



SENSITIVE GATE TRIACS

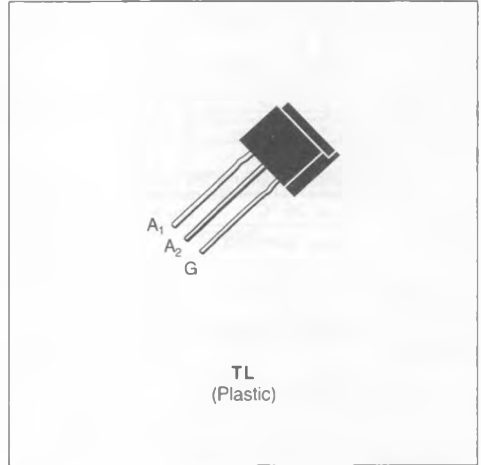
- GLASS PASSIVATED CHIP
- HIGH SURGE CURRENT

DESCRIPTION

Low power triacs suited for 50 and 60 Hz up to 380 V_{RMS}.

APPLICATIONS

- CONTROL SPEED FOR LITTLE MOTORS ; ELECTRIC PUMP OR VENTILATOR, SEWING MACHINE
- RELAY, DETECTOR, ALARM SYSTEM
- ELECTRONIC STARTER FOR LAMP
- HIGH POWER TRIAC DRIVER



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|--|---------------------------------|----------|
| $I_{T(RMS)}$ | RMS on-state Current (360° conduction angle) | $T_J = 40\text{ °C}$ 3 | A |
| $I_{T(RMS)}$ | RMS on-state Current on Printed Circuit (360° conduction angle) | $T_a = 25\text{ °C}$ 1.3 (3) | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_J initial = 25 °C - Half sine wave) | $t = 8.3\text{ ms}$ | 31.5 |
| | | $t = 10\text{ ms}$ | 30 |
| I^2t | I^2t Value for Fusing | $t = 10\text{ ms}$ | 4.5 |
| di/dt | Critical Rate of Rise of on-state Current (1) | Repetitive | 10 |
| T_{sIg} T_J | Storage and Operating Junction Temperature Range | - 40 to 150 - 40 to 110 | °C °C |

| Symbol | Parameter | TLC116T | TLC226T | TLC336T | TLC386T | Unit |
|-----------|---------------------------------------|---------|---------|---------|---------|------|
| V_{DRM} | Repetitive Peak off-state Voltage (2) | 200 | 400 | 600 | 700 | V |

(1) $I_G = 50\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$
 (2) $T_J = 110\text{ °C}$.
 (3) With Cu surface = 1 cm².

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|--|--------|------|
| $R_{th(j-a)}$ | Junction to Ambient on Printed Circuit | 50 (1) | °C/W |
| $R_{th(j-l)}$ | Junction-leads for 360° Conduction Angle (F = 50 Hz) | 15 | °C/W |

(1) With Cu surface = 1 cm².

GATE CHARACTERISTICS (maximum values)

$P_{GM} = 2 \text{ W}$ ($t_p = 10 \mu\text{s}$) $I_{GM} = 1 \text{ A}$ ($t_p = 10 \mu\text{s}$)
 $P_{G(AV)} = 0.1 \text{ W}$ $V_{GM} = 16 \text{ V}$ ($t_p = 10 \mu\text{s}$)

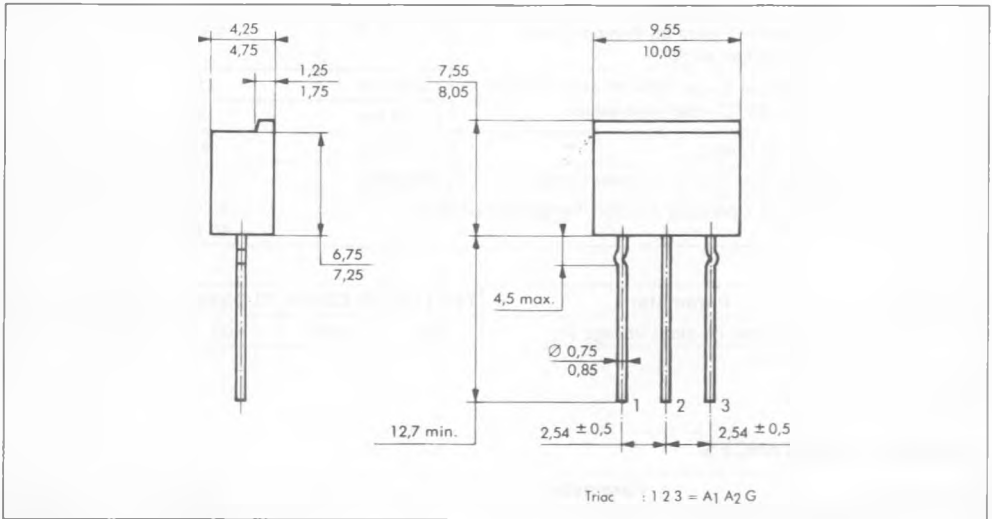
ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | | Quadrants | Min. | Typ. | Max. | Unit |
|---------------|---|--|------------------------------------|-------------|------|------|------|------------------|
| I_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | I-II-III-IV | | | 5 | mA |
| V_{GT} | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | I-II-III-IV | | | 1.5 | V |
| V_{GD} | $T_j = 110 \text{ }^\circ\text{C}$ | $V_D = V_{DRM}$ | $R_L = 3.3 \text{ k}\Omega$ | I-II-III-IV | 0.2 | | | V |
| I_H^* | $T_j = 25 \text{ }^\circ\text{C}$ | $I_T = 100 \text{ mA}$ | Gate Open | | | | 15 | mA |
| I_L | $T_j = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $I_G = 10 \text{ mA}$ | I-II-III-IV | | | 15 | mA |
| V_{TM}^* | $T_j = 25 \text{ }^\circ\text{C}$ | $I_{TM} = 4 \text{ A}$ | $t_p = 10 \text{ ms}$ | | | | 1.85 | V |
| I_{DRM}^* | V_{DRM} Specified | | $T_j = 25 \text{ }^\circ\text{C}$ | | | | 0.01 | mA |
| | | | $T_j = 110 \text{ }^\circ\text{C}$ | | | | 0.75 | |
| dv/dt^* | $T_j = 110 \text{ }^\circ\text{C}$ Linear Slope up to $V_D = 67\% V_{DRM}$ | Gate Open | | | | 10 | | V/ μs |
| $(dv/dt)_c^*$ | $T_j = 40 \text{ }^\circ\text{C}$ $(di/dt)_c = 1.3 \text{ A/ms}$ | $V_D = V_{DRM}$ | $I_T = 4 \text{ A}$ | | | 1 | | V/ μs |
| t_{gt} | $T_j = 25 \text{ }^\circ\text{C}$ $I_G = 100 \text{ mA}$ | $V_D = V_{DRM}$ $di_G/dt = 1 \text{ A}/\mu\text{s}$ | $I_T = 4 \text{ A}$ | I-II-III-IV | | 3 | | μs |

* For either polarity of electrode A_2 voltage with reference to electrode A_1 .

PACKAGE MECHANICAL DATA

TL Plastic



Cooling method : by convection (method A)
 Marking : type number
 Weight : 0.8 g.

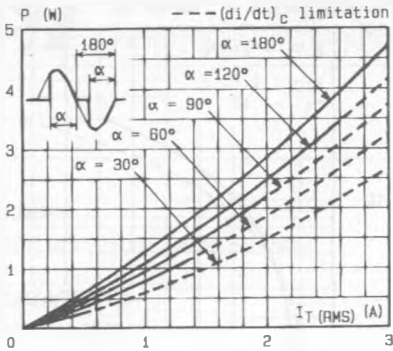


Fig. 1 - Maximum mean power dissipation versus RMS on-state current.

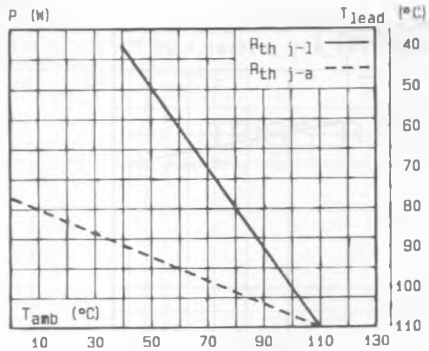


Fig. 2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{lead}) - resistances heatsink + contact.

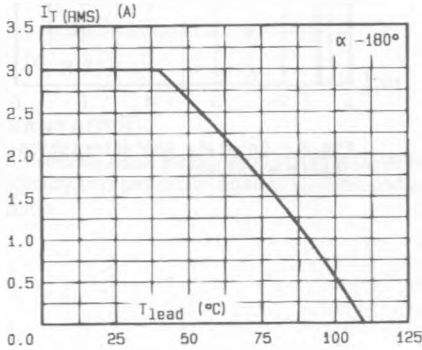


Fig. 3 - RMS on-state current versus lead temperature.

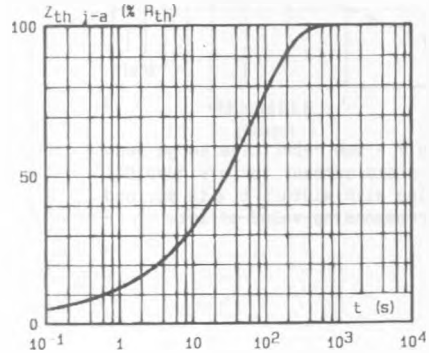


Fig. 4 - Thermal transient impedance junction to ambient versus pulse duration.

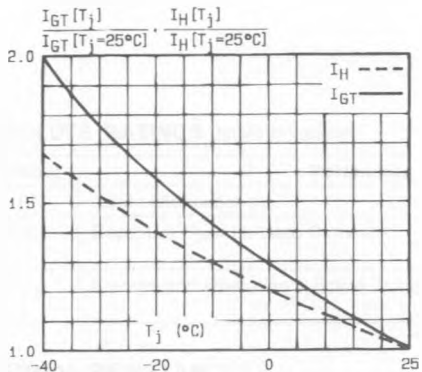


Fig. 5 - Relative variation of gate trigger current and holding current versus junction temperature.

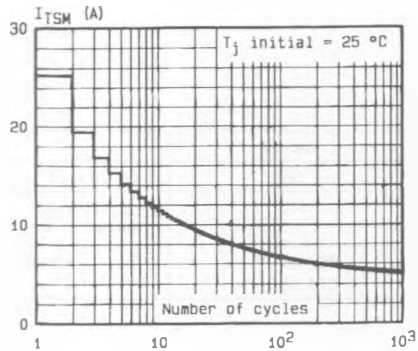


Fig. 6 - Non repetitive surge peak on-state current versus number of cycles.

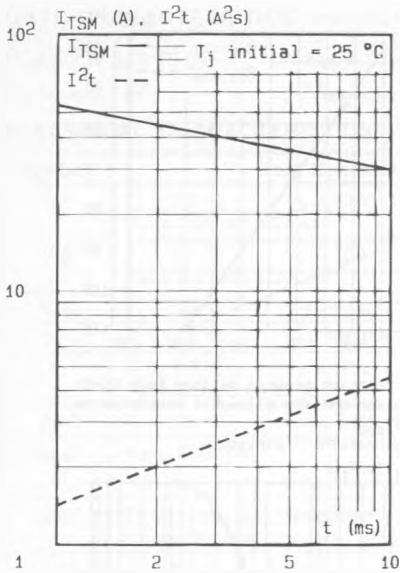


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

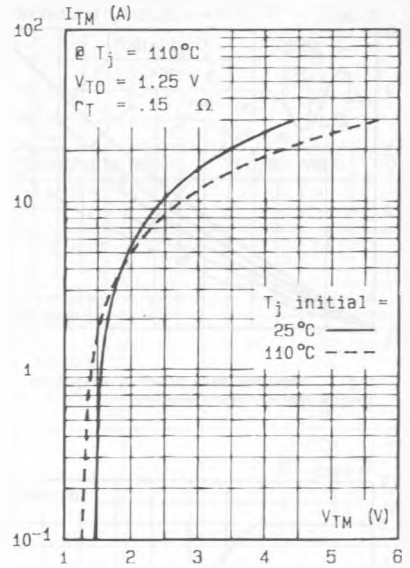


Fig.8 - On-state characteristics (maximum values).