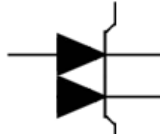



PHASE CONTROL THYRISTOR MODULES

MTTA-125

| | | |
|--|---|---|
| <ul style="list-style-type: none"> ◆ $V_{DRM}/V_{RRM} = \mathbf{400 - 1600 V}$ ◆ $I_{T(AV)} = \mathbf{125 A}$ ($T_C = 85\text{ }^\circ\text{C}$) ◆ $I_{TSM} = \mathbf{3,0 kA}$ ($T_j = 125\text{ }^\circ\text{C}$) |  |  |
| <ul style="list-style-type: none"> ◆ Heat transfer through AlN ceramic isolated metal baseplate ◆ Presspack construction ◆ High reliability at thermal cycles (10^5 at $\Delta T_C = 70\text{ }^\circ\text{C}$) ◆ Case width 34 mm | | |

MAXIMUM RATED VALUES

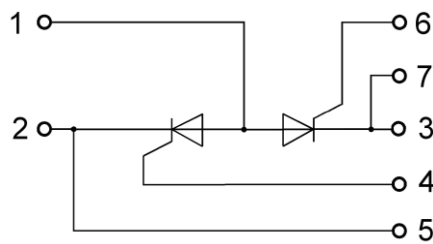
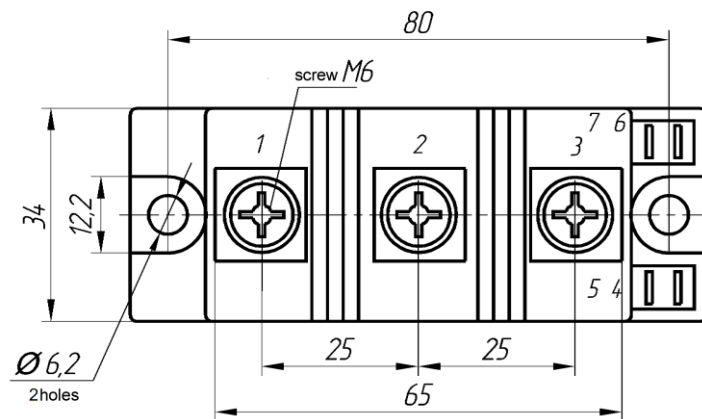
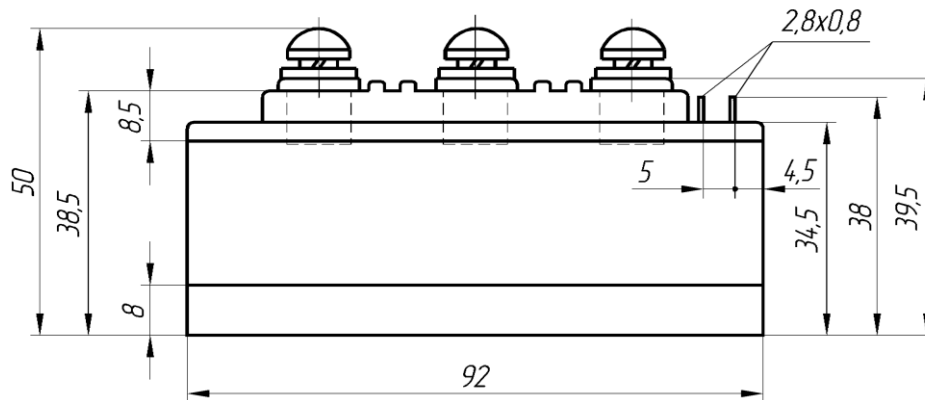
| Parameter and conditions | Symbol | Values | Units |
|---|---------------------|--------------------|------------------|
| Repetitive peak off-state voltage / Repetitive peak reverse voltage, $T_j = -40 \dots +125\text{ }^\circ\text{C}$ | V_{DRM} / V_{RRM} | 400-1600 | V |
| Non-repetitive peak off-state voltage/ Non-repetitive peak reverse voltage, $T_j = -40 \dots +125\text{ }^\circ\text{C}$ | V_{DSM} / V_{RSM} | 500-1700 | |
| Repetitive peak off-state current/ Repetitive peak reverse current, $T_j = 125\text{ }^\circ\text{C}$, $V_D / V_R = V_{DRM} / V_{RRM}$ | I_{DRM} / I_{RRM} | 25 | mA |
| Maximum average on-state current, $f = 50\text{ Hz}$, $T_C = 85\text{ }^\circ\text{C}$ | $I_{T(AV)}$ | 125 | A |
| RMS on-state current, $T_C = 85\text{ }^\circ\text{C}$ | I_{TRMS} | 196 | |
| Surge non-repetitive current, $T_j = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ ms}$, $V_R = 0$ | I_{TSM} | 3,0 | kA |
| Safety factor | I^2t | $0,045 \cdot 10^6$ | A^2s |
| Critical rate of rise of on-state current, $T_j = 125\text{ }^\circ\text{C}$, $V_D = 0,67V_{DRM}$, $I_T = 250\text{ A}$, $I_{FG} = 1\text{ A}$, $t_r \leq 1\text{ } \mu\text{s}$, $f = 50\text{ Hz}$ | $(di_T/dt)_{crit}$ | 200 | $A/\mu\text{s}$ |
| Critical rate of rise of off-state voltage $T_j = 125\text{ }^\circ\text{C}$, $V_D = 0,67V_{DRM}$ | $(dv_D/dt)_{crit}$ | 200-1000 | $V/\mu\text{s}$ |
| Gate power loss, DC | P_{GM} | 4 | W |
| Operation junction temperature range | T_j | -40 ... +125 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -40 ... +50 | |

**MTTA-125**

| Parameter and conditions | Symbol | Values | | | Units |
|--|---------------|--------|------|-------------------|------------------|
| | | min | type | max | |
| Maximum peak on-state voltage, $T_j = 25\text{ °C}$, $I_T = 392\text{ A}$ | V_{TM} | - | - | 1,75 | V |
| On-state threshold voltage, $T_j = 125\text{ °C}$, $I_T = 200 - 600\text{ A}$ | $V_{T(TO)}$ | - | - | 1,10 | |
| On-state slope resistance, $T_j = 125\text{ °C}$, $I_T = 200 - 600\text{ A}$ | r_T | - | - | 1,80 | mΩ |
| Delay time, $T_j = 25\text{ °C}$, $V_D = 0,67V_{DRM}$, $I_T = 125\text{ A}$, $I_{FG} = 1\text{ A}$, $t_r \leq 1\text{ }\mu\text{s}$ | t_d | - | - | 5,0 | μs |
| Circuit-commutated turn-off time, $T_j = 125\text{ °C}$, $I_T = 125\text{ A}$, $di_T/dt = -5\text{ A}/\mu\text{s}$, $V_R \geq 100\text{ V}$, $V_D = 0,67V_{DRM}$, $dv_D/dt = 50\text{ V}/\mu\text{s}$ | t_q | - | 160 | - | |
| Holding current, $T_j = 25\text{ °C}$, $V_D = 12\text{ V}$ | I_H | - | - | 250 | mA |
| Gate trigger voltage, $V_D = 12\text{ V}$ $T_j = -40\text{ °C}$ $T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ | V_{GT} | - | - | 4,5 2,5 2,0 | V |
| Gate trigger current, $V_D = 12\text{ V}$ $T_j = -40\text{ °C}$ $T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ | I_{GT} | - | - | 350 200 150 | mA |
| Gate non-trigger voltage, $T_j = 125\text{ °C}$, $V_D = 0,67V_{DRM}$ | V_{GD} | 0,25 | - | - | V |
| Electrical isolated baseplate (RMS), $f = 50\text{ Hz}$, $t = 1\text{ sec}/1\text{ min}$ | V_{isol} | - | - | 3000/2500 | V |
| THERMAL PARAMETERS | | | | | |
| Thermal resistance junction to case | $R_{th(j-c)}$ | - | - | 0,190 | °C/W |
| Thermal resistance case to heatsink | $R_{th(c-h)}$ | - | - | 0,010 | |
| MECHANICAL PARAMETERS | | | | | |
| Weight | w | - | 0,45 | - | kg |
| Heatsink mounting torque | M_s | 4 | - | 6 | Nm |
| Terminal connection torque | M_t | 1,5 | - | 3,5 | Nm |
| Maximum acceleration (at nominal mounting force) | a | - | - | 50 | m/s ² |



MTTA-125



1 – Anode; 2, 3 – Cathode; 4, 6 – Gate; 5, 7 - Auxiliary cathode

Device Outline Drawing

(dimensions in mm)



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