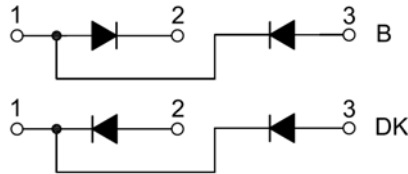


FEATURES

- 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°C unless otherwise specified

| Symbol | Parameter | Test Conditions | Values | Unit |
|-----------------------|--------------------------------------|---|-------------|-------------------|
| I _{F(AV)} | Average Forward Current | Single phase, half wave, 180°conduction, T _c = 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 T _c =45°C | 6000 | |
| | | 1/2 cycle, 60HZ, peak value T _c =45°C | 6500 | |
| I ² t | I ² t (For Fusing) | 1/2 cycle, 50HZ, peak value T _c =45°C | 180.0 | KA ² s |
| | | 1/2 cycle, 60HZ, peak value T _c =45°C | 175.3 | KA ² s |
| 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 |

MMD180S

ELECTRICAL AND THERMAL CHARACTERISTICS $T_C=25^\circ\text{C}$ unless otherwise specified

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------|----------------------------------|--|------|------|------|---------------|
| I_{RM} | Max.Reverse Leakage Current | $V_R = V_{RRM}$ | | | 500 | μA |
| | | $V_R = V_{RRM}, T_J = 125^\circ\text{C}$ | | | 10 | mA |
| V_F | Forward Voltage | $I_F = 600\text{A}$ | | | 1.5 | V |
| V_{T0} | For power-loss calculations only | | | | 0.82 | V |
| r_T | $T_J = 125^\circ\text{C}$ | | | | 1.1 | m Ω |

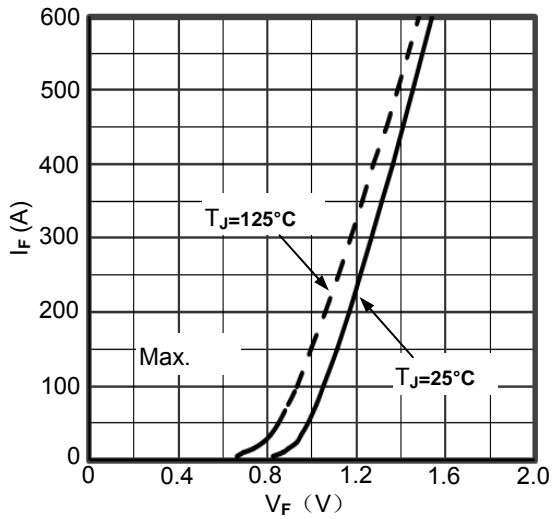


Figure1. Forward current vs.voltage drop

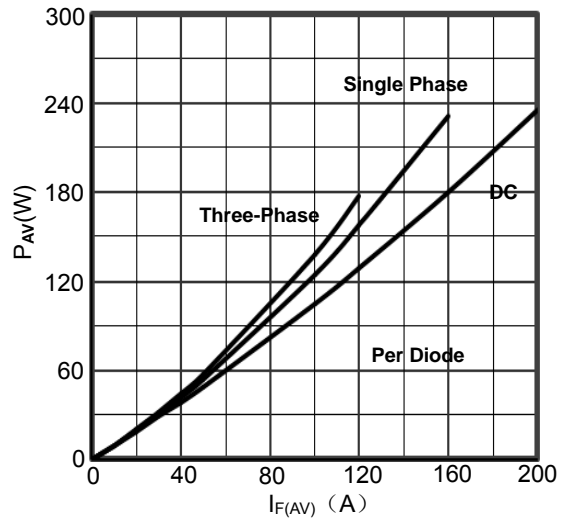


Figure2. Diode Power dissipation vs. $I_{F(AV)}$

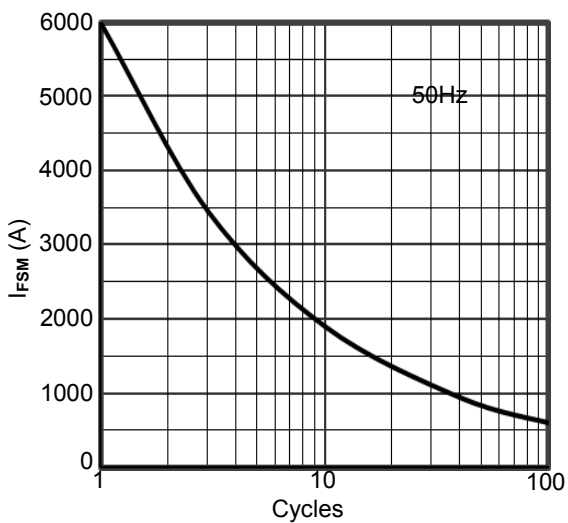


Figure3. Max Non-Repetitive Forward Surge Current

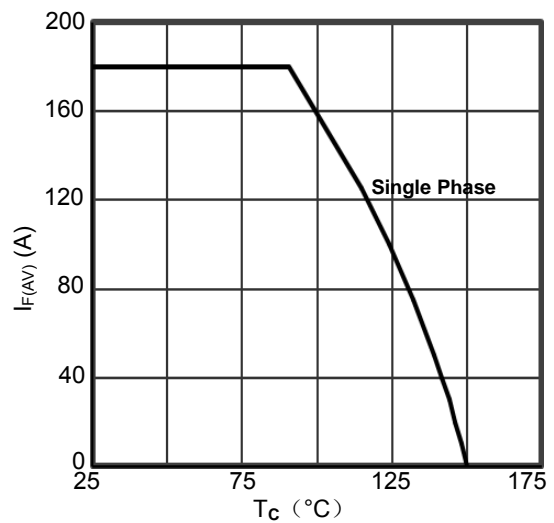


Figure4. Forward current vs. Case temperature

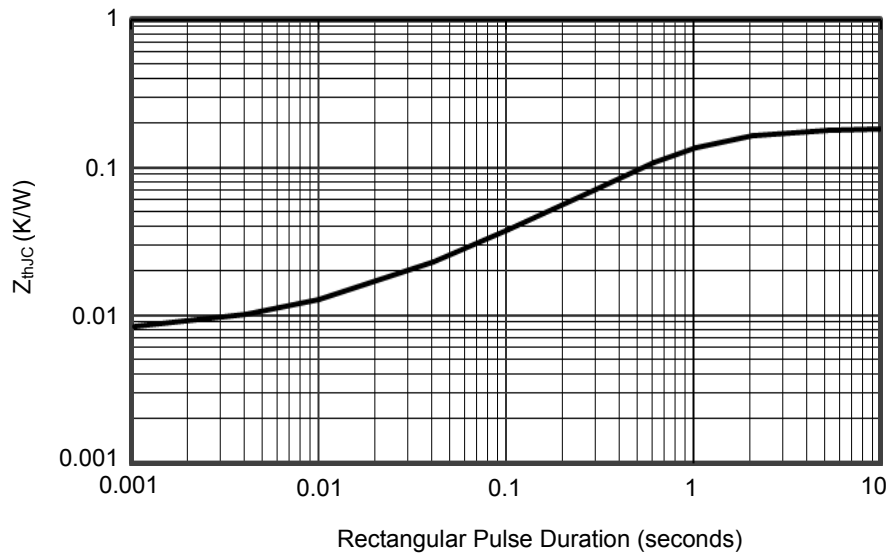


Figure5. Transient Thermal Impedance

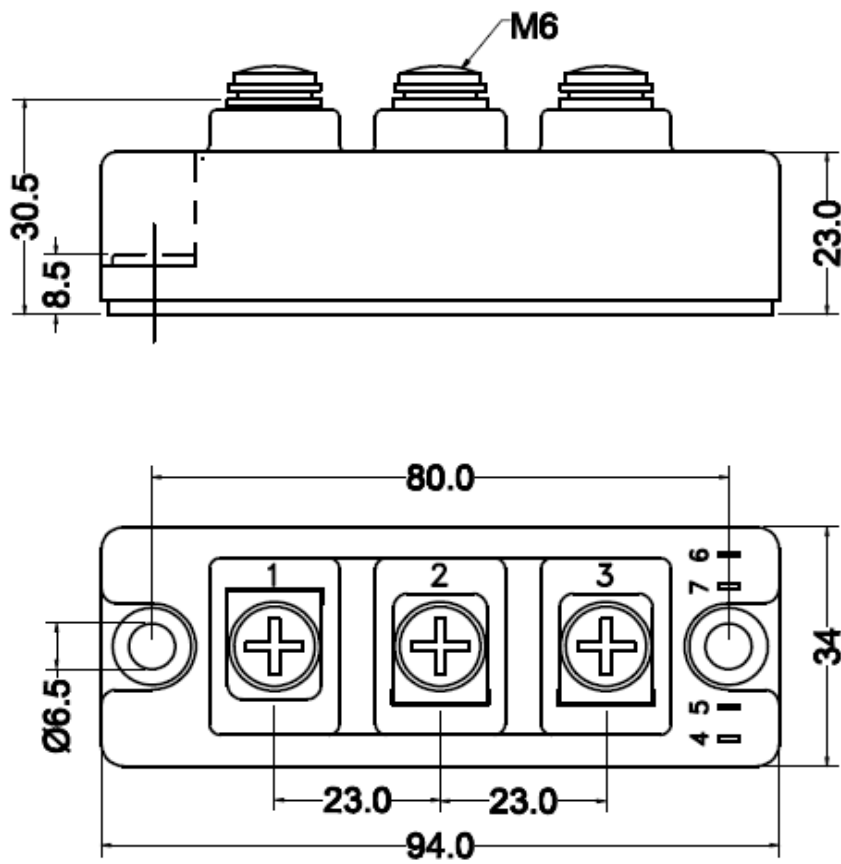


Figure6. Package Outline