

- Description:**

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

- Applications:**

T8XX 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 starting circuits... or for phase control operation light dimmers, motor speed controllers.

- Features:**

T8XX are 3 Quadrants TRIACS, They are specially recommended for use on inductive loads.

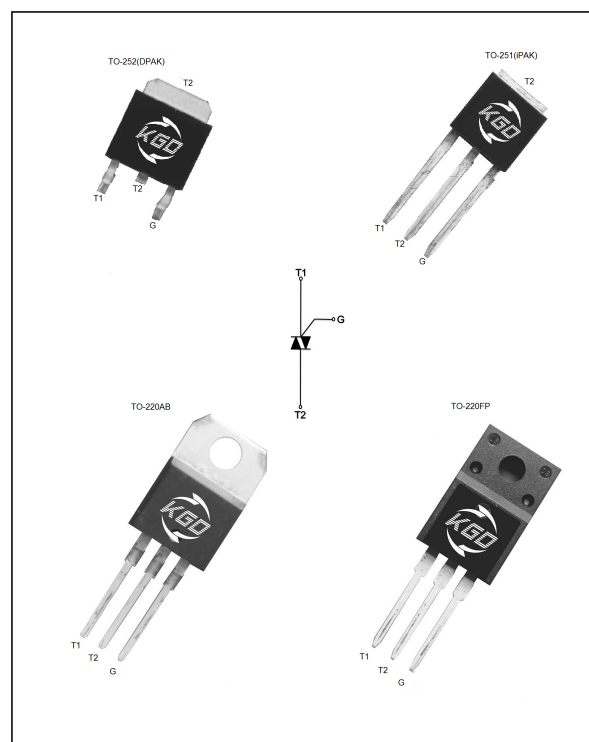
T8XX are isolated internally, they provide a 2500V RMS isolation voltage from all three terminals to external heatsink.

Blocking voltage to 800V

On-state RMS current to 8A

Non-repetitive peak on-state current to 80A

- Absolute Maximum Ratings**



| Symbol       | Parameter                            | Conditions                                                            | Min | Max | Unit                   |
|--------------|--------------------------------------|-----------------------------------------------------------------------|-----|-----|------------------------|
| $V_{DRM}$    | Repetitive peak off-state voltage    | $T_j=25^{\circ}\text{C}$                                              | -   | 800 | V                      |
| $I_{T(RMS)}$ | RMS on-state current                 | $F=60\text{Hz}, T_c=110^{\circ}\text{C}$                              | -   | 8   | A                      |
| $I_{TSM}$    | Non-repetitive peak On-state current | $F=50\text{Hz}, t=20\text{ms}$                                        | -   | 80  | A                      |
|              |                                      | $F=60\text{Hz}, t=16.7\text{ms}$                                      | -   | 84  | A                      |
| $I^2t$       | $I^2t$ for fusing                    | $T_p=10\text{ms}$                                                     | -   | 36  | $\text{A}^2\text{S}$   |
| $di/dt$      | Rate of rise of on-state current     | $I_G=2 \times I_{GT}, t_r \leq 100\text{ns}, T_j=150^{\circ}\text{C}$ | -   | 50  | $\text{A}/\mu\text{s}$ |
| $I_{GM}$     | Peak gate current                    |                                                                       | -   | 4   | A                      |
| $P_{GM}$     | Peak gate power                      | $t_p=20\mu\text{s}, T_j=150^{\circ}\text{C}$                          | -   | 5   | W                      |
| $P_{G(AV)}$  | Average gate power                   |                                                                       | -   | 1   | W                      |
| $T_{STG}$    | Storage temperature                  |                                                                       | -40 | 150 | $^{\circ}\text{C}$     |
| $T_j$        | Junction temperature                 |                                                                       | -40 | 125 | $^{\circ}\text{C}$     |

## T8xx Series

### Thermal Characteristics

| Symbol         | Parameter            | Value                       | Unit |
|----------------|----------------------|-----------------------------|------|
| $R_{th(j-mb)}$ | Junction to Case(AC) | DAK/IPAK                    | 1.6  |
|                |                      | TO-220AB Insulated/TO-220FP | 2.5  |
| $R_{th(j-a)}$  | Junction to am bient | DAK/IPAK                    | 60   |
|                |                      | TO-220AB Insulated/TO-220FP |      |

### Electrical Characteristics

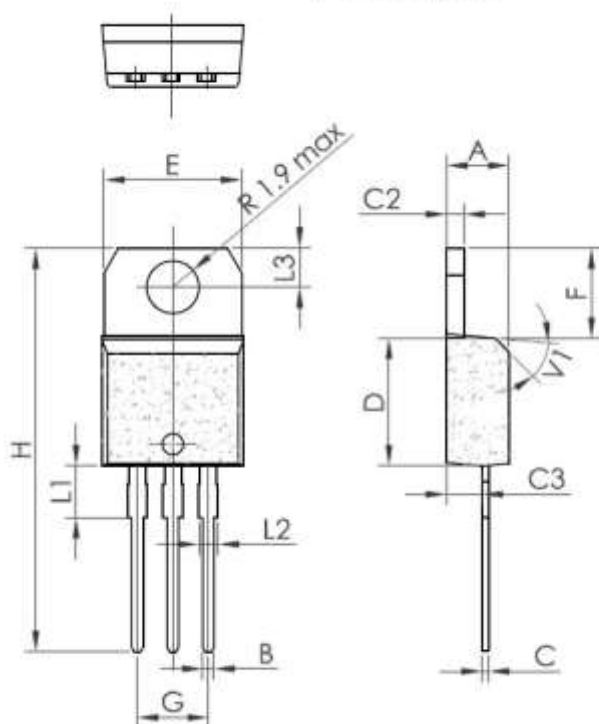
| Symbol    | Conditions                                              | Quadrant              | Numerical |      |      |      | Unit       |
|-----------|---------------------------------------------------------|-----------------------|-----------|------|------|------|------------|
|           |                                                         |                       | T805      | T810 | T835 | T850 |            |
| $V_{TM}$  | $I_T=17A, t_p=380\mu s$                                 | $T_J=25^\circ C$ MAX  |           | 1.55 |      |      | V          |
| $I_{DRM}$ | $V_D=V_{DRM}, V_R=V_{RRM}$                              | $T_J=25^\circ C$ MAX  |           | 10   |      |      | $\mu A$    |
| $I_{RRM}$ |                                                         | $T_J=150^\circ C$ MAX |           | 3.0  |      |      | mA         |
| $I_{GT}$  | $V_D=12V, R_L=33\Omega$                                 | I-II-III MAX          | 5         | 10   | 35   | 50   | mA         |
| $V_{GT}$  |                                                         | I-II-III MAX          |           | 1.5  |      |      | V          |
| $V_{GD}$  | $V_D=V_{DRM}, R_L=3.3K\Omega, T_J=150^\circ C$          | I-II-III MIN          |           | 0.2  |      |      | V          |
| $I_L$     | $I_T=1.2I_{GT}$                                         | I-III MAX             | 10        | 25   | 50   | 70   | mA         |
|           |                                                         | II MAX                | 15        | 30   | 60   | 80   | mA         |
| $I_H$     | $I_T=100mA$                                             | MAX                   | 10        | 15   | 35   | 50   | Ma         |
| dv/dt     | $V_{DM}=67\%V_{DRM}, \text{gate open}, T_J=150^\circ C$ | MIN                   | 20        | 40   | 400  | 1000 | V/ $\mu s$ |

### Ordering Information

|                                                                                                                                                                                                                                             |  |  |  |  |                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Kacoda TRIAC SERIES</b></p> <p><math>I_{T(RMS)}: 8A</math></p> <p>20:<math>I_{GT1}/I_{GT2}/I_{GT3} \leq 20mA</math><br/> 35:<math>I_{GT1}/I_{GT2}/I_{GT3} \leq 35mA</math><br/> 50:<math>I_{GT1}/I_{GT2}/I_{GT3} \leq 50mA</math></p> |  |  |  |  | <p><b>T 8 xx x T</b></p> <p>F:TO-220FP<br/> T:TO-220AB<br/> B:TO-252/DAK<br/> H:TO-251/IPAK</p> <p>6:<math>V_{DRM}/V_{RRM} \geq 600V</math><br/> 8:<math>V_{DRM}/V_{RRM} \geq 800V</math></p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

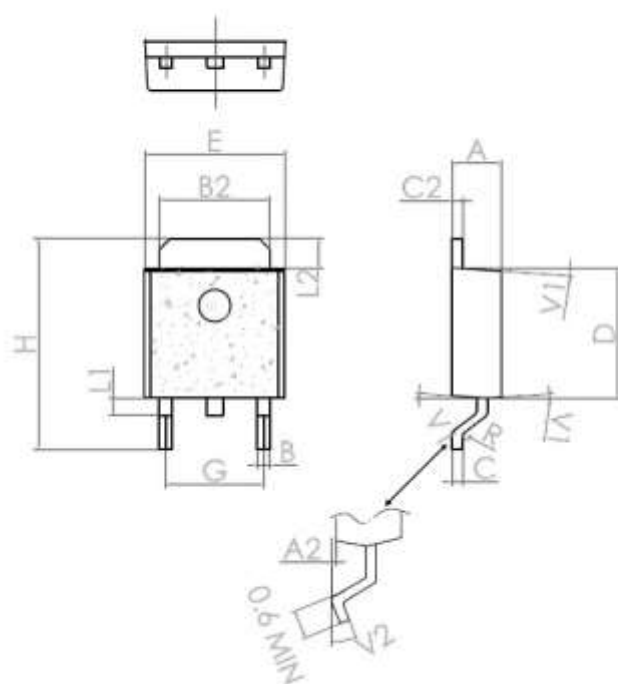
● Package Outline Dimensions

### TO-220AB



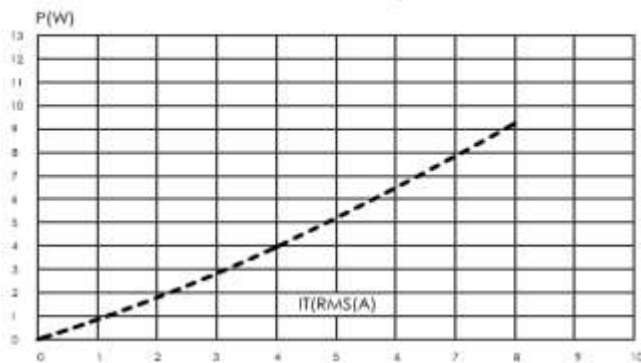
| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 4.4         |      | 4.6  | 0.173  |       | 1.181 |
| B    | 0.61        |      | 0.88 | 0.024  |       | 0.034 |
| C    | 0.49        |      | 0.70 | 0.019  |       | 0.027 |
| C2   | 1.23        |      | 1.32 | 0.048  |       | 0.051 |
| C3   | 2.4         |      | 2.72 | 0.094  |       | 0.107 |
| D    | 8.6         |      | 9.7  | 0.338  |       | 0.382 |
| E    | 10          |      | 10.4 | 0.393  |       | 0.409 |
| F    | 6.2         |      | 6.6  | 0.244  |       | 0.259 |
| G    | 4.8         |      | 5.4  | 0.189  |       | 0.213 |
| H    | 28.0        |      | 29.8 | 11.0   |       | 11.7  |
| L1   |             | 3.75 |      |        | 0.147 |       |
| L2   | 1.14        |      | 1.7  | 0.044  |       | 0.066 |
| L3   | 2.65        |      | 2.95 | 0.104  |       | 0.116 |
| V1   |             | 40°  |      |        | 40°   |       |

### TO-252 / DPAK

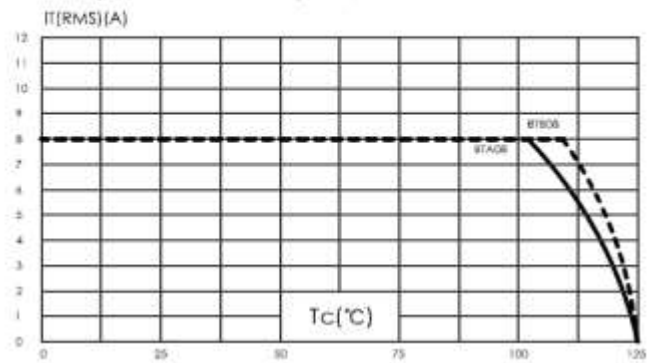


| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 2.2         |      | 2.4  | 0.086  |       | 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°    |

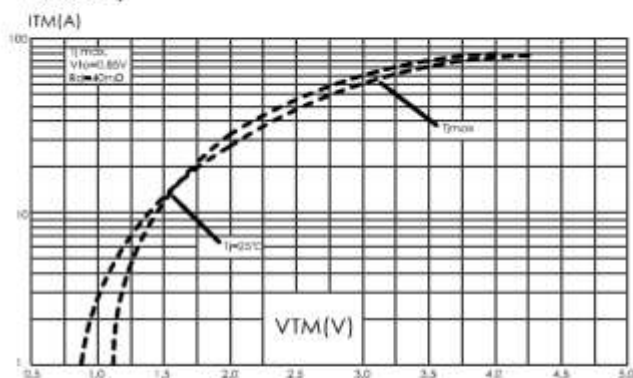
**FIG.1:** Maximum power dissipation versus RMS on-state current(full cycle)



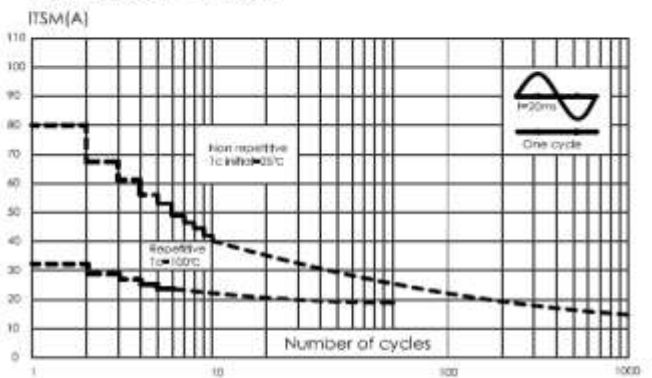
**FIG.2:** RMS on-state current versus case temperature(full cycle)



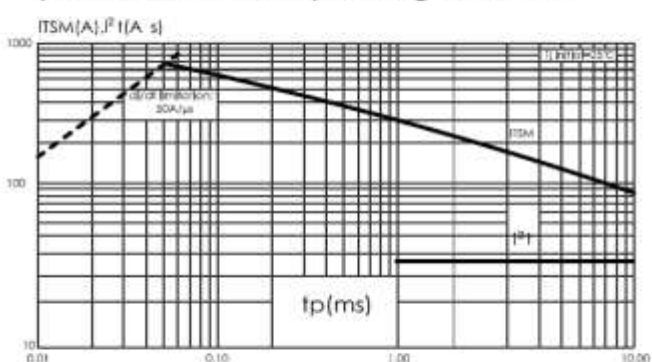
**FIG.3:** On-state characteristics (maximum values)



**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  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$



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

