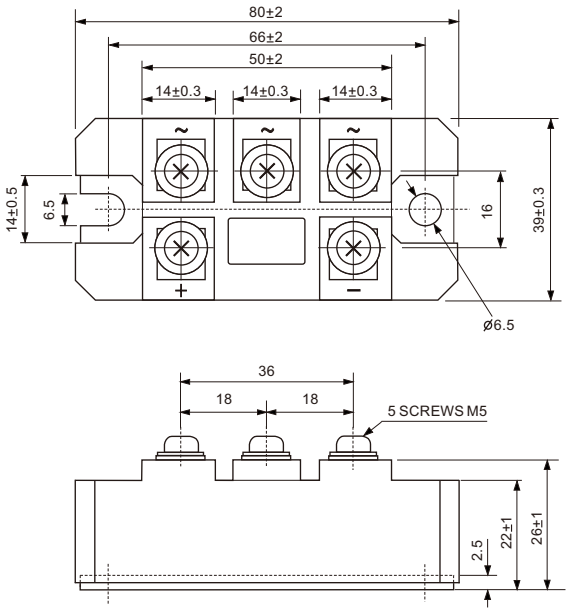
# Three-Phase Bridge Rectifier, 50A

# MTP5006 Thru MTP5018

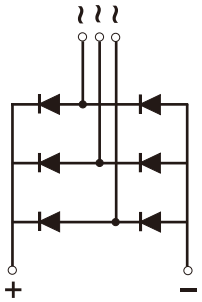



All dimensions in millimeters

## FEATURES

- UL recognition file number E320098
- Typical IR less than 2.0 μA
- High surge current capability
- Low thermal resistance
- Compliant to RoHS
- Isolation voltage up to 2500V

RoHS COMPLIANT




## TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for big power supply, field supply for DC motor, industrial automation applications.

## ADVANTAGE

- International standard package
  Epoxy meets UL 94 V-O flammability rating
- Small volume, light weight
- Small thermal resistance
- **Weight**: 195g (6.9 ozs)

| PRIMARY CHARACTERRISTICS | |
|---|---|
| $I_{F(AV)}$ | 50A |
| $V_{RRM}$ | 800V to 1800V |
| $I_{FSM}$ | 750A |
| $I_R$ | 5 μA |
| $V_F$ | 1.2V |
| $T_{J\ max.}$ | 150°C |

| **MAJOR RATINGS AND CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **MTP50** | | | | | **UNIT** |
| | | **08** | **10** | **12** | **16** | **18** | |
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 800 | 1000 | 1200 | 1600 | 1800 | V |
| Peak reverse non-repetitive voltage | $V_{RSM}$ | 900 | 1100 | 1300 | 1700 | 1900 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 800 | 1000 | 1200 | 1600 | 1800 | V |
| Maximum average forward rectified output current | $I_{F(AV)}$ | 50 | | | | | A |
| Peak forward surge current single sine-wave superimposed on rated load | $I_{FSM}$ | 750 | | | | | A |
| Rating (non-repetitive, for t greater than 1 ms and less than 8.3 ms) for fusing | $I^2t$ | 2800 | | | | | $A^2s$ |
| RMS isolation voltage from case to leads | $V_{ISO}$ | 2500 | | | | | V |
| Operating junction storage temperature range | $T_J$ | -40 to 150 | | | | | °C |
| Storage temperature range | $T_{STG}$ | -40 to 125 | | | | | °C |

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | **SYMBOL** | **MTP50** | | | | | **UNIT** |
| | | | **08** | **10** | **12** | **16** | **18** | |
| Maximum instantaneous forward drop per diode | $I_F$ = 50A | $V_F$ | 1.2 | | | | | V |
| Maximum reverse DC current at rated DC blocking voltage per diod | $T_A$ = 25°C | $I_R$ | 20 | | | | | μA |
| | $T_A$ = 150°C | | 4000 | | | | | |

| **THERMAL AND MECHANICAC** ($T_A$ = 25°C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | **SYMBOL** | **MTP50** | | | | | **UNIT** |
| | | | **08** | **10** | **12** | **16** | **18** | |
| Typical thermal resistance junction to case | Single-side heat dissipation, sine half wave | $R_{\theta JC}$(1) | 0.3 | | | | | °C/W |
| Mounting torque ± 10 % — to heatsink M6 | A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow for the spread of the compound. | | 4 | | | | | Nm |
| Mounting torque ± 10 % — to terminal M5 | | | 4 | | | | | |
| Approximate weight | | | 195 | | | | | g |

Notes

(1) With heatsink, single side heat dissipation, half sine wave.

(2) M6 screw.

**Device code**

| MTP | 50 | 16 |
|---|---|---|
| ① | ② | ③ |

1 - Module type: "MTP" for 3Ø Bridge

2 - $I_{F(AV)}$ rating:"50" for 50A

3 - Voltage code:code x 100 = $V_{RRM}$

**Fig.1 Forward characteristic**

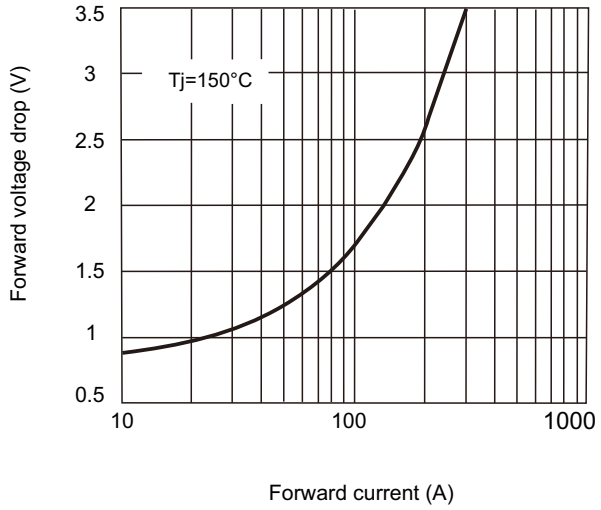



**Fig.2 Thermal Impedance (junction to case)**

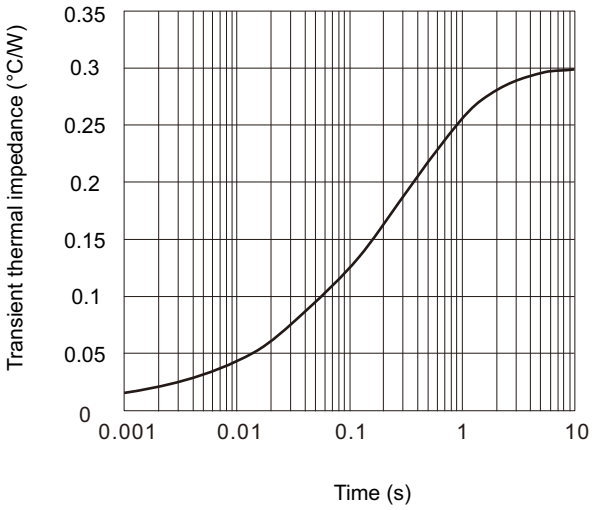



**Fig.3 Power dissipation vs. output current**

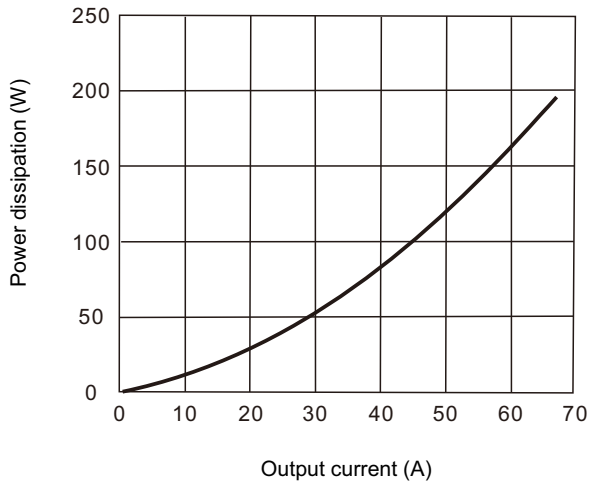



**Fig.4 Case temperature vs output current**

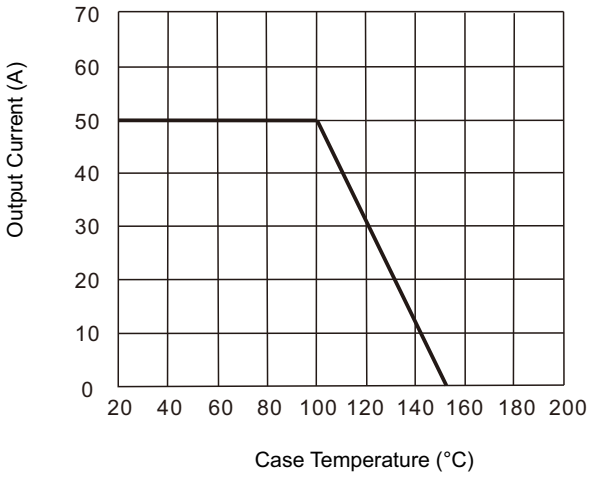



**Fig.5 Forward surge current vs. cycle**

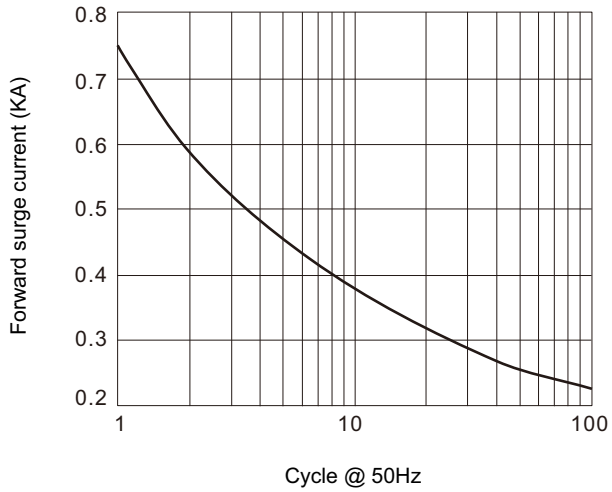



**Fig.6 $I^2t$ characteristic**