# DIODE/THYRISTOR POWER MODULES

## PHASE CONTROL, FAST, FAST SWITCHING (up to 1250 A / 4400 V)

**Features:**

- High load cycle resistance (more as 100000 cycles, ΔT = 100ºC), safe operation by commutation of currents up to 1600 A in heavy operation conditions
- Pressure contact design
- Different circuits:
- Single device (diode, thyristor, optothyristor, triac);
- Two devices in parallel;
- Two devices in series or in opposite directions (with common anode or cathode);
- Two parallel devices in opposite directions;
- Asymmetric thyristor with opposite diode and other
- Base plate width 20, 34, 50, 60, 70, 77, 90 mm

**Applications:**

- Rectifier bridges
- AC controllers
- Soft starters for AC motors
- DC motors control
- Input rectifiers in invertors
- Temperature control (for example, in furnaces and chemical processes)
- AC motors ccontrol
- DC current interrupters
- Inductive heating
- Uninterruptible supplies
- Welding

# RECTIFIER DIODE MODULES

| Type | $V_{RRM}$ | $I_{F(AV)}$ ($T_C$,°C) | $I_{FSM}$ 10ms | $V_{TO}$ | $r_T$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | °C/W | °C | V | |
| MDD-40<br>MDDA-40<br>MDDC-40 | 400-1800 | 40(100) | 1.2 | 1.0 | 3.80 | 0.680 | 140 | 2500 |  <br>MTD1 w =200g |
| MDD-63<br>MDDA-63<br>MDDC-63 | 400-1800 | 63(100) | 1.6 | 0.95 | 2.70 | 0.460 | 140 | 2500 | |
| MDD-80<br>MDDA-80<br>MDDC-80 | 400-1800 | 80(90) | 2.0 | 0.95 | 1.60 | 0.450 | 140 | 2500 | |
| M2D-160<br>M2DA-160<br>M2DC-160 | 2400-3200 | 180(85) | 5.5 | 0.85 | 0.85 | 0.18 | 125 | 2500 | |
| M2D-200<br>M2DA-200<br>M2DC-200 | 1200-2200 | 211(85) | 7.0 | 0.77 | 0.54 | 0.18 | 125 | 2500 |  <br>MTD2 w =500g |
| MDD-125<br>MDDA-125<br>MDDC-125 | 400-1600 | 125(92) | 5.0 | 0.90 | 0.65 | 0.19 | 125 | 2500 | |
| MDD-160<br>MDDA-160<br>MDDC-160 | 400-1600 | 160(89) | 6.0 | 0.90 | 0.55 | 0.18 | 125 | 2500 | |
| M2D-250<br>M2DA-250 | 2600-3200 | 286(85) | 9.0 | 0.85 | 0.38 | 0.125 | 125 | 3000 | |
| MDD-320<br>MDDA-320 | 1200-2400 | 330(100) | 8.3 | 0.84 | 0.45 | 0.125 | 150 | 3000 |  <br>MTD3 w =800g |
| MDD-200<br>MDDA-200 | 400-1600 | 200(89) | 7.0 | 0.9 | 0.60 | 0.13 | 125 | 3000 | |
| MDDA-250<br>MDD-250 | 400-1600 | 250(85) | 11 | 0.9 | 0.56 | 0.12 | 125 | 3000 | |
| M1D1-400 | 3400-4000 | 530(85) | 12 | 0.9 | 0.46 | 0.068 | 140 | 3000 | |
| M1D1-500 | 2400-3200 | 705(85) | 15 | 0.85 | 0.29 | 0.068 | 150 | 3000 | |
| M1D1-630 | 1200-2200 | 830(85) | 19 | 0.77 | 0.18 | 0.068 | 150 | 3000 | |
| M1D-400 | 1900-2800 | 600(85) | 18 | 0.90 | 0.30 | 0.068 | 140 | 3000 |  <br>MTD4 w =900g |
| M1D-500 | 1300-2600 | 730(85) | 20 | 0.85 | 0.25 | 0.068 | 150 | 3000 | |
| M1D-630 | 200-1200 | 850(85) | 24 | 0.80 | 0.15 | 0.068 | 150 | 3000 | |
| M2D1-400<br>M2D1A-400 | 3400-4000 | 530(85) | 12 | 0.9 | 0.46 | 0.068 | 140 | 3000 | |
| M2D1-500<br>M2D1A-500 | 2400-3200 | 705(85) | 15 | 0.85 | 0.29 | 0.068 | 150 | 3000 | |
| M2D1A-630<br>M2D1-630 | 1200-2200 | 830(85) | 19 | 0.77 | 0.18 | 0.068 | 150 | 3000 | |
| M2DA-400<br>M2D-400 | 1900-2800 | 600(85) | 18 | 0.90 | 0.30 | 0.068 | 140 | 3000 |  <br>MTD5 w =1500g |
| M2DA-500<br>M2D-500 | 1300-2600 | 730(85) | 20 | 0.85 | 0.25 | 0.068 | 150 | 3000 | |
| M2DA-630<br>M2D-630 | 200-1200 | 850(85) | 24 | 0.80 | 0.15 | 0.068 | 150 | 3000 | |
| M1D2-630 | 2900-4400 | 920(85) | 20 | 1.00 | 0.30 | 0.042 | 150 | 3000 | |
| M1D-800 | 1900-2800 | 1110(85) | 28 | 0.90 | 0.18 | 0.042 | 150 | 3000 | |
| M1D-1000 | 400-1800 | 1260(85) | 32 | 0.85 | 0.12 | 0.042 | 150 | 3000 |  <br>MTD6 w =2300g |

## RECTIFIER DIODE MODULES

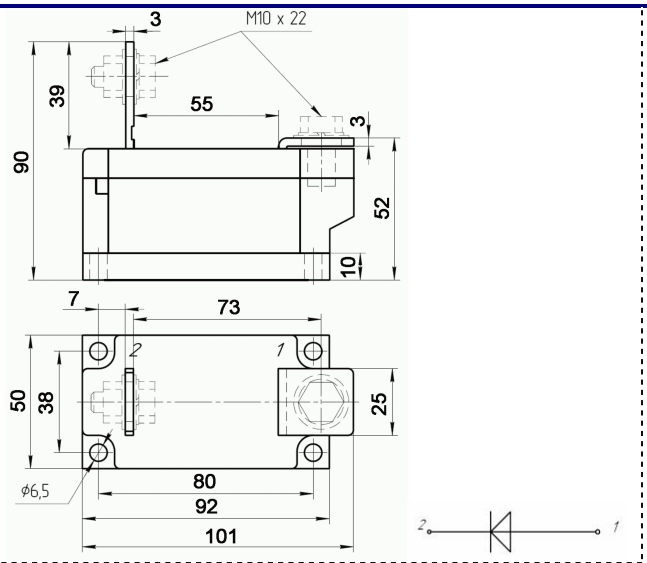
| Type | $V_{RRM}$ | $I_{F(AV)}$ ($T_C$, °C) | $I_{FSM}$ 10ms | $V_{TO}$ | $r_T$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | °C/W | °C | V | |
| M2D2-630 | 2900-4400 | 760(100) | 20 | 1.00 | 0.30 | 0.042 | 150 | 3500 |  MTD7 w =4000g |
| M2D2A-630 | | | | | | | | | |
| M2D2C-630 | | | | | | | | | |
| M2D2-800 | 1900-2800 | 910(100) | 28 | 0.90 | 0.18 | 0.042 | 150 | 3000 | |
| M2D2A-800 | | | | | | | | | |
| M2D2C-800 | | | | | | | | | |
| M2D2-1000 | 400-1800 | 1030(100) | 32 | 0.85 | 0.12 | 0.042 | 150 | 3000 | |
| M2D2A-1000 | | | | | | | | | |
| M2D2C-1000 | | | | | | | | | |

## AVALANCHE DIODE MODULES WITH HIGH INSULATION VOLTAGE

**Features:**
- Standard case
- Insulation voltage up to 9.5 kV between main terminals and base plate
- Guaranteed power dissipation by avalanche breakdown

**Applications:**
- Railway converters

| Type | $V_{RRM}$ | $I_{F(AV)}$ ($T_C$, °C) | $I_{FSM}$ 10ms | $V_{TO}$ | $r_T$ | $P_{RSM}$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | kW | °C/W | °C | V | |
| M1DL-400-40 | 2800-4000 | 400(85) | 12 | 1.0 | 0.77 | 16 | 0.09 | 150 | 9500 | MTD4-1 |




MTD4-1

# PHASE CONTROL THYRISTOR MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| MTT-40 | 400-1600 | 40(85) | 0.8 | 1.00 | 3.80 | 200 | 500-1000 | 100 | 0.680 | 125 | 2500 |  MTD1 w =200g |
| MTTA-40 | | | | | | | | | | | | |
| MTTC-40 | | | | | | | | | | | | |
| MTT-63 | 400-1600 | 63(85) | 1.2 | 0.95 | 3.0 | 200 | 500-1000 | 125 | 0.460 | 125 | 2500 | |
| MTTA-63 | | | | | | | | | | | | |
| MTTC-63 | | | | | | | | | | | | |
| MTT-80 | 400-1200 | 80(75) | 1.6 | 0.90 | 2.00 | 200 | 500-1000 | 160 | 0.450 | 125 | 2500 | |
| MTTA-80 | | | | | | | | | | | | |
| MTTC-80 | | | | | | | | | | | | |
| M2T-100 | 2600-3200 | 116(85) | 3.5 | 1.15 | 2.6 | 200 | 1000 | 320 | 0.180 | 125 | 2500 |  MTD2 w =500g |
| M2TA-100 | | | | | | | | | | | | |
| M2TC-100 | | | | | | | | | | | | |
| M2T-125 | 1800-2400 | 140(85) | 4.0 | 1.05 | 1.5 | 200 | 1000 | 250 | 0.180 | 125 | 2500 | |
| M2TA-125 | | | | | | | | | | | | |
| M2TC-125 | | | | | | | | | | | | |
| M2T-200 | 400-1200 | 218(85) | 5.5 | 0.83 | 0.58 | 200 | 1000 | 125 | 0.180 | 130 | 2500 | |
| M2TA-200 | | | | | | | | | | | | |
| M2TC-200 | | | | | | | | | | | | |
| MTT-100 | 400-1600 | 100(85) | 2.5 | 1.15 | 2.40 | 320 | 1000 | 160 | 0.220 | 125 | 2500 | |
| MTTA-100 | | | | | | | | | | | | |
| MTTC-100 | | | | | | | | | | | | |
| MTT-125 | 400-1600 | 125(85) | 3.0 | 1.10 | 1.80 | 320 | 1000 | 200 | 0.190 | 125 | 2500 | |
| MTTA-125 | | | | | | | | | | | | |
| MTTC-125 | | | | | | | | | | | | |
| MTT-160 | 400-1600 | 160(85) | 4.5 | 1.00 | 1.05 | 320 | 1000 | 200 | 0.180 | 125 | 2500 | |
| MTTA-160 | | | | | | | | | | | | |
| MTTC-160 | | | | | | | | | | | | |
| MTT1-200 | 600-1400 | 200(73) | 5.0 | 0.95 | 1.25 | 500 | 1000 | 125 | 0.180 | 130 | 2500 | |
| MTT1A-200 | | | | | | | | | | | | |
| MTT1C-200 | | | | | | | | | | | | |
| M2T1-160 | 2600-3200 | 175(85) | 5.0 | 1.15 | 1.50 | 200 | 1000 | 320 | 0.125 | 125 | 3000 |  MTD3 w =800g |
| M2T1A-160 | | | | | | | | | | | | |
| M2T1-200 | 1800-2400 | 210(85) | 7.0 | 1.05 | 0.85 | 200 | 1000 | 250 | 0.125 | 125 | 3000 | |
| M2T1A-200 | | | | | | | | | | | | |
| M2T-250 | 1200-1800 | 280(85) | 8.0 | 0.95 | 0.5 | 200 | 1000 | 160 | 0.125 | 130 | 3000 | |
| M2TA-250 | | | | | | | | | | | | |
| M2T1-320 | 600-1200 | 375(85) | 10 | 0.85 | 0.35 | 200 | 1000 | 125 | 0.125 | 140 | 3000 | |
| M2T1A-320 | | | | | | | | | | | | |
| MTT2-160 | 400-1600 | 170(85) | 5.4 | 1.15 | 1.00 | 320 | 1000 | 160 | 0.150 | 125 | 3000 | |
| MTT2A-160 | | | | | | | | | | | | |
| MTT-200 | 400-1600 | 200(85) | 6.0 | 1.05 | 0.95 | 320 | 1000 | 160 | 0.130 | 125 | 3000 | |
| MTTA-200 | | | | | | | | | | | | |
| MTT-250 | 400-1600 | 250(85) | 7.0 | 1.05 | 0.53 | 320 | 1000 | 160 | 0.120 | 125 | 3000 | |
| MTTA-250 | | | | | | | | | | | | |
| M1T-250 | 3400-4000 | 300(85) | 6.0 | 1.2 | 1.0 | 200 | 1000 | 400 | 0.068 | 125 | 3000 |  MTD4 w =900g |
| M1T-320 | 2600-3200 | 357(85) | 8.0 | 1.00 | 0.735 | 200 | 1000 | 320 | 0.068 | 125 | 3000 | |
| M1T1-400 | 2000-2400 | 407(85) | 9.0 | 1.02 | 0.42 | 200 | 1000 | 250 | 0.068 | 125 | 3000 | |
| M1T1-500 | 800-1800 | 500(85) | 13 | 0.95 | 0.3 | 200 | 1000 | 160 | 0.068 | 130 | 3000 | |
| M1T-400 | 1300-1800 | 460(85) | 13 | 0.92 | 0.32 | 200 | 1000 | 160 | 0.068 | 125 | 3000 | |
| M1T-500 | 400-1200 | 545(85) | 14 | 0.85 | 0.27 | 200 | 1000 | 125 | 0.068 | 130 | 3000 | |
| M1T-630 | 400-1200 | 660(85) | 17 | 0.81 | 0.25 | 200 | 1000 | 125 | 0.068 | 140 | 3000 | |

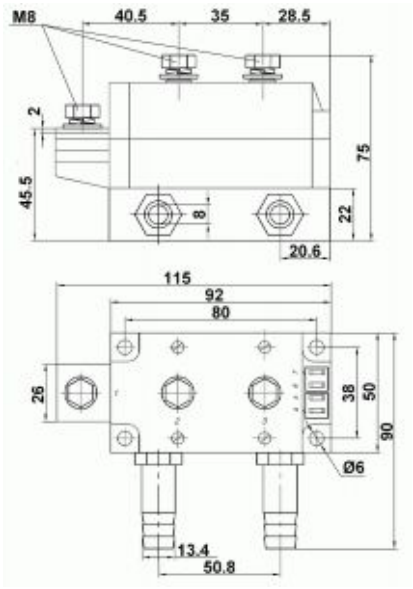
# PHASE CONTROL THYRISTOR MODULES

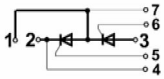
| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| M2T1-250<br>M2T1A-250 | 3000-4000 | 300(85) | 6.0 | 1.2 | 1.0 | 200 | 1000 | 400 | 0.068 | 125 | 3000 | |
| M2T-320<br>M2TA-320 | 2600-3200 | 357(85) | 8.0 | 1.00 | 0.735 | 200 | 1000 | 320 | 0.068 | 125 | 3000 | |
| M2T1-400<br>M2T1A-400 | 1800-2400 | 407(85) | 9.0 | 1.02 | 0.42 | 200 | 1000 | 250 | 0.068 | 125 | 3000 | |
| M2T-400<br>M2TA-400 | 1300-1800 | 460(85) | 13 | 0.92 | 0.32 | 200 | 1000 | 200 | 0.068 | 125 | 3000 |  <br>MTD5<br>w =1500g |
| M2T1-500<br>M2T1A-500 | 800-1800 | 500(85) | 13 | 0.95 | 0.3 | 200 | 1000 | 200 | 0.068 | 130 | 3000 | |
| M2T-500<br>M2TA-500 | 200-1200 | 545(85) | 14 | 0.85 | 0.27 | 200 | 1000 | 125 | 0.068 | 130 | 3000 | |
| M2T-630<br>M2TA-630 | 400-1200 | 660(85) | 17 | 0.81 | 0.25 | 200 | 1000 | 125 | 0.068 | 140 | 3000 | |
| M1T2-400 | 3600-4000 | 492(85) | 15 | 1.18 | 0.62 | 200 | 1000 | 400 | 0.042 | 125 | 2500 | |
| M1T2-500 | 2900-3400 | 570(85) | 18 | 1.10 | 0.40 | 200 | 1000 | 320 | 0.042 | 125 | 2500 | |
| M1T2-630 | 1900-2800 | 660(80) | 20 | 1.05 | 0.35 | 200 | 1000 | 320 | 0.042 | 125 | 2500 | |
| M1T-800 | 1300-1800 | 840(80) | 23 | 1.00 | 0.20 | 200 | 1000 | 200 | 0.042 | 130 | 2500 |  <br>MTD6<br>w =2300g |
| M1T-1000 | 400-1200 | 1020(85) | 28 | 0.90 | 0.15 | 200 | 1000 | 160 | 0.042 | 140 | 2500 | |
| M1T1-1250 | 400-800 | 1250(85) | 30 | 0.83 | 0.10 | 200 | 1000 | 100 | 0.042 | 150 | 2500 | |
| M2T2-400<br>M2T2A-400<br>M2T2C-400 | 3600-4000 | 492(85) | 15 | 1.18 | 0.62 | 200 | 1000 | 400 | 0.042 | 125 | 3500 | |
| M2T2-500<br>M2T2A-500<br>M2T2C-500 | 2900-3400 | 570(85) | 18 | 1.10 | 0.40 | 200 | 1000 | 320 | 0.042 | 125 | 3500 | |
| M2T2-630<br>M2T2A-630<br>M2T2C-630 | 1900-2800 | 630(85) | 20 | 1.02 | 0.32 | 200 | 1000 | 320 | 0.042 | 125 | 3000 |  <br>MTD7<br>w =4000g |
| M2T2-800<br>M2T2A-800<br>M2T2C-800 | 1300-1800 | 820(85) | 23 | 0.93 | 0.17 | 200 | 1000 | 200 | 0.042 | 130 | 3000 | |
| M2T2-1000<br>M2T2A-1000<br>M2T2C-1000 | 400-1200 | 1035(85) | 28 | 0.90 | 0.15 | 200 | 1000 | 160 | 0.042 | 140 | 3000 | |
| M2T2-1250<br>M2T2A-1250<br>M2T2C-1250 | 400-800 | 1250(85) | 30 | 0.83 | 0.10 | 200 | 1000 | 125 | 0.042 | 150 | 3000 | |
| M1T-1600 | 200-1200 | 1610(85) | 60* | 0.85 | 0.064 | 200 | 1000 | 200 | 0.028 | 135 | 3000 | |
| M1T-1250 | 1200-1800 | 1340(85) | 49 | 0.90 | 0.07 | 200 | 1000 | 250 | 0.028 | 130 | 3000 | |
| M1T2-1000 | 1800-2400 | 1110(85) | 42 | 0.90 | 0.14 | 200 | 1000 | 320 | 0.028 | 125 | 3000 |  <br>MTD8<br>**w*=4300g** |

# THYRISTOR MODULES WITH INTERNAL LIQUID COOLING

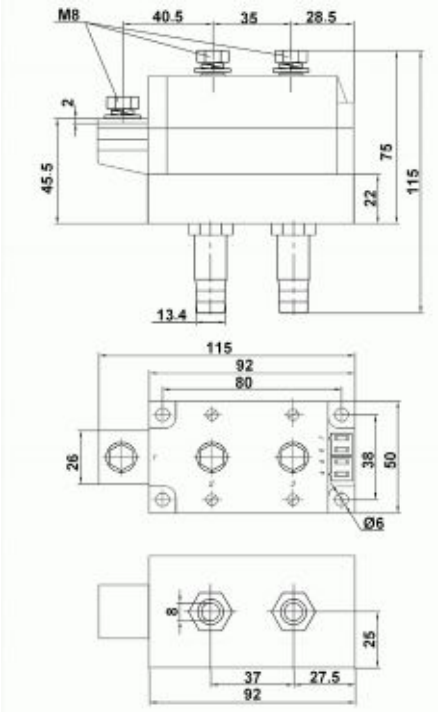
| Type | $V_{DRM}$, $V_{RRM}$ | $I_{RMS}$ ($T_W$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_{q\ (typ)}$ | $R_{thjW}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| M2T-800-...-OB | 1200-1800 | 825(25)<br>735(40) | 8 | 0.95 | 0.5 | 200 | 1600 | 160 | 0.2 | 130 | 3000 | MTD<br>w =1300g |
| M2T-1550-...-OB | 400-1200 | 1573(85)<br>1418(40) | 17 | 0.81 | 0.25 | 200 | 1000 | 160 | 0.13 | 140 | 3000 | MTD<br>w =1300g |

Module with side openings for cooling liquid

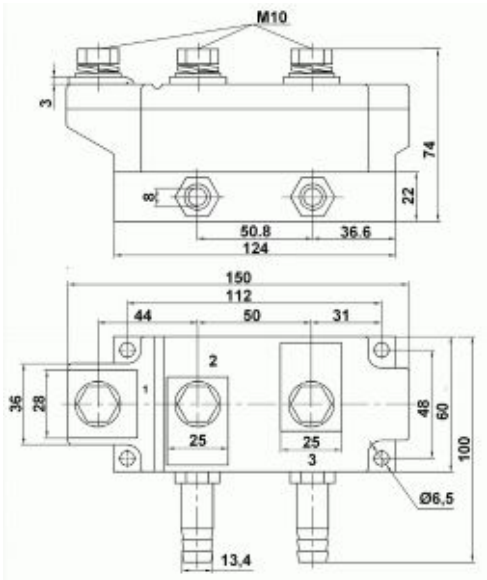


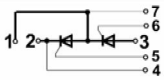



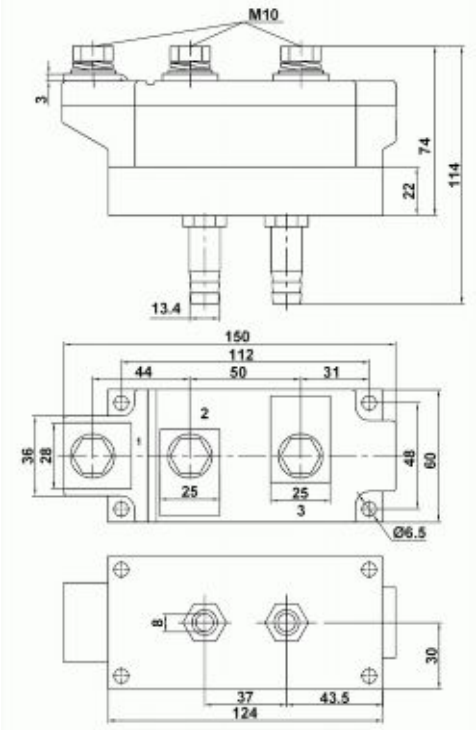

Module with bottom openings for cooling liquid




M2T-800-...-OB




M2T-1550-...-OB

# PHASE CONTROL THYRISTOR-DIODE AND DIODE-THYRISTOR MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| MTD-40, MDT-40<br>MTDA-40, MDTA-40<br>MTDC-40, MDTC-40 | 400-1600 | 40(85) | 0.8 | 1.0 | 3.8 | 200 | 500-1000 | 100 | 0.680 | 125 | 2500 | |
| MTD-63, MDT-63<br>MTDA-63, MDTA-63<br>MTDC-63, MDTC-63 | 400-1600 | 63(85) | 1.2 | 0.94 | 2.8 | 200 | 500-1000 | 125 | 0.460 | 125 | 2500 |  <br>MTD1<br>w =200g |
| MTD-80, MDT-80<br>MTDA-80, MDTA-80<br>MTDC-80, MDTC-80 | 400-1600 | 80(75) | 1.6 | 0,9 | 2.0 | 200 | 500-1000 | 160 | 0.450 | 125 | 2500 | |
| MTD1-100, MDT1-100<br>MTD1A-100, MDT1A-100<br>MTD1C-100, MDT1C-100 | 2600-3200 | 116(85) | 3.5 | 1.15 | 2.6 | 200 | 1000 | 320 | 0.180 | 125 | 2500 | |
| MTD1-125, MDT1-125<br>MTD1A-125, MDT1A-125<br>MTD1C-125, MDT1C-125 | 1800-2400 | 140(85) | 4.0 | 1.05 | 1.5 | 200 | 1000 | 200 | 0.180 | 125 | 2500 | |
| MTD1-160, MDT1-160<br>MTD1A-160, MDT1A-160<br>MTD1C-160, MDT1C-160 | 400-1600 | 180 (85) | 5.0 | 0.9 | 0.75 | 200 | 1000 | 160 | 0.180 | 125 | 2500 | |
| MTD1-200, MDT1-200<br>MTD1A-200, MDT1A-200<br>MTD1C-200, MDT1C-200 | 400-1200 | 218(85) | 5.5 | 0.83 | 0.58 | 200 | 1000 | 125 | 0.180 | 130 | 2500 |  <br>MTD2<br>w =500g |
| MTD-100, MDT-100<br>MTDA-100, MDTA-100<br>MTDK-100, MDTK-100 | 400-1600 | 100(85) | 2.5 | 1.15 | 2.40 | 200 | 1000 | 160 | 0.220 | 125 | 2500 | |
| MTD-125, MDT-125<br>MTDA-125, MDTA-125<br>MTDC-125, MDTC-125 | 400-1600 | 125(85) | 3.0 | 1.10 | 1.80 | 200 | 1000 | 200 | 0.190 | 125 | 2500 | |
| MTD-160, MDT-160<br>MTDA-160, MDTA-160<br>MTDC-160, MDTC-160 | 400-1600 | 160(85) | 4.5 | 1.00 | 1.05 | 200 | 1000 | 200 | 0.180 | 125 | 2500 | |
| MTD2-160, MDT2-160<br>MTD2A-160, MDT2A-160 | 2600-3200 | 172(85) | 5.0 | 1.15 | 1.50 | 200 | 1000 | 320 | 0.13 | 125 | 3000 | |
| MTD2-200, MDT2-200<br>MTD2A-200, MDT2A-200 | 1800-2400 | 207(85) | 7.0 | 1.05 | 0.85 | 200 | 1000 | 250 | 0.13 | 125 | 3000 | |
| MTD1-250, MDT1-250<br>MTD1A-250, MDT1A-250 | 1200-1800 | 269(85) | 8.0 | 0.95 | 0.5 | 200 | 1000 | 160 | 0.13 | 130 | 3000 |  <br>MTD3<br>w =800g |
| MTD1-320, MDT1-320<br>MTD1A-320, MDT1A-320 | 600-1200 | 360(85) | 10 | 0.85 | 0.35 | 200 | 1000 | 125 | 0.13 | 140 | 3000 | |
| MTD-200, MDT-200<br>MTDA-200, MDTA-200 | 400-1600 | 200(85) | 6.0 | 1.05 | 0.95 | 200 | 1000 | 160 | 0.13 | 125 | 3000 | |
| MTD-250, MDT-250<br>MTDA-250, MDTA-250 | 400-1600 | 250(85) | 7.0 | 1.05 | 0.53 | 320 | 1000 | 160 | 0.12 | 125 | 3000 | |

# PHASE CONTROL THYRISTOR-DIODE AND DIODE-THYRISTOR MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$ °C) | $I_{TSM}$ 10ms | $V_{T(TO}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| MTD2-250, MDT2-250<br>MTD2A-250, MDT2A-250 | 3000-4000 | 300(85) | 6.0 | 1.2 | 1.00 | 200 | 1000 | 400 | 0.068 | 125 | 3000 |  <br>MTD5<br>w =1500g |
| MTD1-400, MDT1-400<br>MTD1A-400, MDT1A-400 | 1800-2400 | 407(85) | 9.0 | 1.02 | 0.42 | 200 | 1000 | 250 | 0.068 | 125 | 3000 | |
| MTD1-500, MDT1-500<br>MTD1A-500, MDT1A-500 | 800-1800 | 500(85) | 13 | 0.95 | 0.30 | 200 | 1000 | 200 | 0.068 | 130 | 3000 | |
| MTD-320, MDT-320<br>MTDA-320, MDTA-320 | 2600-3200 | 357(85) | 8.0 | 1.00 | 0.735 | 200 | 1000 | 320 | 0.068 | 125 | 3000 | |
| MTD-400, MDT-400<br>MTDA-400, MDTA-400 | 1300-1800 | 460(85) | 13 | 0.92 | 0.32 | 200 | 1000 | 160 | 0.068 | 125 | 3000 | |
| MTD-500, MDT-500<br>MTDA-500, MDTA-500 | 200-1200 | 545(85) | 14 | 0.85 | 0.27 | 200 | 1000 | 125 | 0.068 | 130 | 3000 | |
| MTD-630, MDT-630<br>MTDA-630, MDTA-630 | 200-1200 | 660(85) | 15 | 0.81 | 0.25 | 200 | 1000 | 125 | 0.068 | 140 | 3000 | |
| MTD2-400, MDT2-400<br>MTD2A-400, MDT2A-400<br>MTD2C-400, MDT2C-400 | 3600-4000 | 492(85) | 15 | 1.18 | 0.62 | 200 | 1000 | 400 | 0.042 | 125 | 3500 |  <br>MTD7<br>w =4000g |
| MTD2-500, MDT2-500<br>MTD2A-500, MDT2A-500<br>MTD2C-500, MDT2C-500 | 2900-3400 | 570(85) | 18 | 1.10 | 0.40 | 200 | 1000 | 320 | 0.042 | 125 | 3500 | |
| MTD2-630, MDT2-630<br>MTD2A-630, MDT2A-630<br>MTD2C-630, MDT2C-630 | 1900-2800 | 660(80) | 20 | 1.05 | 0.35 | 200 | 1000 | 320 | 0.042 | 125 | 3000 | |
| MTD2-800, MDT2-800<br>MTD2A-800, MDT2A-800<br>MTD2C-800, MDT2C-800 | 1300-1800 | 840(80) | 23 | 0.93 | 0.17 | 200 | 1000 | 200 | 0.043 | 130 | 3000 | |
| MTD2-1000, MDT2-1000<br>MTD2A-1000, MDT2A-1000<br>MTD2C-1000, MDT2C-1000 | 400-1200 | 1020(85) | 28 | 0.90 | 0.13 | 200 | 1000 | 160 | 0.043 | 140 | 3000 | |
| MTD2-1250, MDT2-1250<br>MTD2A-1250, MDT2A-1250<br>MTD2C-1250, MDT2C-1250 | 400-800 | 1060(85) | 30 | 0.85 | 0.11 | 200 | 1000 | 160 | 0.043 | 150 | 3000 | |

# FAST DIODE MODULES

| Type | $V_{RRM}$ | $I_{F(AV)}$ ($T_C$, °C) | $I_{FSM}$ 10ms | $V_{TO}$ | $r_T$ | $t_{rr}$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | µs | °C/W | °C | V | |
| M2DF-40<br>M2DF A-40<br>M2DFC-40 | 400-1600 | 40(85) | 1.6 | 1.4 | 5.0 | 0.50-1.00 | 0.46 | 140 | 2500 | |
| M2DF-63<br>M2DFA-63<br>M2DFC-63 | 400-1600 | 63(85) | 1.8 | 1.2 | 4.0 | 0.63-1.00 | 0.46 | 140 | 2500 |  <br>MTD1<br>w =200g |
| M2DF-80<br>M2DFA-80<br>M2DFC-80 | 400-1400 | 80(75) | 2.0 | 1.1 | 3.5 | 0.63-1.00 | 0.45 | 140 | 2500 | |
| MDFDF-160<br>MDFDFA-160<br>MDFDFC-160 | 300-1400 | 160(85) | 4.5 | 1.30 | 1.60 | 5 | 0.22 | 140 | 2500 |  <br>MTD2<br>w =500g |
| MDFDF-400<br>MDFDFA-400 | 400-1800 | 400(98) | 10 | 0.95 | 0.4 | 1-5 | 0.12 | 140 | 3000 |  <br>MTD3<br>w =800g |
| MDFDF1-400<br>MDFDF1A-400 | 800-2500 | 400(88) | 10 | 1.05 | 0.7 | 1-5 | 0.12 | 140 | 3000 | |
| M1DF-250 | 1900-2800 | 450(85) | 12 | 1.20 | 0.50 | 2.5-8 | 0.068 | 140 | 3000 |  <br>MTD4<br>w =900g |
| M1DF-320 | 1300-1800 | 490(85) | 14 | 1.15 | 0.40 | 2.5-8 | 0.068 | 140 | 3000 | |
| M1DF-400 | 200-1200 | 530(85) | 16 | 1.10 | 0.30 | 2.5-8 | 0.068 | 140 | 3000 | |
| M2DF-250<br>M2DFA-250 | 1900-2800 | 450(85) | 12 | 1.20 | 0.50 | 2.5-8 | 0.068 | 140 | 3000 | |
| M2DF-320<br>M2DFA-320 | 1300-1800 | 490(85) | 14 | 1.15 | 0.40 | 2.5-8 | 0.068 | 140 | 3000 |  <br>MTD5<br>w =1500g |
| M2DF-400<br>M2DFA-400 | 200-1200 | 530(85) | 16 | 1.10 | 0.30 | 2.5-8 | 0.068 | 140 | 3000 | |
| M1DF-500 | 2900-4400 | 730(85) | 16 | 1.20 | 0.50 | 2.5-8 | 0.042 | 150 | 3000 | |
| M1DF-630 | 1900-2800 | 820(85) | 20 | 1.15 | 0.35 | 2.5-8 | 0.042 | 150 | 3000 | |
| M1DF-800 | 400-1800 | 930(85) | 24 | 1.10 | 0.24 | 2.5-8 | 0.042 | 150 | 3000 |  <br>MTD6<br>w =2300g |
| MDF1-800 | 1800-2600 | 800(90) | 24 | 1.10 | 0.24 | 500µC | 0.042 | 150 | 3000 | |
| M1DF-1000 | 2600 | 1100(90) | 32 | 1.0 | 0.19 | 500µC | 0.030 | 140 | 3000 |  <br>MTD8<br>w* =4300g |

# FAST THYRISTOR MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| M2TF-40<br>M2TFA-40<br>M2TFC-40 | 400-1600 | 40(85) | 1.0 | 1.4 | 5.0 | 125 | 100-1000 | 25 | 0.46 | 125 | 2500 |  <br>MTD1<br>w =200g |
| M2TF-63<br>M2TFA-63<br>M2TFC-63 | 400-1600 | 63(75) | 1.1 | 1.2 | 4.0 | 125 | 100-1000 | 25 | 0.45 | 125 | 2500 | |
| MTFTF-100<br>MTFTFA-100<br>MTFTFC-100 | 500-1000 | 100(85) | 4 | 1.10 | 1.80 | 500 | 1000 | 40 | 0.220 | 125 | 2500 |  <br>MTD2<br>w =500g |
| MTF-250 | 900-2800 | 315(85) | 8 | 1.40 | 0.60 | 200 | 500-1000 | 63 | 0.068 | 125 | 3000 |  <br>MTD4<br>w =900g |
| M1TF-400 | 600-1200 | 400(80) | 10 | 1.30 | 0.35 | 200 | 500-1000 | 40 | 0.068 | 125 | 3000 | |
| M2TF-250<br>M2TFA-250 | 1900-2800 | 315(85) | 8 | 1.40 | 0.60 | 200 | 500-1000 | 63 | 0.068 | 125 | 3000 |  <br>MTD5<br>w =1500g |
| M2TF-320<br>M2TFA-320 | 1300-1800 | 330(85) | 9 | 1.35 | 0.50 | 200 | 500-1000 | 50 | 0.068 | 125 | 3000 | |
| M2TF-400<br>M2TFA-400 | 200-1200 | 400(80) | 10 | 1.30 | 0.35 | 200 | 500-1000 | 40 | 0.068 | 125 | 3000 | |
| M1TF2-400 | 2900-3400 | 470(85) | 12 | 1.40 | 0.5 | 200 | 500-1000 | 125 | 0.042 | 125 | 3000 |  <br>MTD6<br>w =2300g |
| M1TF-500 | 1900-2800 | 510(85) | 14 | 1.35 | 0.4 | 200 | 500-1000 | 100 | 0.042 | 125 | 3000 | |
| M1TF2-500 | 1300-1800 | 550(85) | 18 | 1.30 | 0.3 | 200 | 500-1000 | 80 | 0.042 | 125 | 3000 | |
| M1TF-630 | 600-1200 | 630(85) | 20 | 1.20 | 0.2 | 200 | 500-1000 | 63 | 0.042 | 125 | 3000 | |
| M1TF-800 | 2200-2400 | 800(63) | 20 | 1.25 | 0.41 | 500 | 500-1000 | 125 | 0.049 | 130 | 3000 | |
| M1TF-1000 | 2200-2400 | 1020(70) | 30 | 1.28 | 0.29 | 300 | 1000 | 120 | 0.030 | 130 | 3000 |  <br>MTD8<br>w* =4300g |

## FAST THYRISTOR-DIODE AND DIODE-THYRISTOR MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$,°C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q/t_{rr}$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| MTFDF-40, MDFTF-40<br>MTFDFA-40,MDFTFA-40<br>MTFDFC-40, MDFTFC-40 | 400-1600 | 40(85) | 1.0 | 1.4 | 5.0 | 125 | 100-1000 | 25/0.63 | 0.46 | 125 | 2500 |  MTD1 w =200g |
| MTFDF-63, MDFTF-63<br>MTFDFA-63, MDFTFA-63<br>MTFDFC-63, MDFTFC-63 | 400-1600 | 63(75) | 1.1 | 1.2 | 4.0 | 125 | 100-1000 | 25/0.63 | 0.45 | 125 | 2500 | |
| MTFDF-100,MDFTF-100 | 500-1000 | 100(85) | 4.0 | 1.10 | 1.80 | 500 | 1000 | 40/- | 0.210 | 125 | 2500 |  |
| MTFDF-200,MDFTF-200 | 600-1400 | 200(62) | 4.0 | 1.15 | 1.50 | 500 | 500-1000 | 63/ 300 µC | 0.180 | 130 | 2500 | MTD2 w =500g |
| MTFDF-250, MDFTF-250 | 600-1400 | 250(81) | 6.5 | 1.15 | 0.8 | 500 | 500-1000 | 63/ 300 µC | 0.180 | 130 | 3000 |  MTD3 w =800g |
| MTFDF-320, MDFTF-320 | 1300-1800 | 330(85) | 9.0 | 1.35 | 0.50 | 200 | 500-1000 | 50/ 2.5-8 | 0.068 | 130 | 3000 |  MTD5 w =1500g |

## NEW THYRISTOR-DIODE MODULE MTAFDF-400-16 FOR INDUCTION HEATING CONVERTERS

Features:
- Short turn-off times of thyristors and reverse recovery times of diodes
- Low on-state losses
- High values of $(di/dt)_{cr}$, $(dv_D/dt)_{cr}$
- Internal insulation. Between terminals and baseplate.
- Precision pressure contacts provides high reliability by cycle loading operation

Applications:
- Frequency converters for power supplies of induction heating, surface hardening and metals melting equipment
- Optimized for operation frequency up to 4 kHz
- Module design makes it possible for converter designer to realize two alternative circuits: asymmetric thyristor and fast diode in opposite parallel or in series

| Type | $V_{DRM}$ | $V_{RRM}$ | $I_{T(AV)}$ ($T_C$,°C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q/t_{rr}$ (typ) | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| MTAFDF-400 | 1200-1600 | 7[1)]<br>1200-1600[2)] | 400 (69) | 7.0 | 1.80 | 0.53 | 1000 | 1000 | 12/1.5 | 0.060/ 0.030 | 125 | 3000 | MTD5 w =1500g |

[1)] *for thyristor and diode in opposite parallel*
[2)] *for thyristor and diode in series*

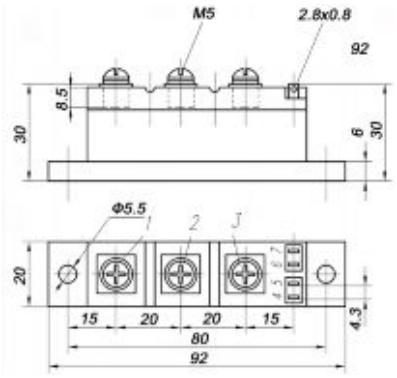
## FAST SWITCHING THYRISTOR MODULES

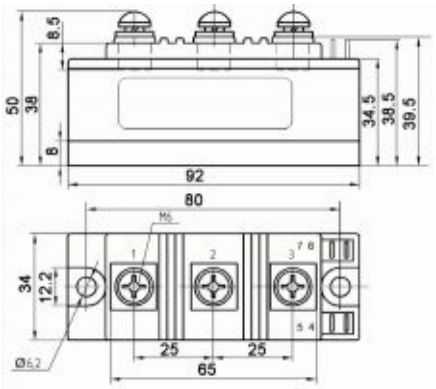
| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | °C/W | °C | V | |
| **M2TFI-100**<br>**M2TFIA-100** | 600 -1200 | 100(80) | 2.5 | 1.38 | 2.70 | 800 | 1000 | 16-63 | 0.210 | 125 | 2500 |  MTD2 w =500g |
| **M2TFI-125** | 600-1400 | 125(80) | 4.0 | - | - | 1000 | 1000 | 25-63 | 0.230 | 125 | 3000 | |
| **M2TFI-160**<br>**M2TFIA-160** | 600-1400 | 160(85) | 4.0 | 1.35 | 1.10 | 1000 | 1000 | 16-63 | 0.130 | 125 | 3000 |  MTD3 w =800g |
| **M2TFI-160**<br>**M2TFIA-160** | 1500-2000 | 160(85) | 6.0 | 1.25 | 1.30 | 1000 | 1000 | 32-63 | 0.130 | 125 | 3000 | |
| **M2TFI-200**<br>**M2TFIA-200** | 300-900 | 200(80) | 7.0 | 1.20 | 0.80 | 1000 | 1000 | 12-63 | 0.130 | 125 | 3000 | |
| **M1TFI-320** | 600-1400 | 320(85) | 9.0 | 1.20 | 0.64 | 1000 | 1000 | 25-63 | 0.073 | 125 | 3000 |  MTD4 w =900g |
| **M1TFI-320** | 1500-2000 | 320(85) | 7.5 | 1.25 | 0.70 | 1000 | 1000 | 40-63 | 0.073 | 125 | 3000 | |
| **M1TFI-400** | 300-900 | 400(80) | 6.3 | 1.20 | 0.45 | 1000 | 1000 | 12-63 | 0.073 | 130 | 3000 | |
| M2TFI-320<br>M2TFIA-320 | 600-1400 | 320(85) | 9.0 | 1.20 | 0.64 | 1000 | 1000 | 25-63 | 0.073 | 125 | 3000 |  MTD5 w =1500g |
| M2TFI-320<br>M2TFIA-320 | 1500-2000 | 320(83) | 7.5 | 1.25 | 0.70 | 1000 | 1000 | 40-63 | 0.073 | 125 | 3000 | |
| M2TFI-400<br>M2TFIA00 | 300-900 | 400(80) | 6.3 | 1.20 | 0.45 | 1000 | 1000 | 12-63 | 0.073 | 125 | 3000 | |
| M1TFI-500 | 600-1400 | 500(80) | 17 | 1.30 | 0.24 | 1000 | 1000 | 25-63 | 0.042 | 125 | 3000 |  MTD6 w =2300g |
| M1TFI2-500 | 1500-2000 | 500(80) | 16 | 1.34 | 0.34 | 1000 | 1000 | 32-63 | 0.042 | 125 | 3000 | |
| M1TFI-630 | 300-900 | 630(80) | 18 | 1.20 | 0.34 | 1000 | 1000 | 12-40 | 0.042 | 125 | 3000 | |

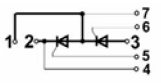
## FAST SWITCHING THYRISTOR-DIODE MODULES

| Type | $V_{DRM}$, $V_{RRM}$ | $I_{T(AV)}$ ($T_C$, °C) | $I_{TSM}$ 10ms | $V_{T(TO)}$ | $r_T$ | $(di_T/dt)_{cr}$ | $(dv_D/dt)_{cr}$ | $t_q$ | $t_{rr}$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | kA | V | mΩ | A/µs | V/µs | µs | µs | °C/W | °C | V | |
| MTFIDF-100<br>MDFTFI-100 | 600 -1200 | 100(80) | 2.5 | 1.38 | 2.70 | 800 | 1000 | 16-63 | 2.5-4 | 0.210 | 125 | 2500 |  MTD2 w =500g |
| MTFIDF-160<br>MDFTFI-160 | 600 -1400 | 160(85) | 4.0 | 1.35 | 1.10 | 1000 | 1000 | 16-63 | 2.5-4 | 0.130 | 125 | 3000 | |
| MTFIDF-160<br>MDFTFI-160 | 1500 -2000 | 160(85) | 6.0 | 1.25 | 1.30 | 1000 | 1000 | 32-63 | 3.2-4 | 0.130 | 125 | 3000 |  MTD3 w =800g |
| MTFIDF-200<br>MDFTFI-200 | 300 -900 | 200(80) | 7.0 | 1.20 | 0.80 | 1000 | 1000 | 12-63 | 2.5-4 | 0.130 | 125 | 3000 | |
| MTFIDF-320<br>MDFTFI-320 | 600 -1400 | 320(85) | 9.0 | 1.20 | 0.64 | 1000 | 1000 | 25-63 | 2.5-5 | 0.073 | 125 | 3000 | |
| MTFIDF-320<br>MDFTFI-320 | 1500-2000 | 320(83) | 7.5 | 1.25 | 0.70 | 1000 | 1000 | 40-63 | 3.2-5 | 0.073 | 125 | 3000 |  MTD5 w =1500g |
| MTFIDF-400<br>MDFTFI-400 | 300 -900 | 400(80) | 6.3 | 1.20 | 0.45 | 1000 | 1000 | 12-63 | 2.5-5 | 0.073 | 130 | 3000 | |

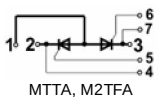
# OUTLINES



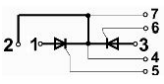



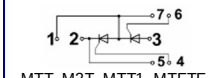
MTT, M2TF



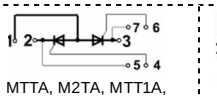
MTTA, M2TFA



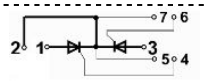
MTTC, M2TFC



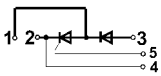
MTT, M2T, MTT1, MTFTF, M2TFI



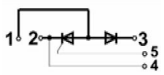
MTTA, M2TA, MTT1A, MTFTFA, M2TFIA



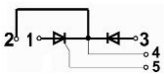
MTTC, M2TC, MTT1C, MTFTFC, M2TFIC



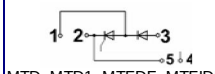
MTD, MTFDF



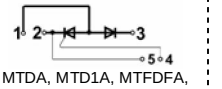
MTDA, MTFDFA



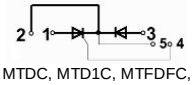
MTDC, MTFDFC



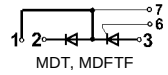
MTD, MTD1, MTFDF, MTFIDF



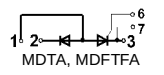
MTDA, MTD1A, MTFDFA, MTFIDFA



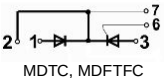
MTDC, MTD1C, MTFDFC, MTFIDFC



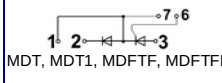
MDT, MDFTF



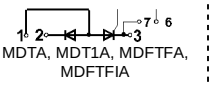
MDTA, MDFTFA



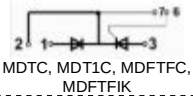
MDTC, MDFTFC



MDT, MDT1, MDFTF, MDFTFI

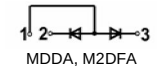


MDTA, MDT1A, MDFTFA, MDFTFIA



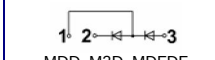
MDTC, MDT1C, MDFTFC, MDFTFIK

MDD, M2DF



MDDA, M2DFA

MDDC, M2DFC

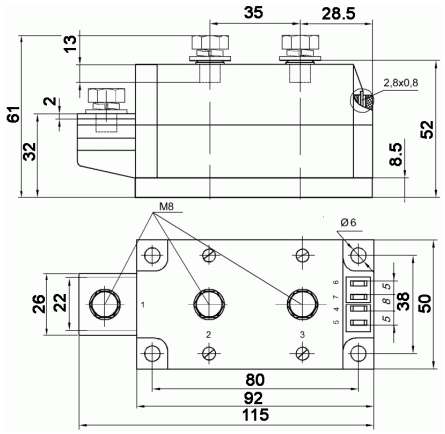


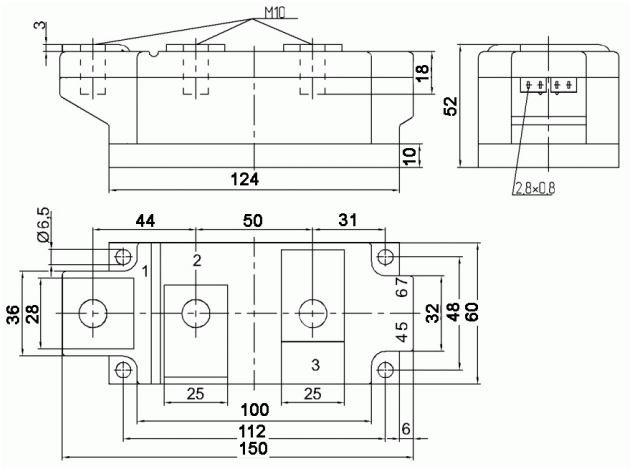
MDD, M2D, MDFDF

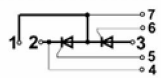
MDDA, M2DA, MDFDFA

MDDC, M2DC, MDFDFC

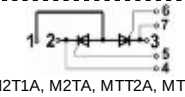
MTD1 MTD2



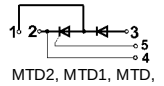



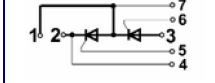
M2T1, M2T,MTT2, MTT, M2TFI



M2T1A, M2TA, MTT2A, MTTA, M2TFIA

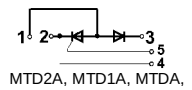


MTD2, MTD1, MTD, MTFDF

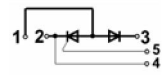


M2T1, M2T, M2TF, MTFTF1, M2TFI

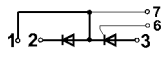
M2T1A, M2TA, M2TFA, M2TFIA,



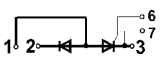
MTD2A, MTD1A, MTDA, MTFDFA, MTFIDFA



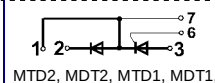
MTD2A, MTD1A, MTDA, MTFDFA



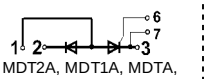
MDT2, MDT1, MDT, MDFTF



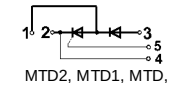
MDT2A, MDT1A, MDTA, MDFTFA



MTD2, MDT2, MTD1, MDT1, MTD, MDT, MTFIDF, MDFTFI



MDT2A, MDT1A, MDTA, MDFTF, MDFTFIA



MTD2, MTD1, MTD, MTFDF, MTFIDF



MDD, M2D, MDFDF, MDFDF1



MDDA, M2DA, MDFDFA, MDFDF1A



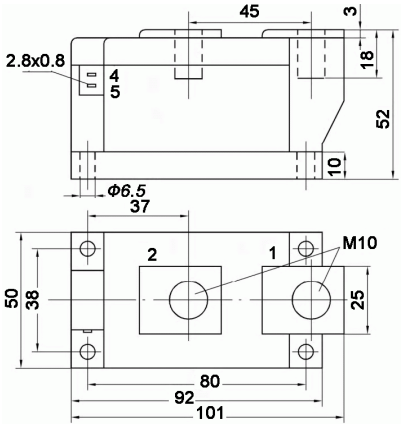
M2D1, M2D, M2DF

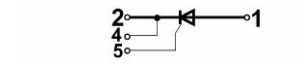


M2D1A, M2DA, M2DFA

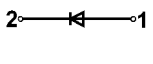
MTD3 MTD5

# OUTLINES



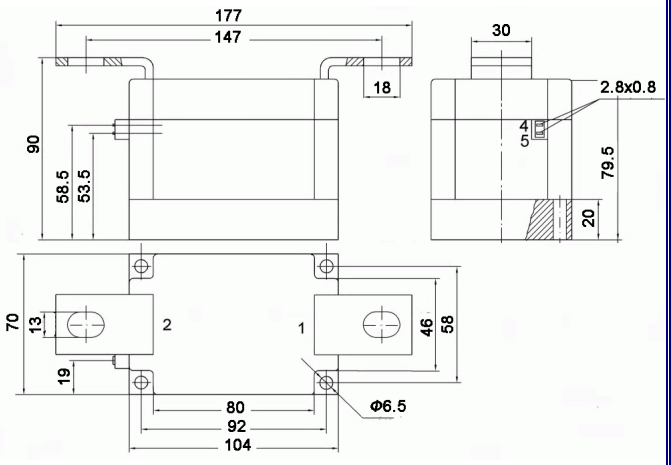



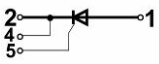
M1T, M1T1, MTF, M1TF, M1TFI



M1D1, M1D, M1DF

MTD4

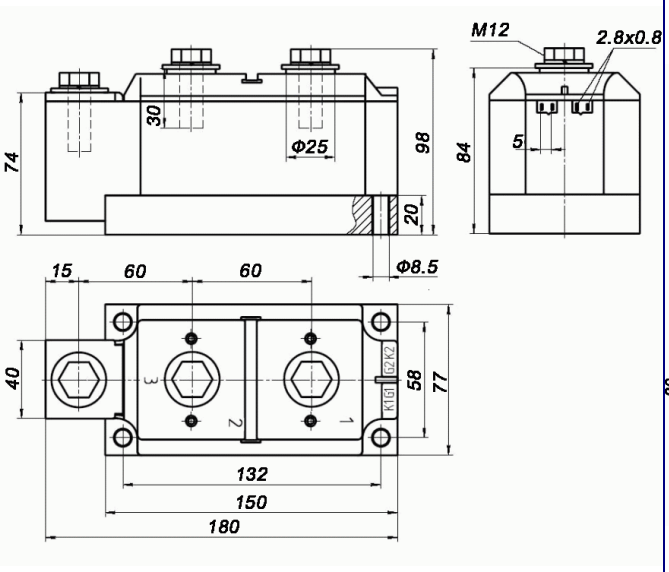


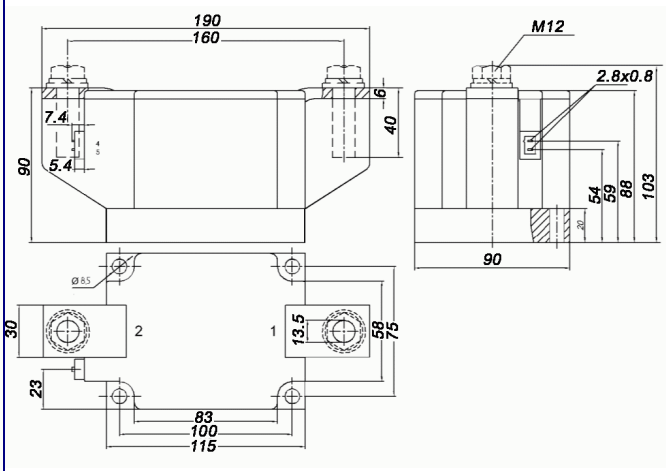



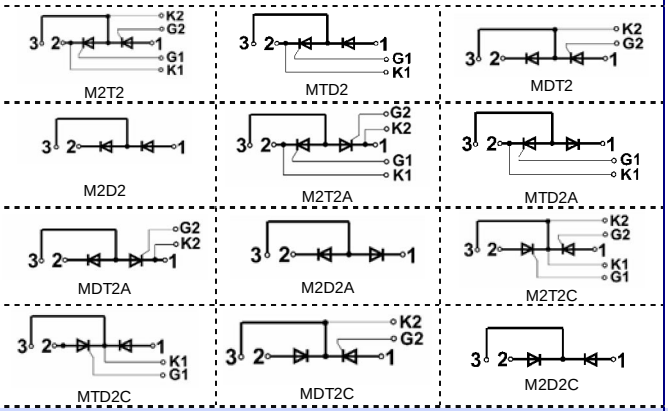
M1T2, M1T, M1T1, M1TF2, M1TF, M1TF1, M1TFI

M1D2, M1D, M1DF, MDF1

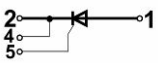
MTD6




MTD7



M1T, M1T2

MTD8

# SINGLE-PHASE AND THREE-PHASE DIODE-THYRISTOR BRIDGES

**Features:**
- Plastic case with screw fastening of busbars
- Internal DBC insulation ($Al_2O_3$)
- Easy mounting

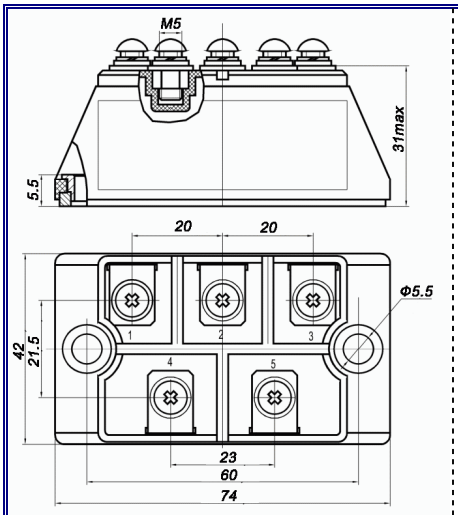
Applications:
- Single and three-phase bridges for power supplies
- Input rectifiers for frequency converters
- Rectifiers for DC motor excitation windings
- Battery charging rectifiers

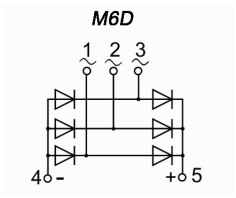
| Type | $V_{RRM}$ | $I_D$ $T_c$=100°C | $I_{FSM}$ T=150°C | $V_{FM}$ /$I_{FM}$ | $V_{TO}$ T=150°C | $r_T$ T=150°C | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | A | V/A | V | mΩ | °C/W | ° C | V | |
| **Single-phase diode bridges** | | | | | | | | | | |
| M4D-63 | 400-1600 | 63 | 1200 | 1.50/170 | 0.93 | 3.4 | 0.400 | 150 | 3000 | MMD1 w =180g |
| M4D-80 | 400-1600 | 80 | 1300 | 1.35/170 | 0.93 | 2.4 | 0.300 | 150 | 3000 | |
| M4D-200 | 400-1600 | 200 | 2000 | 1.45/300 | 0.90 | 1.7 | 0.250 | 150 | 3000 | MI4-2 w =400g |
| **Three-phase diode bridges** | | | | | | | | | | |
| M6D-63 | 400-1600 | 63 | 1000 | 1.70/170 | 0.93 | 4.5 | 0.500 | 150 | 3000 | MMD1 w =180g |
| M6D-80 | 400-1600 | 80 | 1200 | 1.50/170 | 0.93 | 3.4 | 0.400 | 150 | 3000 | |
| M6D-100 | 400-1600 | 100 | 1300 | 1.35/170 | 0.93 | 2.4 | 0.300 | 150 | 3000 | |
| M6D-250 | 400-1600 | 250 | 2000 | 1.45/300 | 0.90 | 1.7 | 0.250 | 150 | 3000 | MI4-2 w =400g |

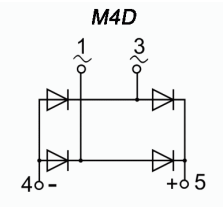
| Type | $V_{RRM}$, $V_{DRM}$ | $I_D$ $T_c$= 85°C | $I_{FSM}$, $I_{TSM}$ T= 125°C | $V_{FM}$, $V_{TM}$ $I_F$= 250A | $V_{T(TO)}$ T= 125°C | $r_T$ T= 125°C | $(dv_T/dt)_{cr}$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | A | V | V | mΩ | V | °C/W | °C | V | |
| **Single-phase diode-thyristor bridges** | | | | | | | | | | | |
| M4TD-160 | 400-1600 | 160 | 1500 | 1.65 | 0.93 | 3.3 | 200-1000 | 0.3 | 125 | 3000 | MI4-2 w =400g |
| **Three-phase diode-thyristor bridges** | | | | | | | | | | | |
| M6TD-160 | 400-1600 | 170 | 1300 | 1.85 | 0.95 | 4.1 | 200-1000 | 0.4 | 125 | 3000 | MI4-2 w =400g |
| M6TD-200 | 400-1600 | 200 | 1500 | 1.65 | 0.93 | 3.3 | 200-1000 | 0.3 | 125 | 3000 | |

| Type | $V_{DRM}$, $V_{RRM}$ | $I_D$ $T_c$= 85°C | $I_{TSM}$ T= 125°C | $V_{TM}$ $I_F$= 250A | $V_{T(TO)}$ T= 125°C | $r_T$ T= 125°C | $(dv_T/dt)_{cr}$ | $R_{th(j-c)}$ | $T_{VJM}$ | $V_{isol}$ | Case |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | A | A | V | V | mΩ | V | °C/W | °C | V | |
| **Single-phase thyristor bridges** | | | | | | | | | | | |
| M4T-160 | 400-1600 | 160 | 1500 | 1.65 | 0.93 | 3.3 | 200-1000 | 0.3 | 125 | 3000 | MI4-2 w =400g |
| **Three-phase thyristor bridges** | | | | | | | | | | | |
| M6T-160 | 400-1600 | 170 | 1300 | 1.85 | 0.95 | 4.1 | 200-1000 | 0.4 | 125 | 3000 | MI4-2 w =400g |
| M6T-200 | 400-1600 | 200 | 1500 | 1.65 | 0.93 | 3.3 | 200-1000 | 0.3 | 125 | 3000 | |

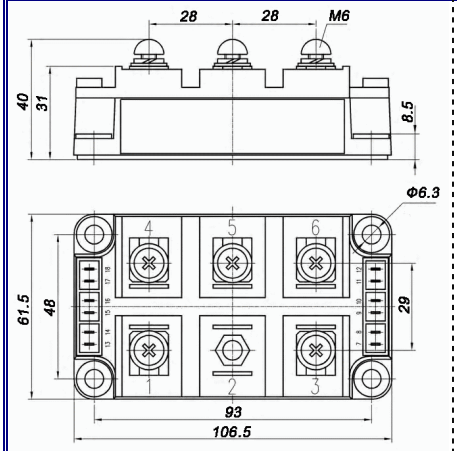
# OUTLINES

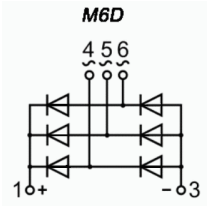


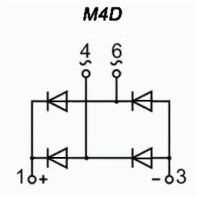



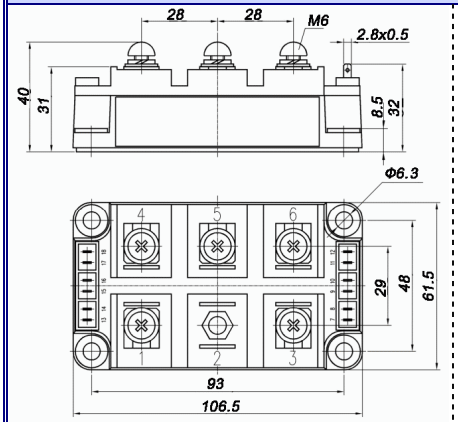

MMD1 w =180g

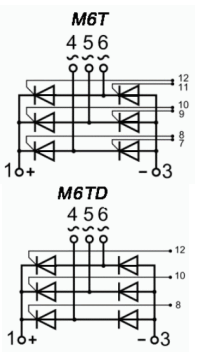


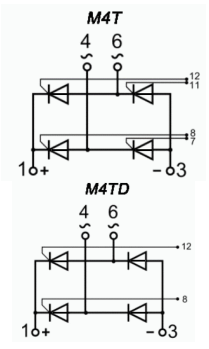




MI4-2 w =400g




MI4-2 w =400g