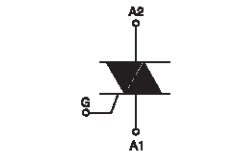
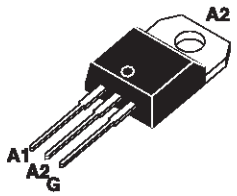
# T2550H-600T

**SNUBBERLESS™ HIGH TEMPERATURE** 25A TRIACS

## MAIN FEATURES:

| Symbol | Value | Unit |
|---|---|---|
| $I_{T(RMS)}$ | 25 | A |
| $V_{DRM}/V_{RRM}$ | 600 | V |
| $I_{GT\ (Q_1)}$ | 50 | mA |




**TO-220AB**

## DESCRIPTION

Specifically designed for use in high temperature environment (found in hot appliances such as cookers, ovens, hobs, electric heaters, coffee machines...), the new 25 Amps T25500H triacs provide an enhanced performance in terms of power loss and thermal dissipation. This allows optimization of the heatsinking dimensioning, leading to space and cost effectivness when compared to electro-mechnical solutions.

Based on ST snubberless technology, they offer high commutation switching capabilities and high noise immunity levels. And, thanks to their clip assembly technique, they provide a superior performance in surge current handling.

## ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | | | Value | Unit |
|---|---|---|---|---|---|
| $I_{T(RMS)}$ | RMS on-state current (full sine wave) | | Tc = 125°C | 25 | A |
| $I_{TSM}$ | Non repetitive surge peak on-state current (full cycle, Tj initial = 25°C) | F = 60 Hz | t = 16.7 ms | 260 | A |
| | | F = 50 Hz | t = 20 ms | 250 | |
| I t | I t Value for fusing | tp = 10 ms | | 340 | A s |
| dI/dt | Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , tr ≤ 100 ns | F = 120 Hz | Tj = 150°C | 50 | A/µs |
| $V_{DSM}/V_{RSM}$ | Non repetitive surge peak off-state voltage | tp = 10 ms | Tj = 25°C | 700 | V |
| $I_{GM}$ | Peak gate current | tp = 20 µs | Tj = 150°C | 4 | A |
| $P_{G(AV)}$ | Average gate power dissipation | | Tj = 150°C | 1 | W |
| $T_{stg}$<br>$T_j$ | Storage junction temperature range<br>Operating junction temperature range | | | - 40 to + 150<br>- 40 to + 150 | °C |

## ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

| Symbol | Test Conditions | Quadrant | | Value | Unit |
|---|---|---|---|---|---|
| $I_{GT}$ (1) | $V_D$ = 12 V $R_L$ = 33 Ω | I - II - III | MAX. | 50 | mA |
| $V_{GT}$ | | I - II - III | MAX. | 1.3 | V |
| $V_{GD}$ | $V_D = V_{DRM}$ $R_L$ = 3.3 kΩ Tj = 150°C | I - II - III | MIN. | 0.15 | V |
| $I_H$ (2) | $I_T$ = 500 mA | | MAX. | 75 | mA |
| $I_L$ | $I_G = 1.2\ I_{GT}$ | I - II - III | MAX. | 90 | mA |
| dV/dt (2) | $V_D$ = 67 % $V_{DRM}$ gate open Tj = 150°C | | MIN. | 500 | V/µs |
| (dI/dt)c (2) | Without snubber Tj = 150°C | | MIN. | 11.1 | A/ms |

## STATIC CHARACTERISTICS

| Symbol | Test Conditions | | | Value | Unit |
|---|---|---|---|---|---|
| $V_{TM}$ (2) | $I_{TM}$ = 35 A tp = 380 µs | Tj = 25°C | MAX. | 1.5 | V |
| $V_{to}$ (2) | Threshold voltage | Tj = 150°C | MAX. | 0.80 | V |
| $R_d$ (2) | Dynamic resistance | Tj = 150°C | MAX. | 19 | mΩ |
| $I_{DRM}$ | $V_{DRM} = V_{RRM}$ | Tj = 25°C | MAX. | 5 | µA |
| | | Tj = 150°C | | 8.5 | mA |
| $I_{RRM}$ | $V_{DRM} / V_{RRM}$ = 400 V (at mains peak voltage) | Tj = 150°C | | 5.5 | |

**Note 1:** minimum IGT is guaranted at 10% of IGT max.

**Note 2:** for both polarities of A2 referenced to A1

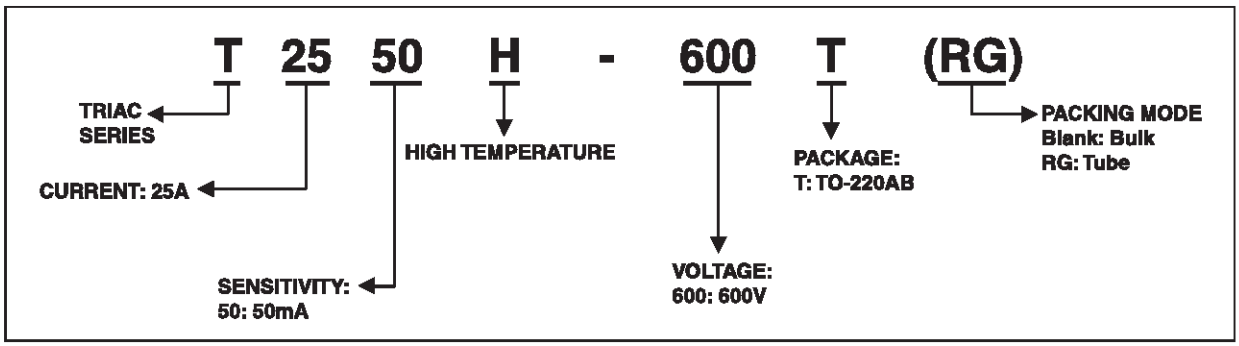
## THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th(j-c)}$ | Junction to case (AC) | 0.8 | °C/W |

## PRODUCT SELECTOR

| Part Number | Voltage | Sensitivity | Type | Package |
|---|---|---|---|---|
| T2550H-600T | 600 V | 50 mA | Snubberless | TO-220AB |

## ORDERING INFORMATION



## OTHER INFORMATION

| Part Number | Marking | Weight | Base quantity | Packing mode |
|---|---|---|---|---|
| T2550H-600T | T2550H600T | 2.3 g | 250 | Bulk |
| T2550H-600TRG | T2550H600T | 2.3 g | 50 | Tube |

**Fig. 1:** Maximum power dissipation versus RMS on-state current (full cycle).

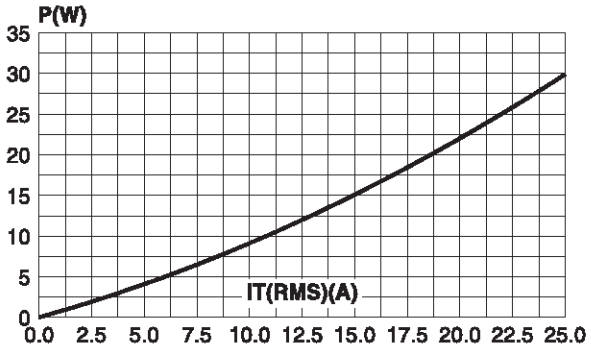



**Fig. 2:** RMS on-state current versus case temperature (full cycle).

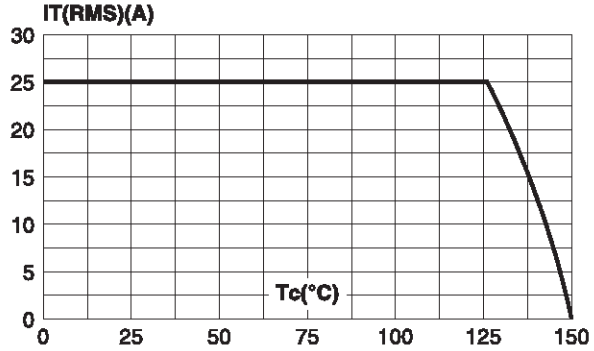



**Fig. 3:** Relative variation of thermal impedance versus pulse duration.

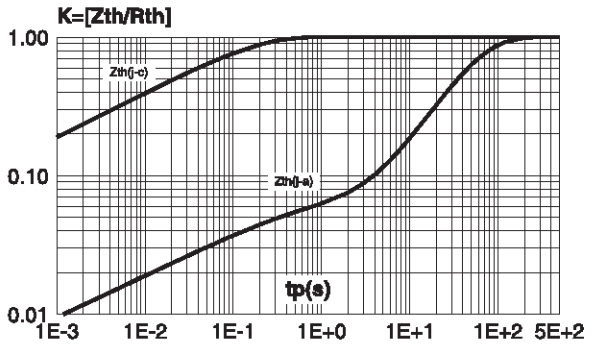



**Fig. 4:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

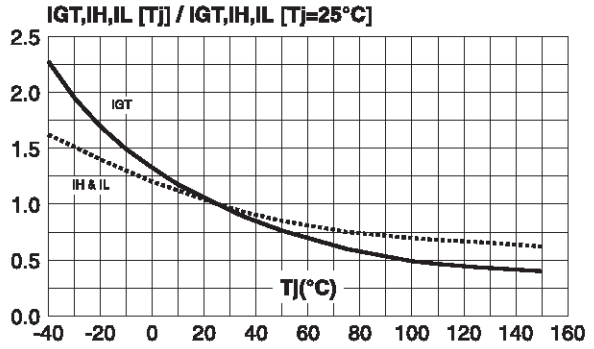


**Fig. 5:** Surge peak on-state current versus number of cycles.

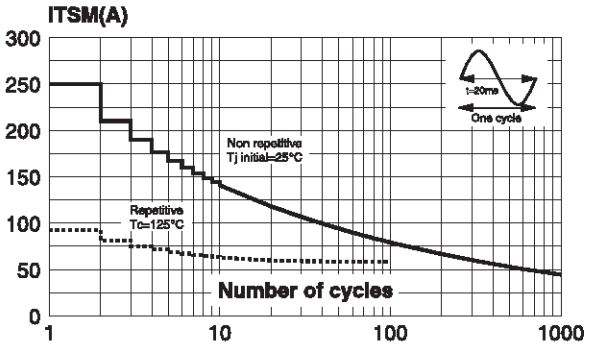



**Fig. 6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I t.

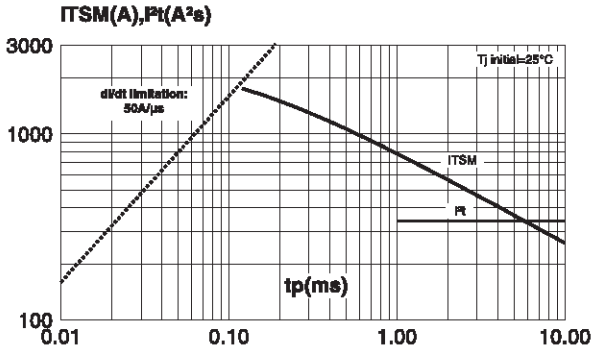



**Fig. 7:** On-state characteristics (maximum values).

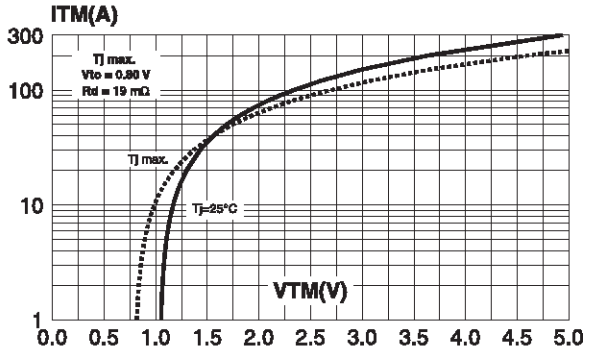



**Fig. 8:** Relative variation of critical rate of decrease of main current versus junction temperature (typical values).

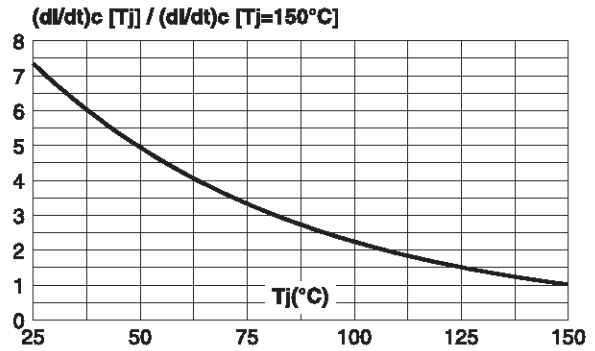



**Fig. 9:** Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

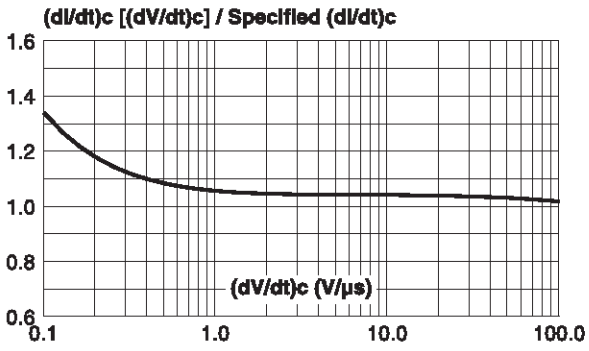



**Fig. 10:** Leakage current versus junction temperature for different values of blocking voltage (typical values).

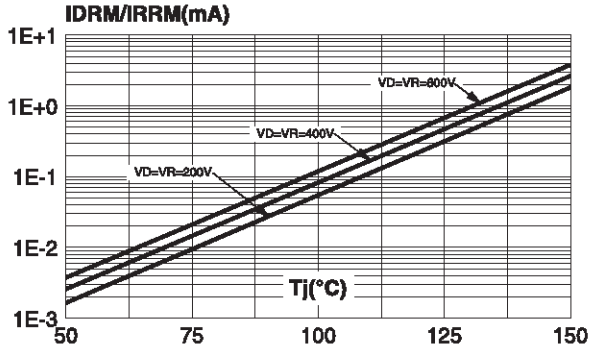
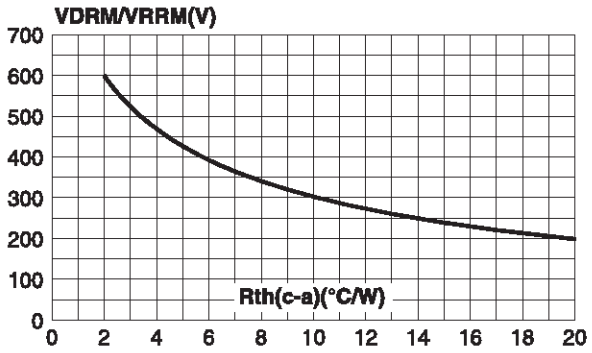
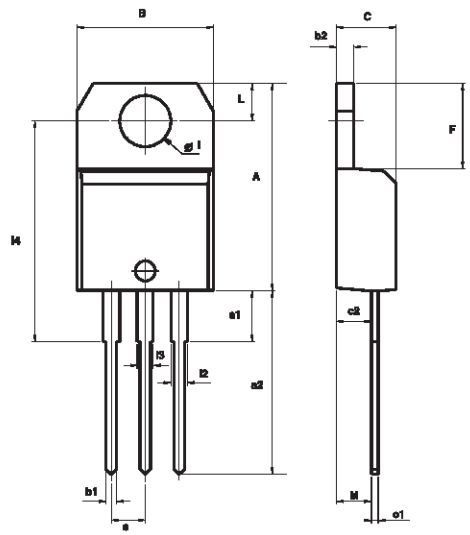


**Fig. 11:** Acceptable repetitive peak off-state voltage versus case-ambient thermal resistance.




## PACKAGE MECHANICAL DATA

TO-220AB (Plastic)




| REF. | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 15.20 | | 15.90 | 0.598 | | 0.625 |
| a1 | | 3.75 | | | 0.147 | |
| a2 | 13.00 | | 14.00 | 0.511 | | 0.551 |
| B | 10.00 | | 10.40 | 0.393 | | 0.409 |
| b1 | 0.61 | | 0.88 | 0.024 | | 0.034 |
| b2 | 1.23 | | 1.32 | 0.048 | | 0.051 |
| C | 4.40 | | 4.60 | 0.173 | | 0.181 |
| c1 | 0.49 | | 0.70 | 0.019 | | 0.027 |
| c2 | 2.40 | | 2.72 | 0.094 | | 0.107 |
| e | 2.40 | | 2.70 | 0.094 | | 0.106 |
| F | 6.20 | | 6.60 | 0.244 | | 0.259 |
| I | 3.75 | | 3.85 | 0.147 | | 0.151 |
| I4 | 15.80 | 16.40 | 16.80 | 0.622 | 0.646 | 0.661 |
| L | 2.65 | | 2.95 | 0.104 | | 0.116 |
| I2 | 1.14 | | 1.70 | 0.044 | | 0.066 |
| I3 | 1.14 | | 1.70 | 0.044 | | 0.066 |
| M | | 2.60 | | | 0.102 | |