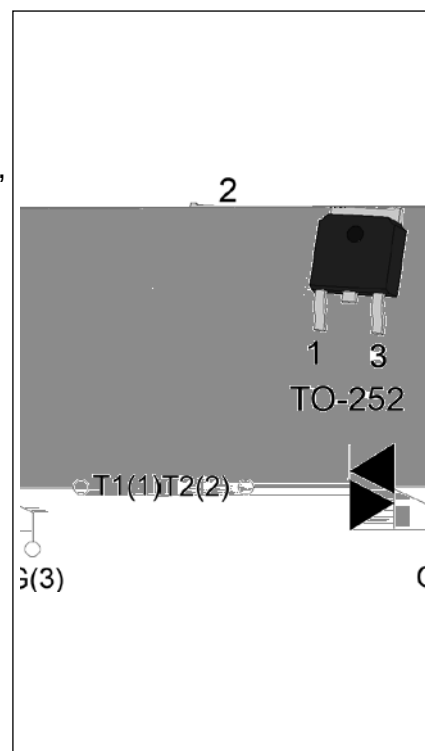


**T0450H-6K 4A TRIAC**

Rev.A.1.1

**DESCRIPTION:**

The T0450H-6K triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Compared to traditional triacs, T0450H-6K provides a very high switching capability up to junction temperatures of 150°C. Package TO-252 is RoHS compliant.


**MAIN FEATURES**

| Symbol            | Value    | Unit |
|-------------------|----------|------|
| $I_{T(RMS)}$      | 4        | A    |
| $V_{DRM}/V_{RRM}$ | 600      | V    |
| $I_{GT} / /$      | 50/50/50 | mA   |

**ABSOLUTE MAXIMUM RATINGS**

| Parameter                                                                                                 | Symbol       | Value   | Unit                   |
|-----------------------------------------------------------------------------------------------------------|--------------|---------|------------------------|
| Storage junction temperature range                                                                        | $T_{stg}$    | -40-150 |                        |
| Operating junction temperature range                                                                      | $T_j$        | -40-150 |                        |
| Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )                                              | $V_{DRM}$    | 600     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )                                                | $V_{RRM}$    | 600     | V                      |
| RMS on-state current ( $T_c=128^\circ\text{C}$ )                                                          | $I_{T(RMS)}$ | 4       | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )      | $I_{TSM}$    | 40      | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )    |              | 44      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )                                    | $I^2t$       | 8       | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 I_{GT}$ , $f=100\text{Hz}$ , $T_j=150^\circ\text{C}$ ) | $di/dt$      | 100     | $\text{A}/\mu\text{s}$ |
| Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=150^\circ\text{C}$ )                                       | $I_{GM}$     | 4       | A                      |
| Average gate power dissipation ( $T_j=150^\circ\text{C}$ )                                                | $P_{G(AV)}$  | 1       | W                      |
| Peak gate power                                                                                           | $P_{GM}$     | 10      | W                      |

|                                                                      |          |   |    |
|----------------------------------------------------------------------|----------|---|----|
| Peak pulse voltage<br>( $T_j=25$ ; non-repetitive, off-state; FIG.8) | $V_{pp}$ | 4 | kV |
|----------------------------------------------------------------------|----------|---|----|

**ELECTRICAL CHARACTERISTICS** ( $T_j=25$  unless otherwise specified)

| Symbol      | Test Condition                                | Quadrant | Value |      | Unit       |
|-------------|-----------------------------------------------|----------|-------|------|------------|
| $I_{GT}$    | $V_D=12V$ $R_L=33\Omega$                      | - -      | MAX.  | 50   | mA         |
| $V_{GT}$    |                                               | - -      | MAX.  | 1    | V          |
| $V_{GD}$    | $V_D=V_{DRM}$ $T_j=150$<br>$R_L=3.3k\Omega$   | - -      | MIN.  | 0.2  | V          |
| $I_L$       | $I_G=1.2I_{GT}$                               | -        | MAX.  | 50   | mA         |
|             |                                               |          |       | 60   |            |
| $I_H$       | $I_T=100mA$                                   |          | MAX.  | 40   | mA         |
| $dV/dt$     | $V_D=400V$ Gate Open $T_j=150$                |          | MIN.  | 1500 | V/ $\mu s$ |
| $(dI/dt)_c$ | $(dV/dt)_c=20V/\mu s$ , $T_j=150$             |          | MIN.  | 10   | A/ms       |
| $t_{on}$    | $I_G=80mA$ $I_A=400mA$ $I_R=40mA$<br>$T_j=25$ |          | TYP.  | 5    | $\mu s$    |
| $t_{off}$   |                                               |          |       | 50   |            |

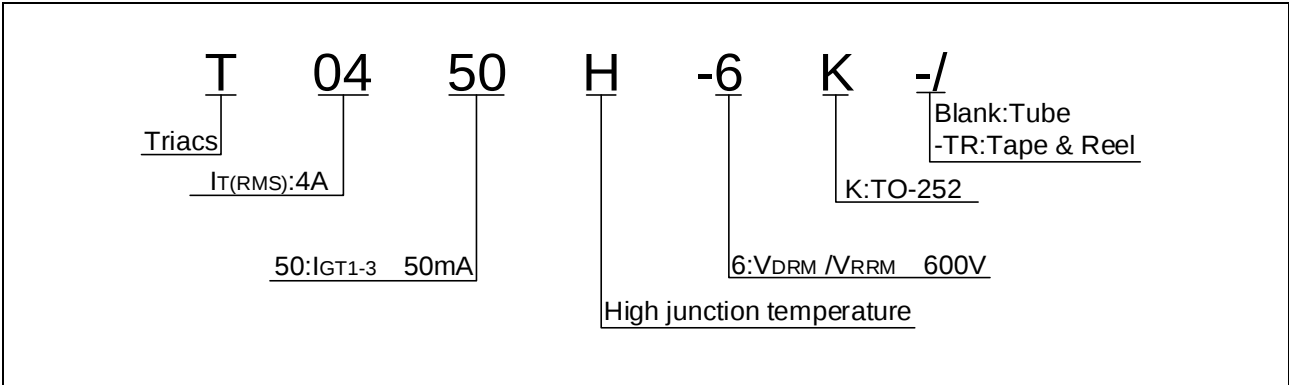
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                    |           | Value(MAX.) | Unit      |
|-----------|------------------------------|-----------|-------------|-----------|
| $V_{TM}$  | $I_{TM}=5.5A$ $t_p=380\mu s$ | $T_j=25$  | 1.4         | V         |
| $V_{TO}$  | Threshold voltage            | $T_j=150$ | 0.6         | V         |
| $R_D$     | Dynamic resistance           | $T_j=150$ | 129         | $m\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$  | $T_j=25$  | 5           | $\mu A$   |
| $I_{RRM}$ |                              | $T_j=150$ | 0.8         | mA        |

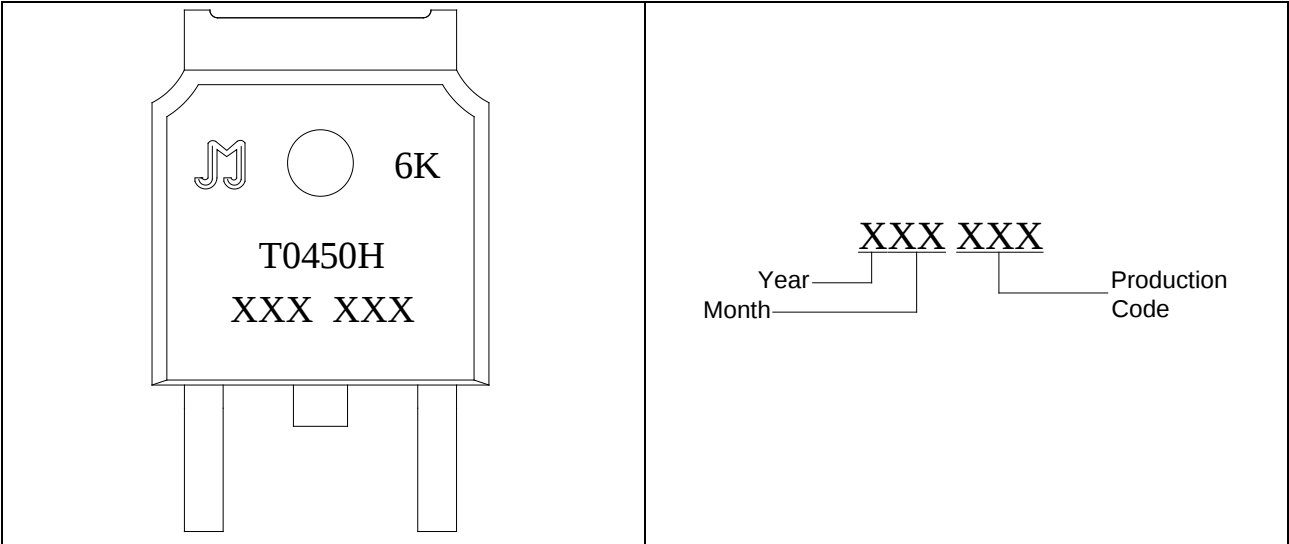
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit        |
|---------------|--------------------------|-------|-------------|
| $R_{th(j-c)}$ | junction to case (AC)    | 4.3   | $^{\circ}W$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 120   | $^{\circ}W$ |

ORDERING INFORMATION



MARKING





**FIG.7:** Relative variations of gate trigger current, holding current and latching current versus junction temperature





## ORDERING INFORMATION

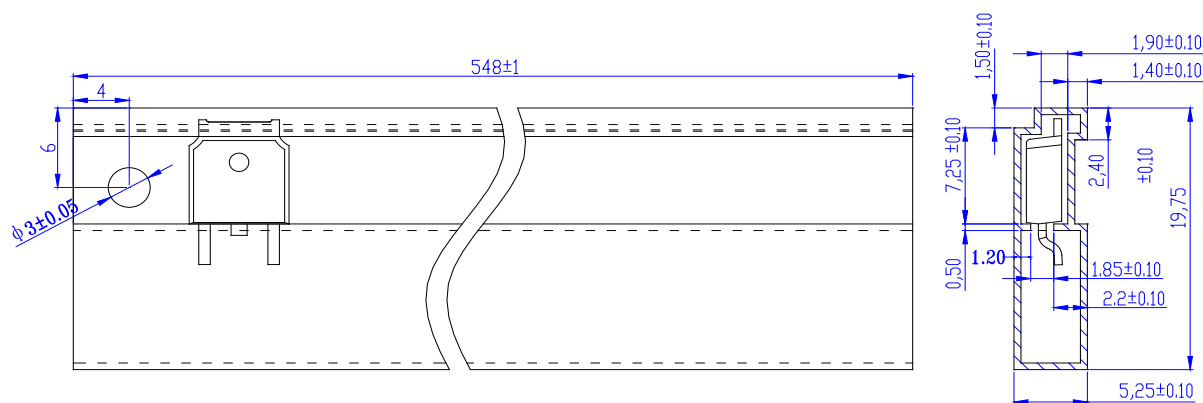
| Order code   | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|--------------|------------------------------------------------|---------|---------|--------------------|------------------|
|              |                                                | - -     |         |                    |                  |
| T0450H-6K    | 600                                            | 50      | TO-252  | 80                 | Tube             |
| T0450H-6K-TR |                                                |         |         | 2,500              | Tape & Reel      |

## Document Revision History

| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Apr.10, 2023 | A.1.0    | Last updated                   |
| Oct.21, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |



DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-252  | TUBE    | 80         | 4,000           | 20,000     |

R

