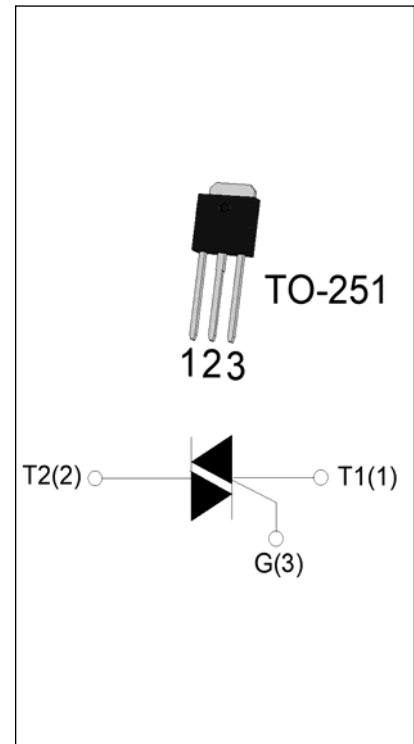


T0420H-8H 4A TRIAC

Rev.A.1.0

DESCRIPTION:

The T0420H-8H 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, T0420H-8H provides a very high switching capability up to junction temperatures of 150°C. From T2 terminals to external heatsink. Package TO-251 is RoHS compliant.


MAIN FEATURES

| Symbol | Value | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$ | 4 | A |
| V_{DRM}/V_{RRM} | 800 | V |
| $I_{GT\ I/II/III}$ | 20/20/20 | mA |

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|--|--------------|---------|------------------------|
| Storage junction temperature range | T_{stg} | -40-150 | °C |
| Operating junction temperature range | T_j | -40-150 | °C |
| Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 800 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 800 | V |
| RMS on-state current ($T_c \leq 128^\circ\text{C}$) | $I_{T(RMS)}$ | 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 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=150^\circ\text{C}$) | di/dt | 80 | $\text{A}/\mu\text{s}$ |
| 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 ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7) | V_{pp} | 4 | kV |
|--|----------|---|----|

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Quadrant | Value | | Unit |
|-------------|--|-------------|-------|-----|------------------|
| I_{GT} | $V_D=12\text{V}$ $R_L=33\Omega$ | I - II -III | MAX. | 20 | mA |
| V_{GT} | | I - II -III | MAX. | 1 | V |
| V_{GD} | $V_D=V_{DRM}$ $T_j=150^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$ | I - II -III | MIN. | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | I -III | MAX. | 30 | mA |
| | | II | | 40 | |
| I_H | $I_T=100\text{mA}$ | | MAX. | 25 | mA |
| dV/dt | $V_D=540\text{V}$ Gate Open $T_j=150^{\circ}\text{C}$ | | MIN. | 800 | V/ μs |
| $(dI/dt)_c$ | $(dV/dt)_c=20\text{V}/\mu\text{s}$, $T_j=150^{\circ}\text{C}$ | | MIN. | 5 | A/ms |
| t_{on} | $I_G=40\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$ | | TYP. | 3 | μs |
| t_{off} | | | | 30 | |

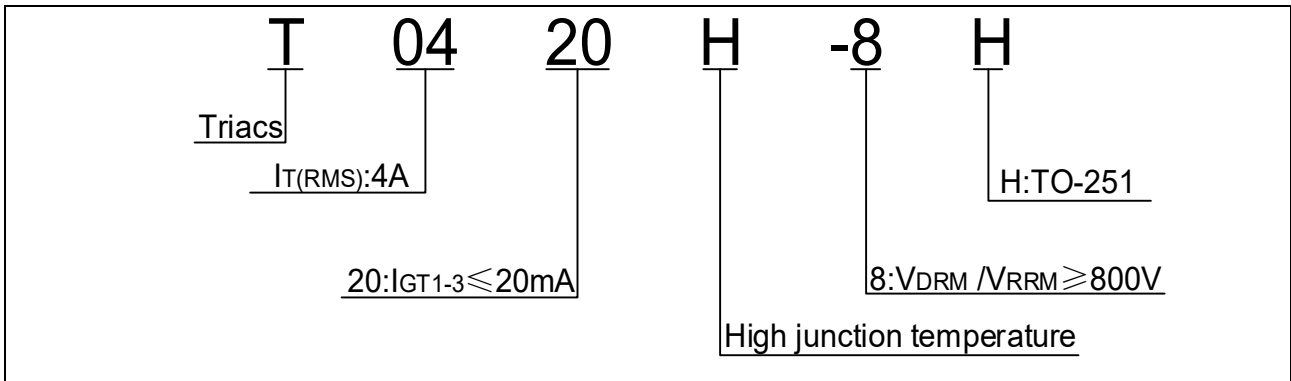
STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|-----------|---|---------------------------|-------------|------------------|
| V_{TM} | $I_{TM}=5.5\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$ | 1.4 | V |
| V_{TO} | Threshold voltage | $T_j=150^{\circ}\text{C}$ | 0.6 | V |
| R_D | Dynamic resistance | $T_j=150^{\circ}\text{C}$ | 129 | $\text{m}\Omega$ |
| I_{DRM} | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=150^{\circ}\text{C}$ | 1 | mA |

THERMAL RESISTANCES

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

ORDERING INFORMATION



MARKING

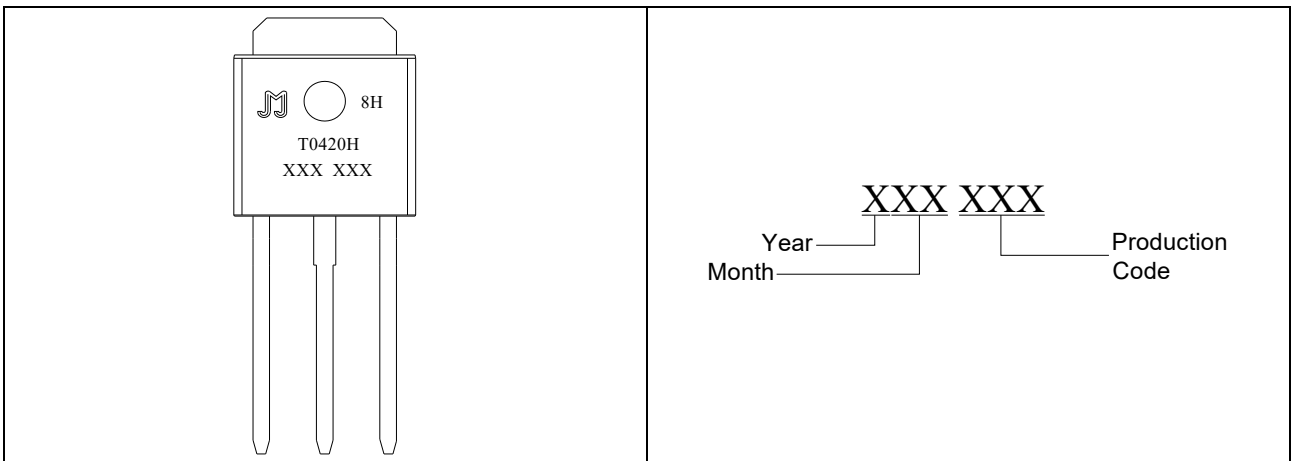


FIG.1 Maximum power dissipation versus RMS on-state current

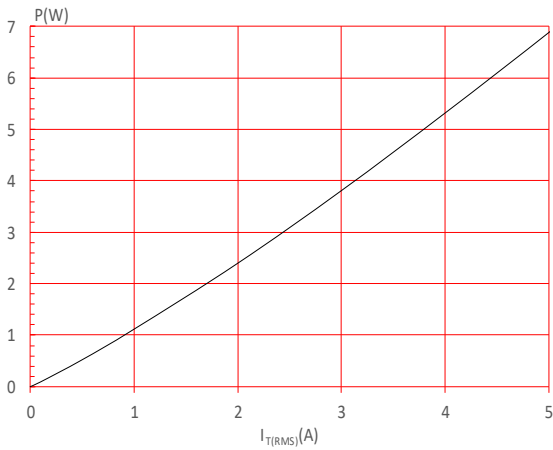


FIG.3: Surge peak on-state current versus number of cycles

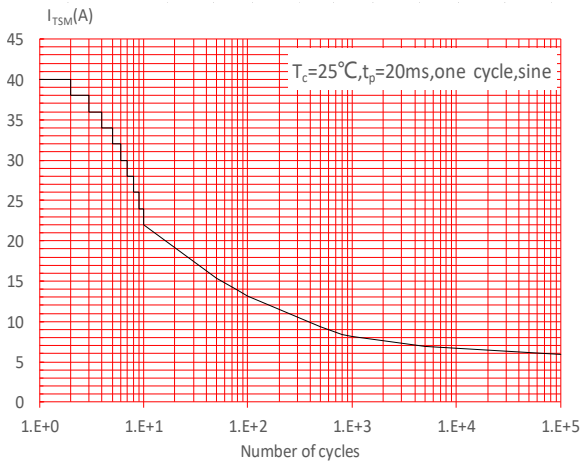


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 80\text{A}/\mu\text{s}$)

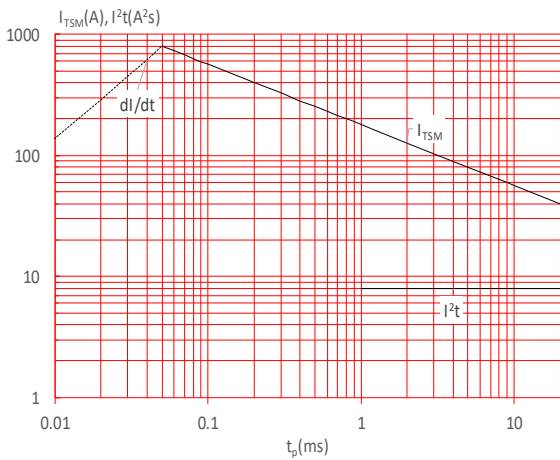


FIG.2: RMS on-state current versus case temperature

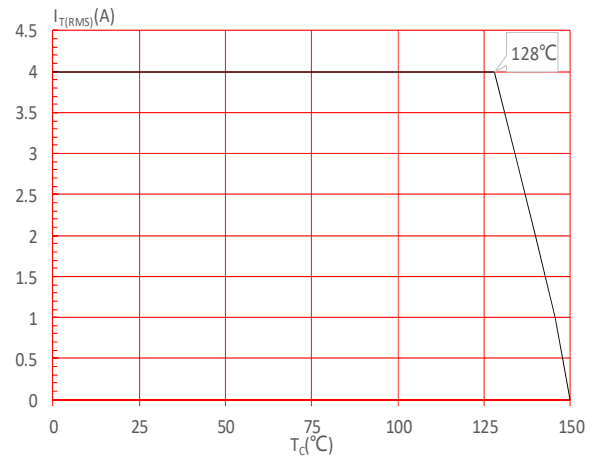


FIG.4: On-state characteristics

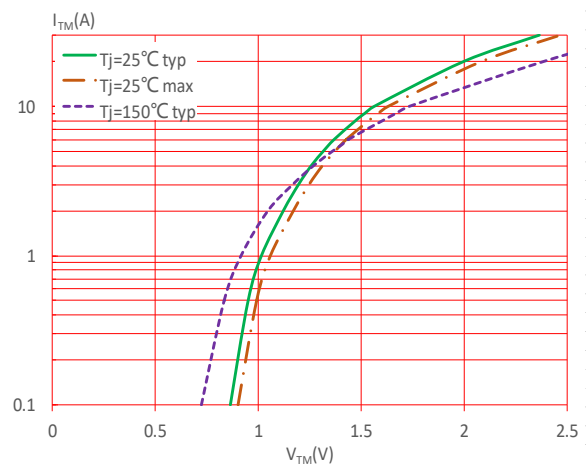


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

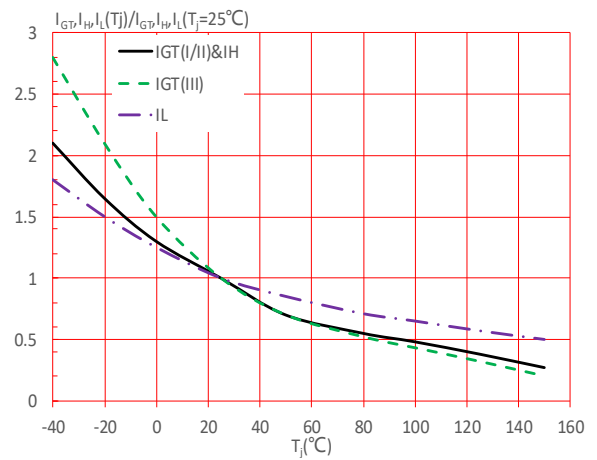
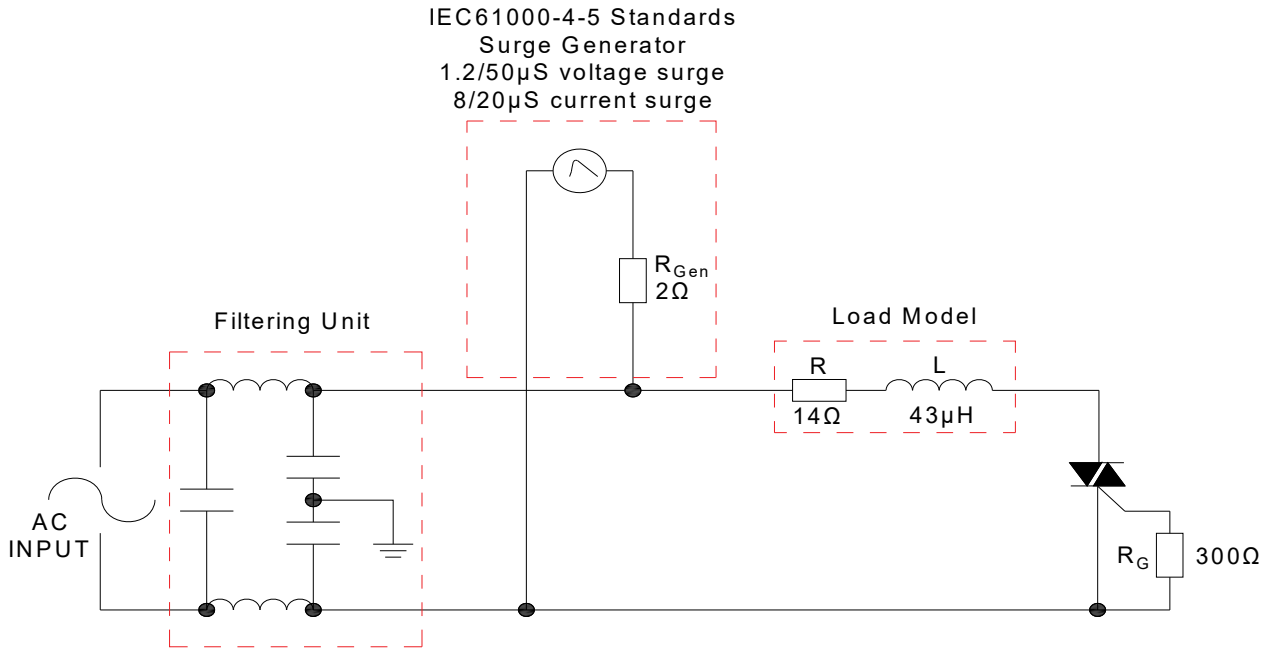


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

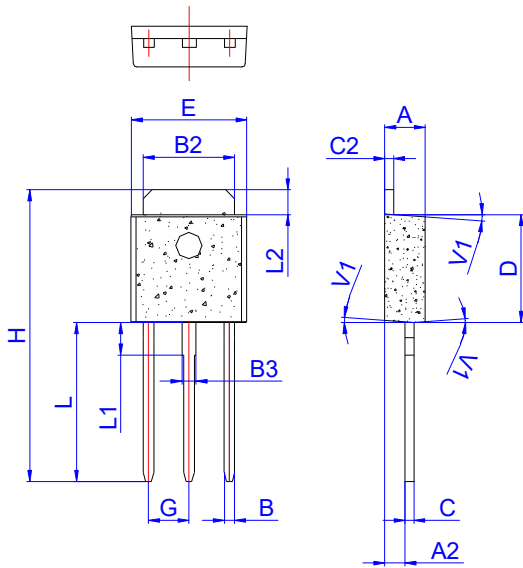
ORDERING INFORMATION

| Order code | Voltage V_{DRM}/V_{RRM} (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|------------|----------------------------------|--------------|---------|--------------------|------------------|
| | | I - II - III | | | |
| T0420H-8H | 800 | 20 | TO-251 | 80 | Tube |

Document Revision History

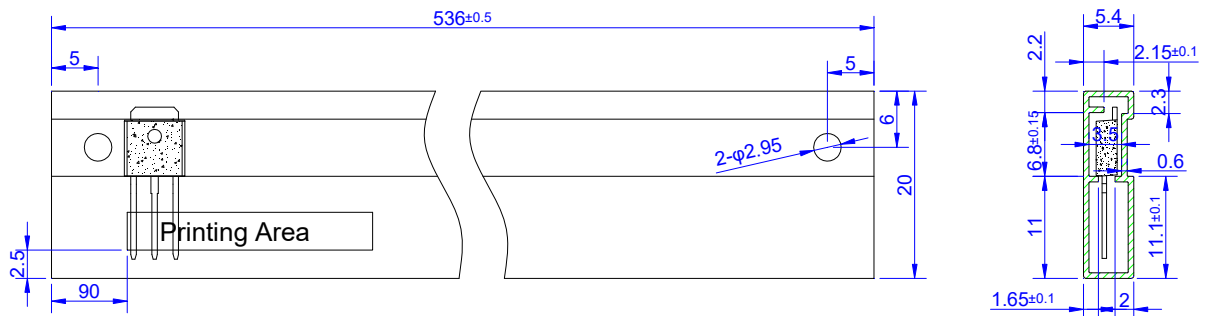
| Date | Revision | Changes |
|--------------|----------|--------------|
| Apr.10, 2023 | A.1.0 | Last updated |

PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.20 | | 2.40 | 0.086 | | 0.095 |
| A2 | 1.00 | | 1.30 | 0.039 | | 0.051 |
| B | 0.50 | | 0.70 | 0.020 | | 0.028 |
| B2 | 5.10 | | 5.40 | 0.200 | | 0.213 |
| B3 | 0.70 | | 1.00 | 0.028 | | 0.039 |
| C | 0.45 | | 0.62 | 0.018 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6.00 | | 6.20 | 0.236 | | 0.244 |
| E | 6.40 | | 6.70 | 0.252 | | 0.264 |
| G | 2.20 | | 2.40 | 0.087 | | 0.094 |
| H | 16.0 | | 17.0 | 0.630 | | 0.669 |
| L | 8.90 | | 9.40 | 0.350 | | 0.370 |
| L1 | 1.80 | | 2.20 | 0.071 | | 0.087 |
| L2 | 1.25 | | 1.55 | 0.049 | | 0.061 |
| V1 | | 4° | | | 4° | |


DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-251 | TUBE | 80 | 4,000 | 20,000 |

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