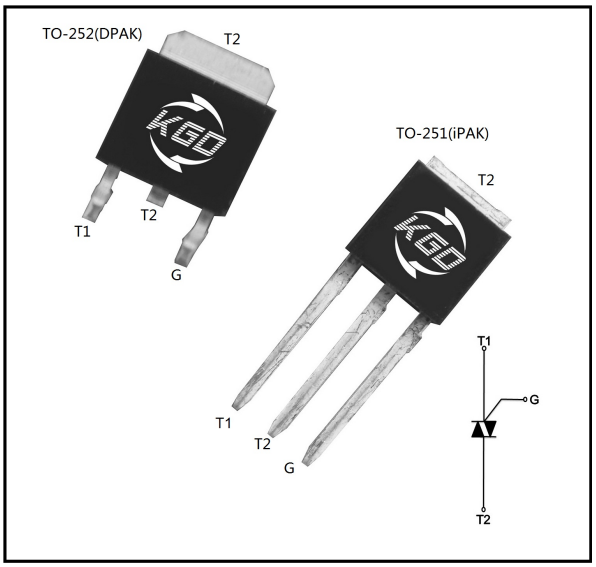
# T4xx Series

- **Description:**

High current density due to single mesa trchnology;
SIPOS and Glass Passivation.




- **Applications:**

T4XX series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays,heating regulation,induction motor stating circuits... or for phase contol operation light dimmers,motorspeed controllers.

- **Features:**

T4XX are 3 Quandrants TRIACS, They are specially recommended for use on inductive loads.
Blocking voltage to 600 & 800V
On-state RMS current to 4A
Non-repetitive peak on-state current to 35A

- **Absolute Maximum Ratings**

| Symbol | Parameter | Conditions | Min | Max | Unit |
|---|---|---|---|---|---|
| $V_{DRM}$ | Repetitive peak off-state voltage | $T_J$=25℃ | 600 | 800 | V |
| $I_{T(RMS)}$ | RMSon-statecurrent | Tc=105℃ | - | 4 | A |
| $I_{TSM}$ | Non-repetitive peak On-state current | F=50Hz, t=20ms | - | 35 | A |
| | | F=60Hz, t=16.7ms | - | 38 | A |
| $I^2t$ | $I^2t$ for fusing | Tp=10ms | - | 36 | $A^2S$ |
| di/dt | Rate of rise of on-state current | $I_G$=2×$I_{GT}$,$t_r$≤100ns, $T_j$=125℃ | - | 50 | A/μs |
| $I_{GM}$ | Peak gate current | $t_p$=20μs, $T_j$=150℃ | - | 4 | A |
| $P_{GM}$ | Peak gate power | | - | 5 | W |
| $P_{G(AV)}$ | Average gate power | | - | 1 | W |
| $T_{STG}$ | Storage temperature | | -40 | 150 | ℃ |
| $T_J$ | Junction temperature | | -40 | 125 | ℃ |

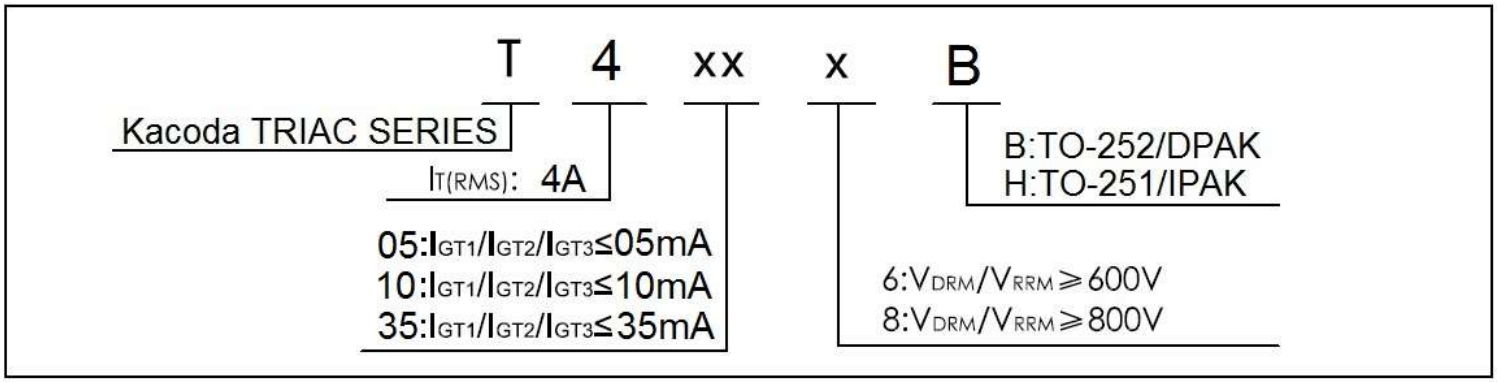
## Thermal Characteristics

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $R_{th(j-mb)}$ | Junction to Case(AC) | DPAK/IPAK | 2.6 | ℃/W |
| $R_{th(j-a)}$ | Junction to am bient | DPAK/IPAK | 60 | ℃/W |

## Electrical Characteristics

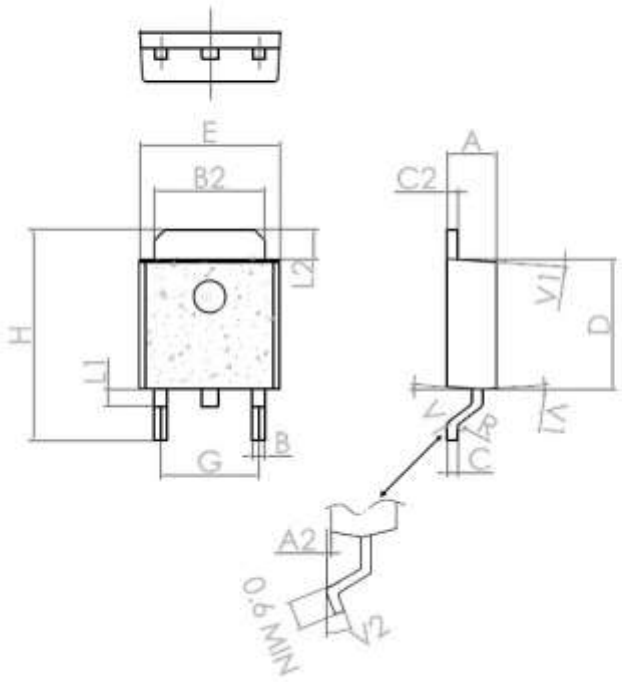
| Symbol | Conditions | Quadrant | | Numerical | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | T405 | T410 | T435 | |
| $V_{TM}$ | $I_T$=5.5A,tp=380μs | $T_J$=25℃ | MAX | | 1.6 | | V |
| $I_{DRM}$ $I_{RRM}$ | $V_D=V_{DRM}$,$V_R=V_{RRM}$ | $T_J$=25℃ | MAX | | 5.0 | | μA |
| | | $T_J$=125℃ | MAX | | 1.0 | | mA |
| $I_{GT}$ | $V_D$=12V,$R_L$=33Ω | I-II-III | MAX | 5 | 10 | 35 | mA |
| $V_{GT}$ | | I-II-III | MAX | | 1.3 | | V |
| $V_{GD}$ | $V_D=V_{DRM}$,$R_L$=3.3KΩ, $T_j$=150℃ | I-II-III | MIN | | 0.2 | | V |
| $I_L$ | $I_T=1.2I_{GT}$ | I-III | MAX | 10 | 25 | 50 | mA |
| | | II | MAX | 15 | 30 | 60 | mA |
| $I_H$ | $I_T$=500mA | | MAX | 10 | 15 | 35 | Ma |
| dv/dt | $V_{DM}=67\%V_{DRM}$,gate open,$T_j$=150℃ | | MIN | 20 | 40 | 400 | V/μs |

## Ordering Information



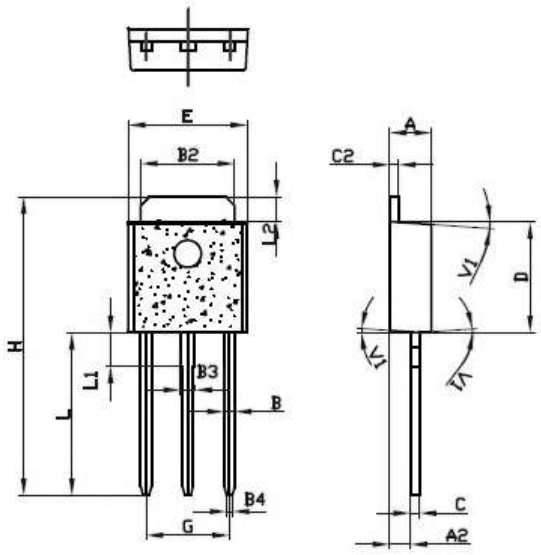
- **Package Outline Dimensions**

## TO-252 / DPAK




| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.2 | | 2.4 | 0.086 | | 0.095 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.55 | | 0.65 | 0.021 | | 0.026 |
| B2 | 5.2 | | 5.4 | 0.204 | | 0.212 |
| C | 0.45 | | 0.62 | 0.017 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6 | | 6.2 | 0.236 | | 0.244 |
| E | 6.4 | | 6.6 | 0.251 | | 0.259 |
| G | 4.40 | | 4.60 | 0.173 | | 0.181 |
| H | 9.35 | | 10.1 | 0.368 | | 0.397 |
| L1 | | 0.8 | | | 0.031 | |
| L2 | 1.37 | | 1.5 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |
| V2 | 0° | | 8° | 0° | | 8° |

## TO-251(iPAK)




| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.2 | | 2.4 | 0.086 | | 0.095 |
| A2 | 0.9 | | 1.1 | 0.035 | | 0.043 |
| B | 0.55 | | 0.65 | 0.021 | | 0.026 |
| B2 | 5.1 | | 5.4 | 0.200 | | 0.212 |
| B3 | 0.76 | | 0.85 | 0.030 | | 0.033 |
| B4 | | 0.32 | | | 0.013 | |
| C | 0.45 | | 0.62 | 0.017 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6 | | 6.2 | 0.236 | | 0.244 |
| E | 6.4 | | 6.7 | 0.252 | | 0.264 |
| G | 4.4 | | 4.7 | 0.173 | | 0.185 |
| H | 16.0 | | 16.7 | 0.630 | | 0.658 |
| L | 8.9 | | 9.4 | 0.350 | | 0.370 |
| L1 | 1.8 | | 1.9 | 0.071 | | 0.075 |
| L2 | 1.37 | | 1.5 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |

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

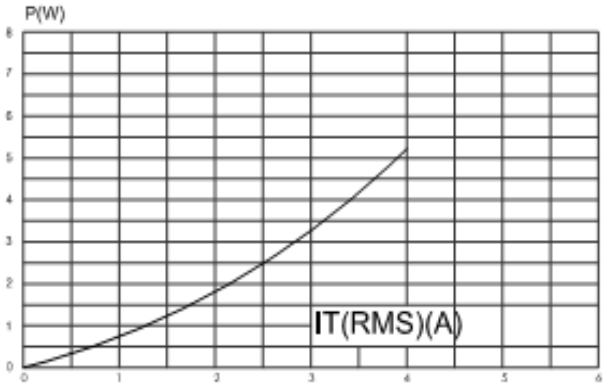



FIG.2: RMS on-state current versus case temperature(full cycle)

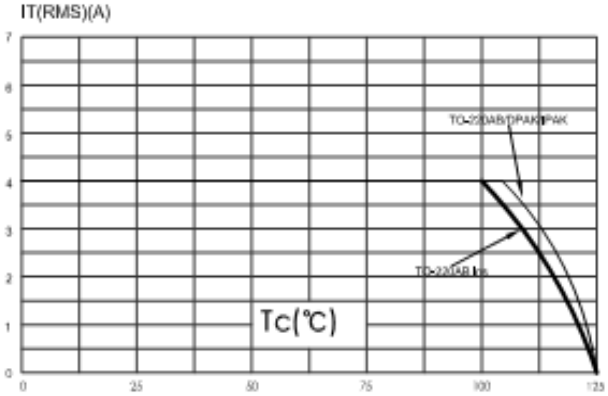



FIG.3: On-state characteristics (maximum values)

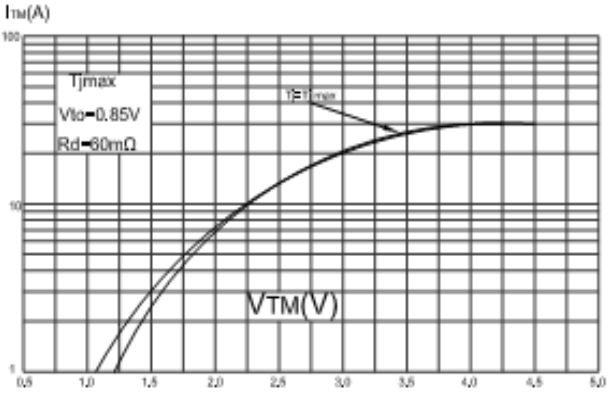



FIG.4:Surge peak on-state current versus number of cycles

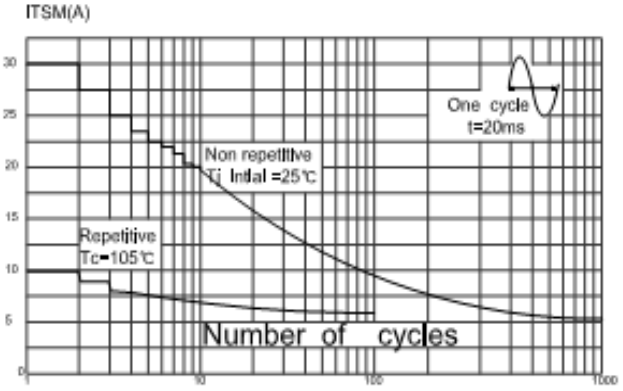



FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms.

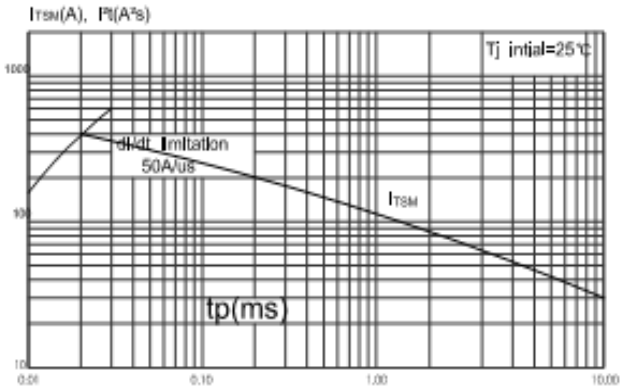



FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature(typical values)