## FEATURES

☐ Low Forward Voltage

☐ High Surge Current Capability

☐ Low Leakage Current

☐ Low Inductance Package

## APPLICATIONS

☐ Field Supply For DC Motors

☐ Line Rectifiers For Transistorized AC Motor Controllers

☐ Non-controllable Rectifiers For AC/DC Converter
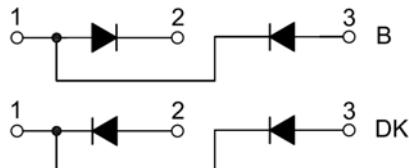
## MODULE TYPE

| TYPE | Circuit Diagram | | VRRM (Repetitive Peak Reverse Voltage) | VRSM (Non-Repetitive Peak Reverse Voltage) | Unit |
|---|---|---|---|---|---|
| | B | DK | | | |
| | MMD180S120B | MMD180S120DK | 1200 | 1300 | `V |
| | MMD180S140B | MMD180S140DK | 1400 | 1500 | |
| | MMD180S160B | MMD180S160DK | 1600 | 1700 | |
| | MMD180S180B | MMD180S180DK | 1800 | 1900 | |

## ABSOLUTE MAXIMUM RATINGS          *$T_C$=25℃ unless otherwise specified*

| Symbol | Parameter | Test Conditions | Values | Unit |
|---|---|---|---|---|
| $I_{F(AV)}$ | Average Forward Current | Single phase, half wave, 180°conduction, Tc= 90°C | 180 | A |
| $I_{F(RMS)}$ | R.M.S. Forward Current | | 280 | |
| $I_{FSM}$ | Non-Repetitive Surge Forward Current | 1/2 cycle, 50HZ, peak value Tc =45°C | 6000 | |
| | | 1/2 cycle, 60HZ, peak value Tc =45°C | 6500 | |
| $I^2t$ | $I^2t$ (For Fusing) | 1/2 cycle, 50HZ, peak value Tc =45°C | 180.0 | $KA^2s$ |
| | | 1/2 cycle, 60HZ, peak value Tc =45°C | 175.3 | $KA^2s$ |
| $P_D$ | Power Dissipation | | 694 | W |
| $T_J$ | Junction Temperature | | -40 to +150 | °C |
| $T_{STG}$ | Storage Temperature Range | | -40 to +125 | °C |
| $V_{ISO}$ | Isolation Breakdown Voltage | AC, 50Hz(R.M.S), t=1minute | 3000 | V |
| Torque | Module-to-Sink | Recommended（M6） | 3～5 | N.m |
| Torque | Module Electrodes | Recommended（M6） | 3～5 | N.m |
| $R_{th(J-C)}$ | Junction-to-Case Thermal Resistance | | 0.18 | K /W |
| Weight | | | 170 | g |

## ELECTRICAL AND THERMAL CHARACTERISTICS    $T_C=25°C$ *unless otherwise specified*

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--------|-----------|-----------------|------|------|------|------|
| $I_{RM}$ | Max.Reverse Leakage Current | $V_R= V_{RRM}$ | | | 500 | μA |
| | | $V_R= V_{RRM}$ , $T_J=125°C$ | | | 10 | mA |
| $V_F$ | Forward Voltage | $I_F=600A$ | | | 1.5 | V |
| $V_{T0}$ | For power-loss calculations only | | | | 0.82 | V |
| $r_T$ | $T_J=125°C$ | | | | 1.1 | mΩ |
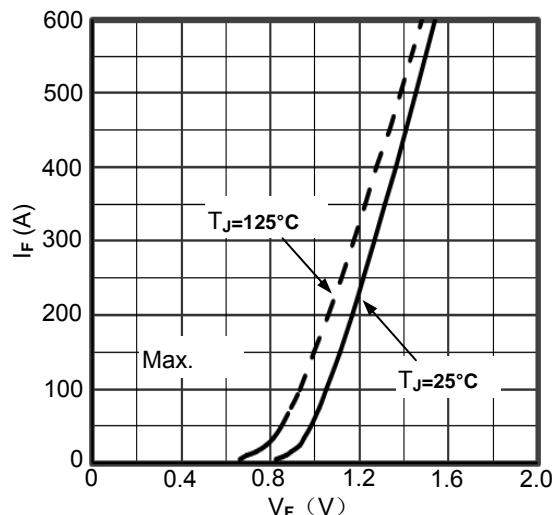
Figure1. Forward current vs.voltage drop
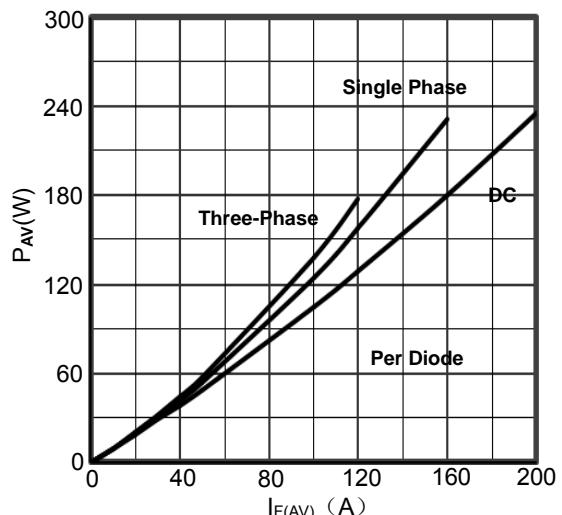
Figure2. Diode Power dissipation vs. $I_{F(AV)}$
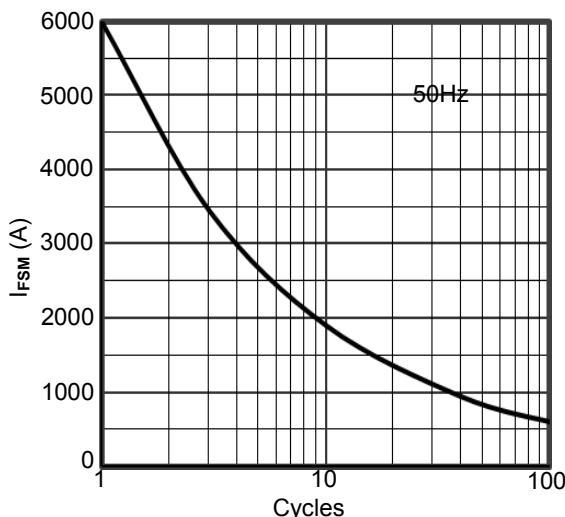
Figure3. Max Non-Repetitive Forward Surge Current
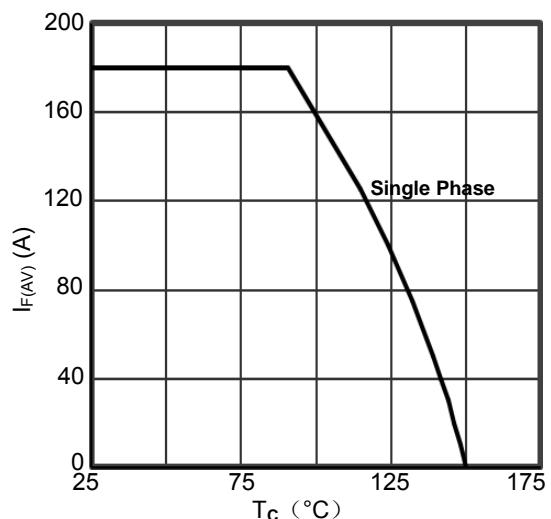
Figure4. Forward current vs.Case temperature
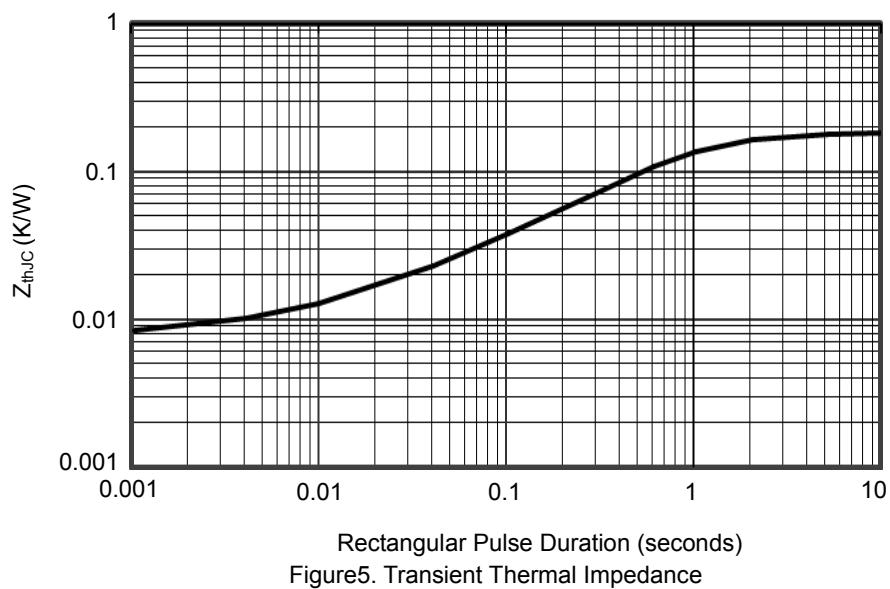
Rectangular Pulse Duration (seconds)
Figure5. Transient Thermal Impedance
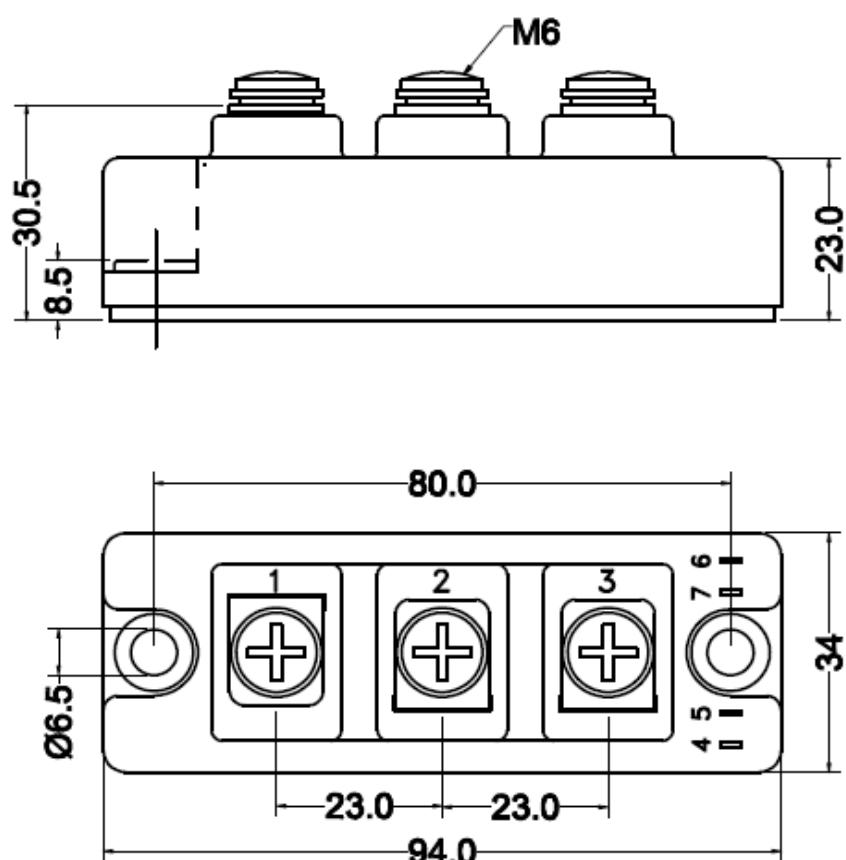


Dimensions in Millimeters
Figure6. Package Outline