $V_{ISO}$   | 3600/3000  | V                    |
| Junction temperature range          |                             | $T_J$       | -40 ~ +150 | $^\circ\text{C}$     |
| Storage temperature range           |                             | $T_{stg}$   | -40 ~ +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    | $I_F=750\text{A}$ , $t_p=380\mu\text{s}$                          | $V_{FM}$  |        |      | 1.60 | V                |
| Reverse leakage current | $V_R = V_{RRM}$ , $T_{vj} = 25^\circ\text{C}$                     | $I_{RRM}$ |        |      | 100  | $\mu\text{A}$    |
|                         | $V_R = V_{RRM}$ , $T_{vj} = 150^\circ\text{C}$                    |           |        |      | 90   | mA               |
| Threshold voltage       | $T_{vj} = 150^\circ\text{C}$ ,<br>for power loss calculation only | $V_{TO}$  |        |      | 0.81 | V                |
| Dynamic resistance      |   | $r_T$     |        |      | 0.8  | $\text{m}\Omega$ |

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

| Parameter                            | Conditions                            | Symbol        | Values |      |      | Unit                      |
|--------------------------------------|---------------------------------------|---------------|--------|------|------|---------------------------|
|                                      |                                       |               | Min.   | Typ. | Max. |                           |
| Thermal resistance, junction to case | per diode                             | $R_{th(j-c)}$ |        | 0.13 |      | $^\circ\text{C}/\text{W}$ |
| Thermal resistance, case to heatsink | per diode                             | $R_{th(c-s)}$ |        | 0.07 |      | $^\circ\text{C}/\text{W}$ |
| Mounting torque                      | Module and heatsink fixed torque M5   | M             | 4.25   |      | 5.75 | N·m                       |
|                                      | Electrode connection torque, screw M6 |               | 4.25   |      | 5.75 | N·m                       |

**Ordering Information**

| Device        | Marking       | Package | Weight                          | Inner Box | Pre Carton |
|---------------|---------------|---------|---------------------------------|-----------|------------|
| JMD250KD20T2W | JMD250KD20T2W | T2      | $170 \pm 10\text{g}/\text{PCS}$ | 6 PCS     | 72 PCS     |

Typical Electrical & Thermal Characteristics

FIG.1: Forward characteristics(per diode)

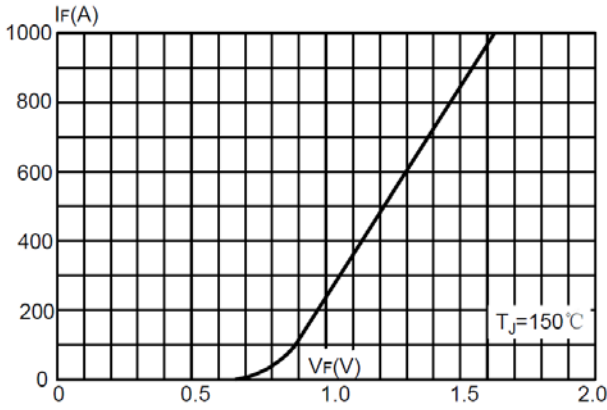


FIG.2: Peak on-state surge current

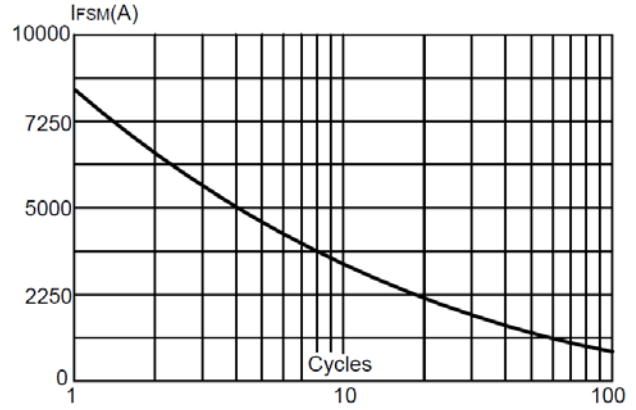


FIG.3: Forward current vs. case temperature

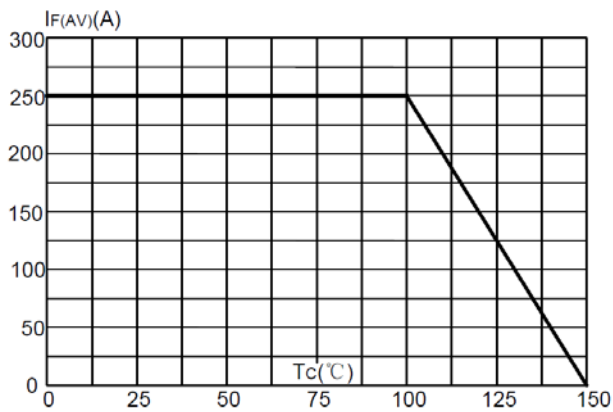
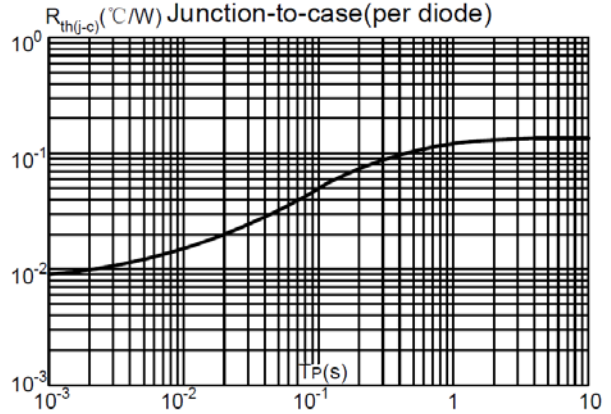
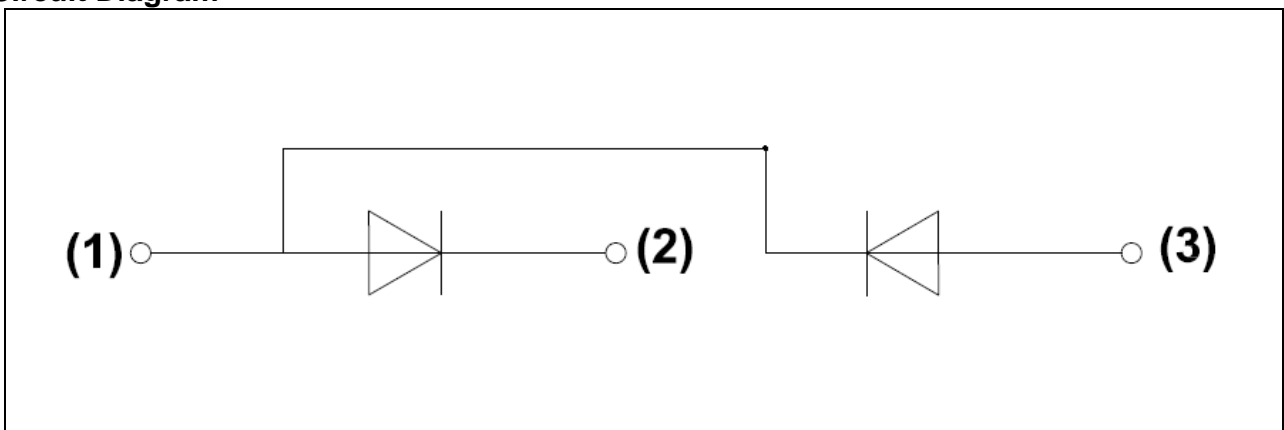


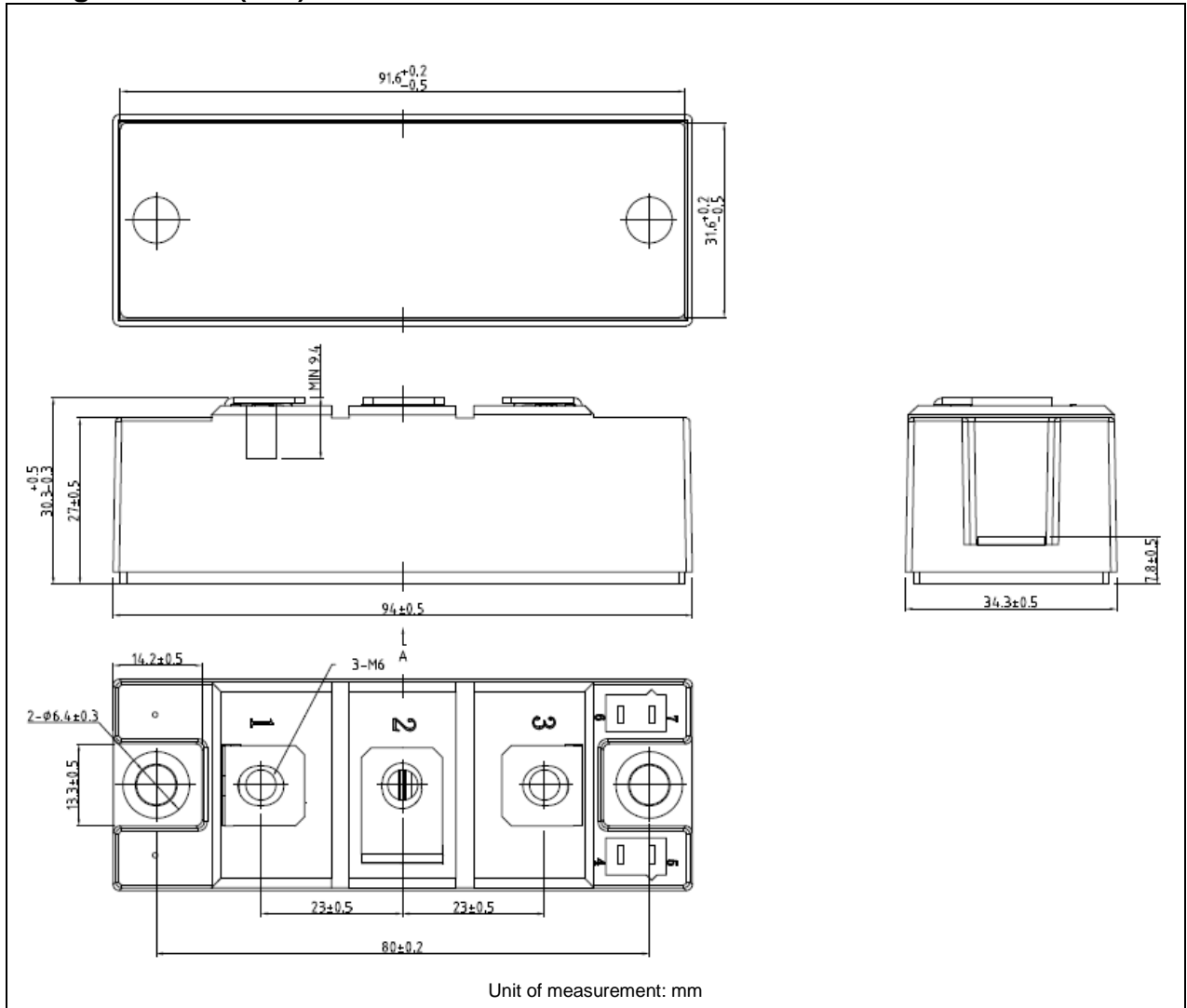
FIG.4: Maximum transient thermal impedance



Circuit Diagram




Package Outlines (mm)





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