# MS TD501

## Key Parameters

| | |
|---|---|
| $V_{DRM}$ / $V_{RRM}$ | = 1600V |
| $I_{T(AV)}$ | = 501A |
| $I_{TSM}$ | = 18500A |
| $V_{T(TO)}$ | = 0.90V |
| $r_T$ | = 0.26mΩ |

## Features

- Full blocking capability over wide temperature range
- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Pressure contacts technology for high reliability
- UL Recognized, file no. E505556

## Applications

- Power Supplies
- DC motor control
- Controlled Rectifiers
- AC switch

## Ordering Information

| MS | TD | 501 | K | 16 |
|---|---|---|---|---|
| Fixed code | TD- Thyristor- Diode Module | Current Code | Technology<br>K = Pressure Contact Technology | Voltage Code<br>Code X 100 = $V_{DRM}$/$V_{RRM}$ |
| Order Code MS TD501K16 : 1600V $V_{DRM}$,$V_{RRM}$, Thyristor-Diode Module | | | | |

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# MS TD501

| Symbol | Characteristic | Conditions | Tj [°C] | Value | Unit |
|---|---|---|---|---|---|
| **BLOCKING** | | | | | |
| $V_{RRM}$ | Repetitive peak reverse voltage | | 125 | 200 - 1600 | V |
| $V_{RSM}$ | Non-repetitive peak reverse voltage | | 125 | 300 - 1700 | V |
| $V_{DRM}$ | Repetitive peak off-state voltage | | 125 | 200 - 1600 | V |
| $I_{RRM}$ | Repetitive peak reverse current | V= $V_{RRM}$ | 125 | 80 | mA |
| $I_{DRM}$ | Repetitive peak off-state current | V= $V_{DRM}$ | 125 | 80 | mA |
| **CONDUCTING** | | | | | |
| $I_{T(AV)}$ | Mean on state current | 180° sin ,50 Hz, $T_c$=86°C<br>180° sin ,50 Hz, $T_c$=85°C | | 501<br>508 | A |
| $I_{RMS}$ | RMS on-state current | $T_c$=86°C | | 785 | A |
| $I_{TSM}$ | Surge on-state current | Sine wave, 10 ms<br>Without reverse voltage | 25 | 18500 | A |
| | | | 125 | 17500 | A |
| $I^2t$ | $I^2t$ | Sine wave, 10 ms<br>Without reverse voltage | 25 | 1711 x $10^3$ | $A^2s$ |
| | | | 125 | 1531 x $10^3$ | $A^2s$ |
| $V_T$ | On-state voltage | On-state current = 1500A | 25 | 1.30 | V |
| $V_{T(TO)}$ | Threshold voltage | | 125 | 0.90 | V |
| $r_T$ | On-state slope resistance | | 125 | 0.26 | mΩ |
| **SWITCHING** | | | | | |
| di/dt | Critical rate of rise of on-state current | | 125 | 200 | A/µs |
| dv/dt | Critical rate of rise of off-state voltage | $V_{DR}$ = $V_{DRM}$ | 125 | 1000 | V/µs |
| **GATE** | | | | | |
| $I_{gt}$ | Gate trigger current | $V_D$=6V | 25 | 200 | mA |
| $V_{gt}$ | Gate trigger voltage | $V_D$=6V | 25 | 3.0 | V |
| $I_H$ | Holding current | $V_D$=6V, gate open circuit | 25 | 300 | mA |
| $I_L$ | Latching current | $V_D$=6V | 25 | 1500 | mA |
| **MOUNTING** | | | | | |
| $R_{th(j-c)}$ | Thermal impedance, sin 180° | Junction to case, per arm<br>per module | | 0.064<br>0.032 | °C/W |
| $R_{th(j-c)}$ | Thermal impedance, rec120° | Junction to case, per arm<br>per module | | 0.074<br>0.037 | °C/W |
| $R_{th(c-h)}$ | Thermal impedance | Case to heatsink, per arm<br>per module | | 0.02<br>0.01 | °C/W |
| $T_j$ | Max. junction temperature | | | 125 | °C |
| $T_{stg}$ | Storage temperature | | | -40 .... 150 | °C |
| $V_{ISOL}$ | Insulation test voltage,RMS | F=50Hz, 1min | | 3.0 | KV |
| M1 | Mounting torque | | | 6 ± 15% | Nm |
| M2 | Terminal connection torque | | | 12 ± 15% | Nm |
| W | Weight (Approx.) | | | 1450 | gm |
| | File No. | | | E505556 | |

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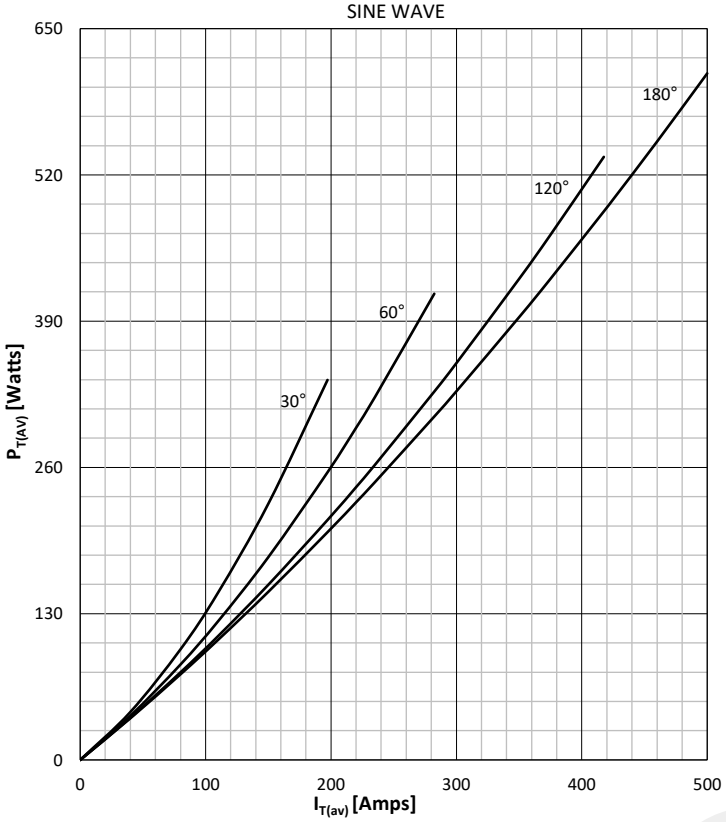
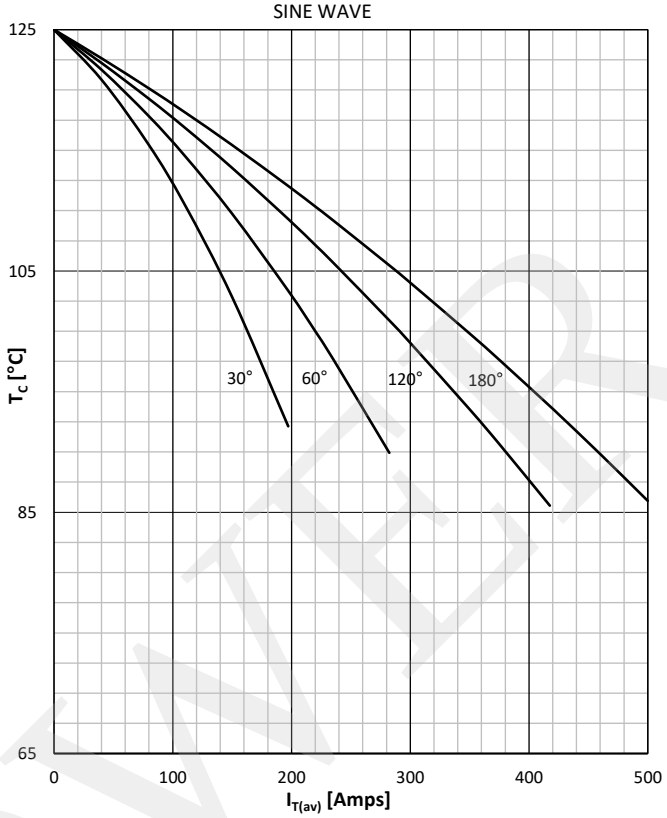
## DISSIPATION CHARACTERISTICS

SINE WAVE



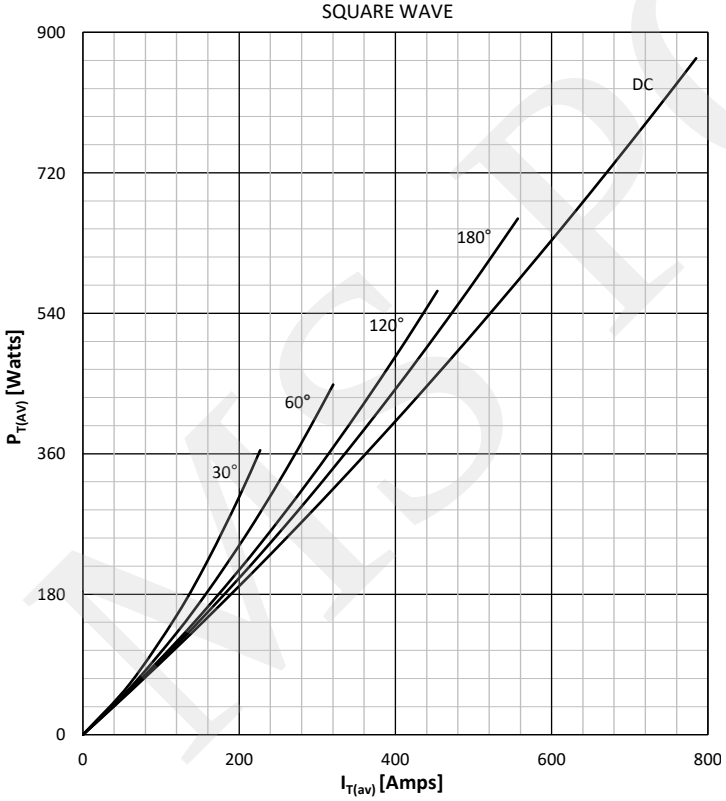

## ON STATE CURRENT DERATING CURVE

SINE WAVE



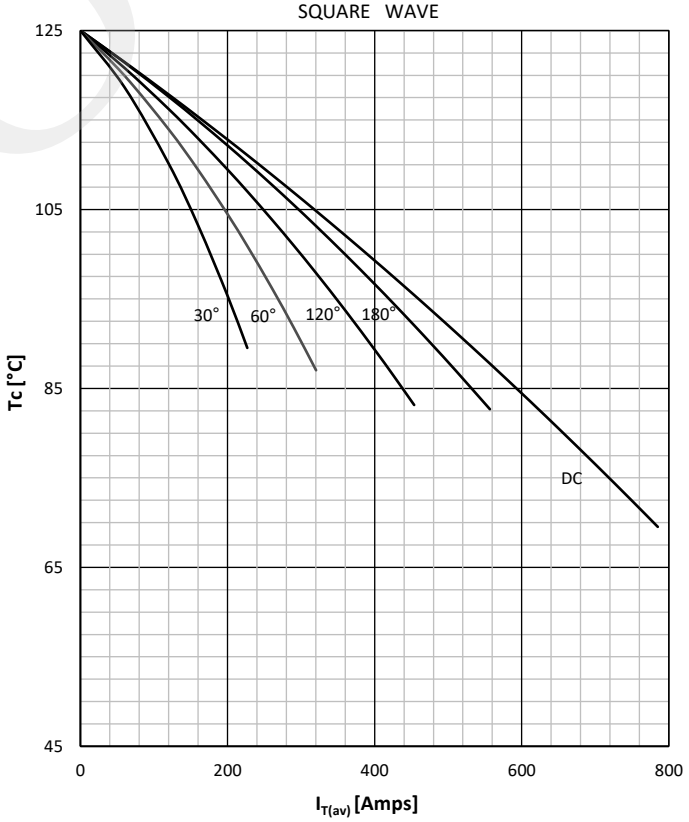

## DISSIPATION CHARACTERISTICS

SQUARE WAVE




## ON STATE CURRENT DERATING CURVE

SQUARE WAVE

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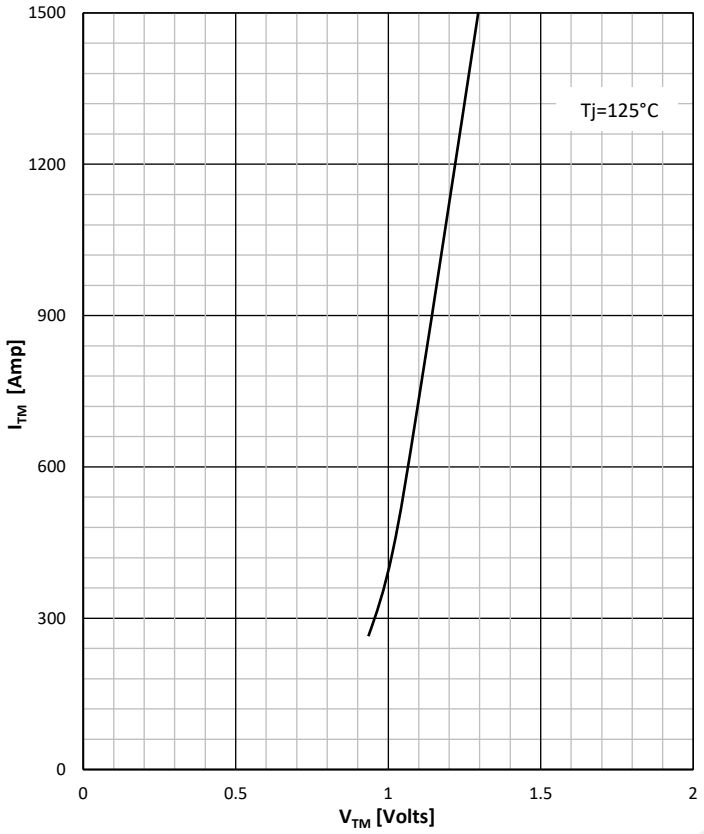
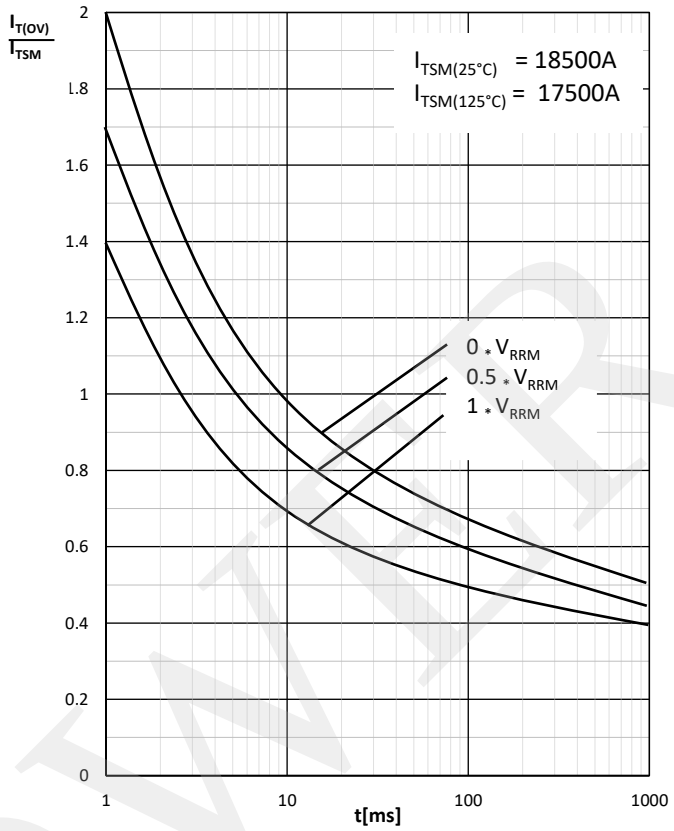
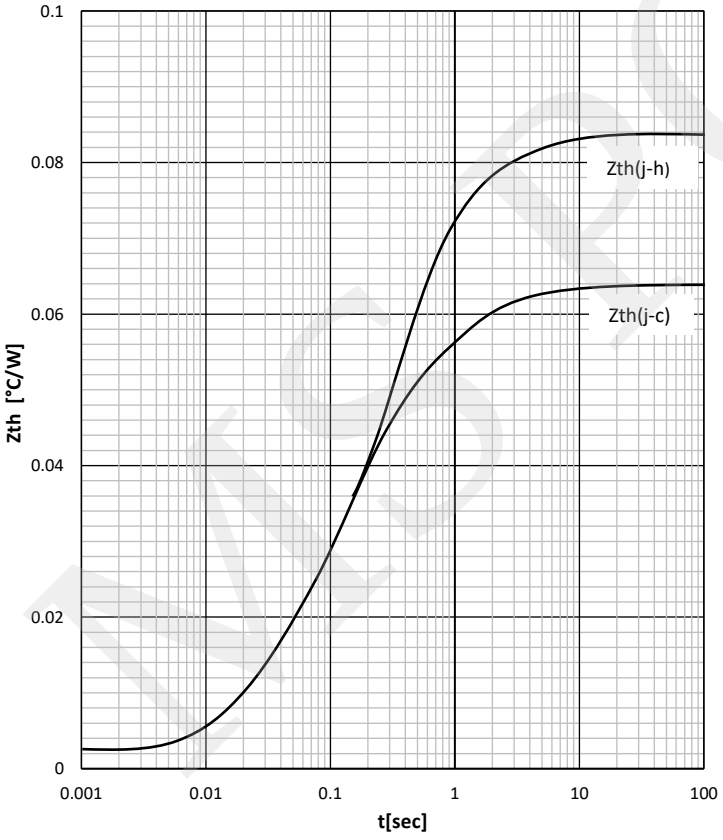
## ON -STATE CHARACTERISTIC



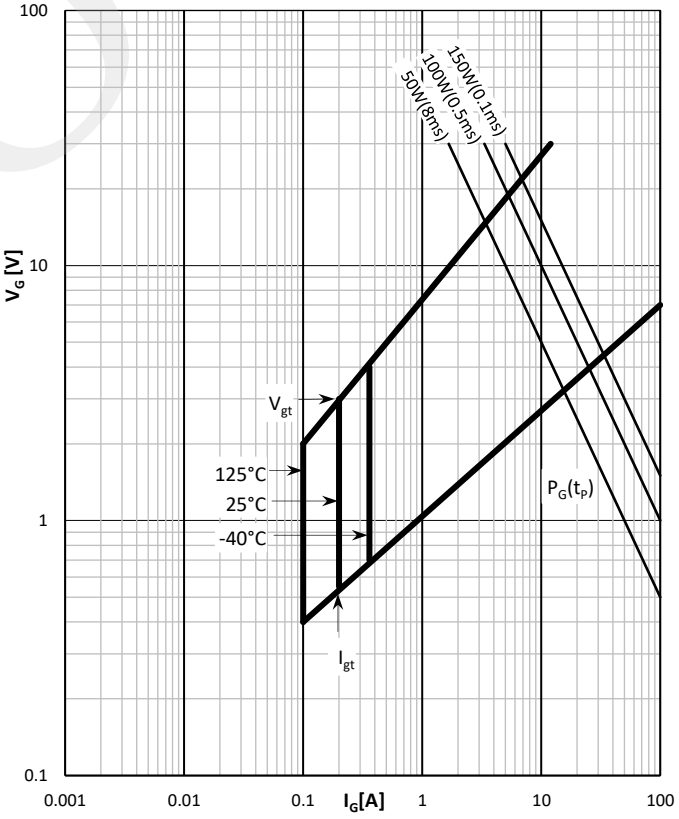

## SURGE CHARACTERISTICS




## TRANSIENT THERMAL IMPEDANCE, PER ARM




## GATE TRIGGER CHARACTERISTICS

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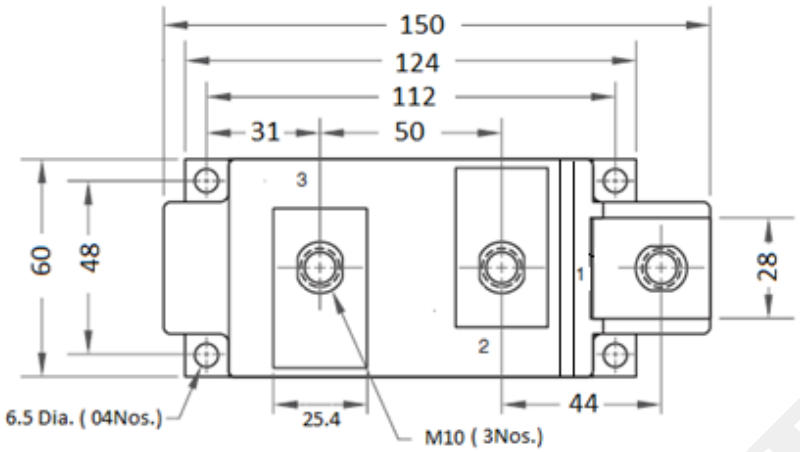
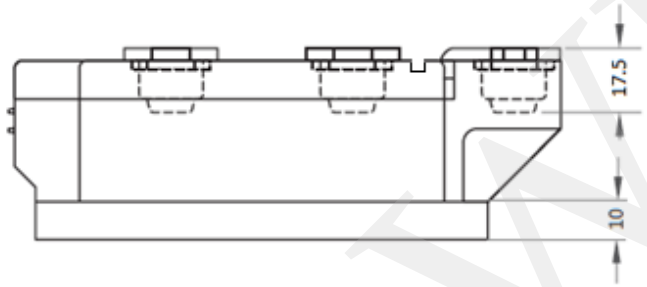
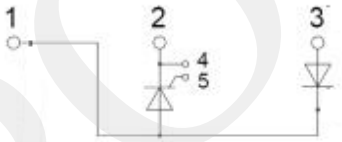
## Outline




Note : All dimensions are in mm.
Tolerance : ± 0.5mm




MSTD

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