

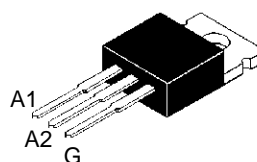
STANDARD TRIACS

FEATURES

- $I_{T(RMS)} = 10A$
- $V_{DRM} = 400V$ to $800V$
- High surge current capability

DESCRIPTION

The T10xxxH series of triacs uses a high performance MESA GLASS technology. These parts are intended for general purpose switching and phase control applications.



TO220
non-insulated
(Plastic)

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|---|--|------------------|
| $I_{T(RMS)}$ | RMS on-state current (360° conduction angle) | $T_c = 95\text{ }^\circ\text{C}$ 10 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = $25\text{ }^\circ\text{C}$) | $t_p = 8.3\text{ ms}$ | 105 |
| | | $t_p = 10\text{ ms}$ | 100 |
| I^2t | I^2t Value for fusing | $t_p = 10\text{ ms}$ 50 | A^2s |
| di/dt | Critical rate of rise of on-state current $I_G = 500\text{ mA}$ $di_G/dt = 1\text{ A}/\mu\text{s}$. | Repetitive $F = 50\text{ Hz}$ | 10 |
| | | Non Repetitive | 50 |
| T_{stg} T_j | Storage and operating junction temperature range | - 40, + 150 - 40, + 125 | $^\circ\text{C}$ |
| TI | Maximum lead temperature for soldering during 10s at 4.5mm from case | 260 | $^\circ\text{C}$ |

| Symbol | Parameter | Voltage | | | | Unit |
|------------------------|--|---------|-----|-----|-----|------|
| | | D | M | S | N | |
| V_{DRM} V_{RRM} | Repetitive peak off-state voltage $T_j = 125\text{ }^\circ\text{C}$ | 400 | 600 | 700 | 800 | V |

T10xxxH

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|----------|---|-------|------|
| Rth(j-a) | Junction to ambient | 60 | °C/W |
| Rth(j-c) | Junction to case for D.C | 3.3 | °C/W |
| Rth(j-c) | Junction to case for A.C 360° conduction angle (F=50Hz) | 2.5 | °C/W |

GATE CHARACTERISTICS (maximum values)

$P_G (AV) = 1 \text{ W}$ $P_{GM} = 10 \text{ W}$ ($t_p = 20 \mu\text{s}$) $I_{GM} = 4 \text{ A}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | Quadrant | | Sensitivity | | | Unit |
|--------------------------------------|--|------------------------|-------------|-----|-------------|-----|-----|------|
| | | | | | 10 | 12 | 13 | |
| I _{GT} | V _D =12V (DC) R _L =33Ω | T _j = 25°C | I-II-III | MAX | 25 | 50 | 50 | mA |
| | | | IV | MAX | 25 | 50 | 75 | |
| V _{GT} | V _D =12V (DC) R _L =33Ω | T _j = 25°C | I-II-III-IV | MAX | 1.5 | | | V |
| V _{GD} | V _D =V _{DRM} R _L =3.3kΩ | T _j = 125°C | I-II-III-IV | MIN | 0.2 | | | V |
| t _{gt} | V _D =V _{DRM} I _G = 500mA I _T = 14A dI _G /dt = 3A/μs | T _j = 25°C | I-II-III-IV | TYP | 2 | | | μs |
| I _H * | I _T = 250 mA Gate open | T _j = 25°C | | MAX | 25 | 50 | 75 | mA |
| I _L | I _G = 1.2 I _{GT} | T _j = 25°C | I-III-IV | TYP | 25 | 50 | 75 | mA |
| | | | II | TYP | 50 | 100 | 150 | |
| V _{TM} * | I _{TM} = 14A t _p = 380μs | T _j = 25°C | | MAX | 1.5 | | | V |
| I _{DRM} I _{RRM} | V _D = V _{DRM} V _R = V _{RRM} | T _j = 25°C | | MAX | 10 | | | μA |
| | | T _j = 110°C | | MAX | 2 | | | mA |
| dV/dt * | V _D =67%V _{DRM} Gate open | T _j = 110°C | | MIN | 200 | 500 | 500 | V/μs |
| (dV/dt) _c * | (dI/dt) _c = 4.4 A/ms | T _j = 110°C | | MIN | 2 | 5 | 10 | V/μs |

* For either polarity of electrode A₂ voltage with reference to electrode A₁

ORDERING INFORMATION

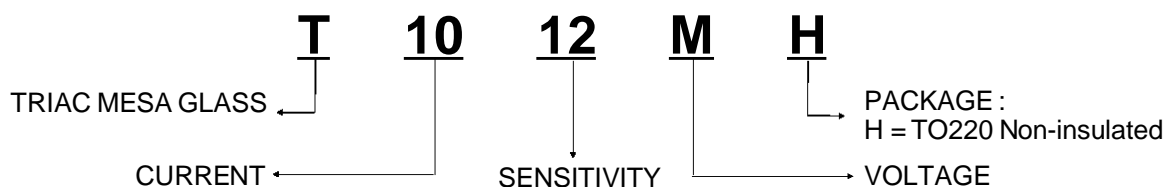


Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

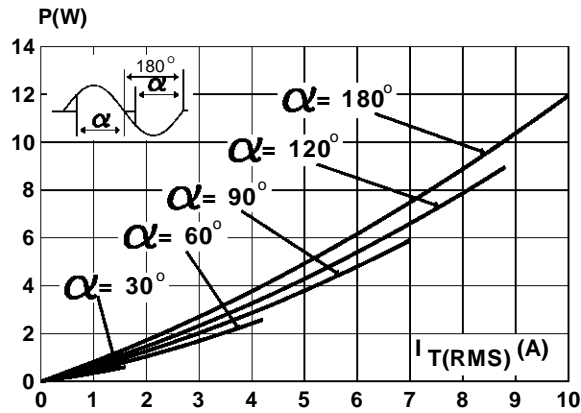


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

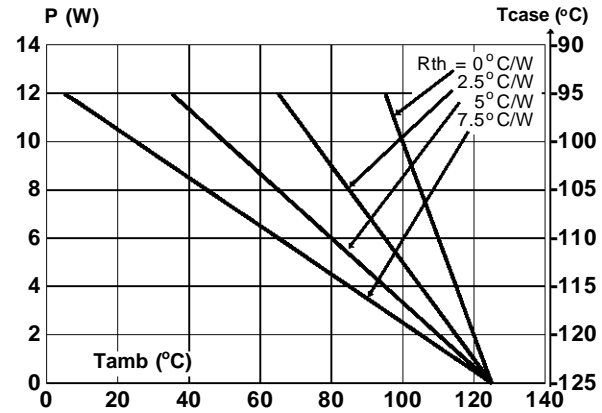


Fig.3 : RMS on-state current versus case temperature.

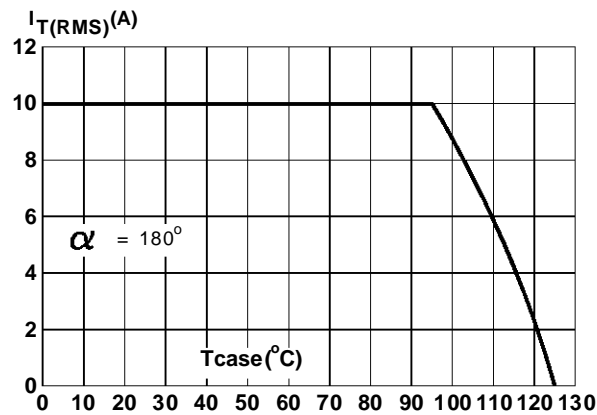


Fig.4 : Relative variation of thermal impedance versus pulse duration.

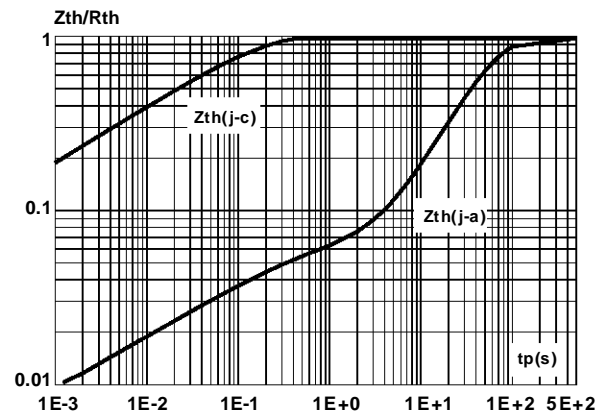


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

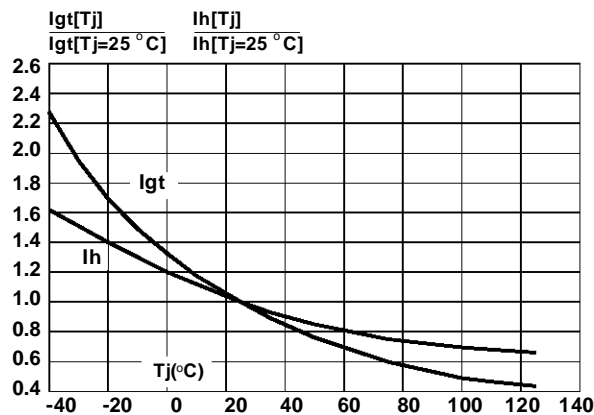
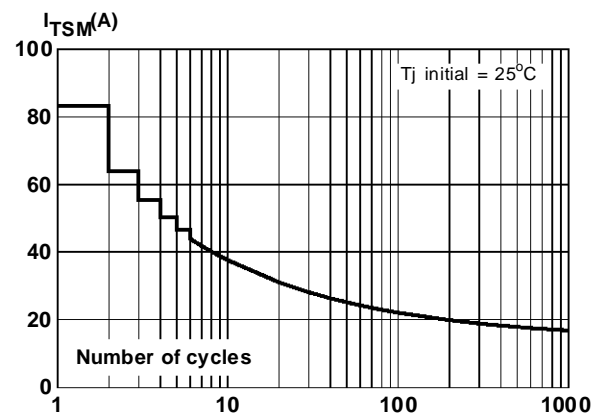


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



T10xxxH

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

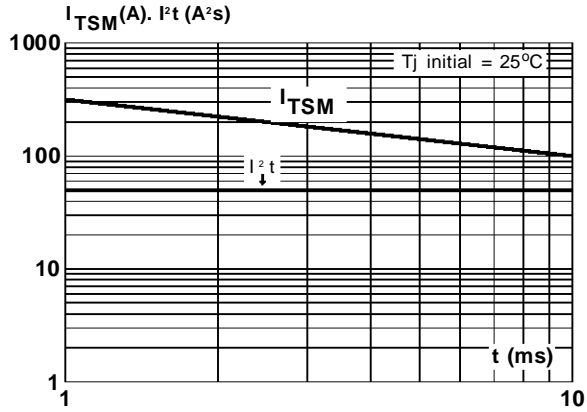
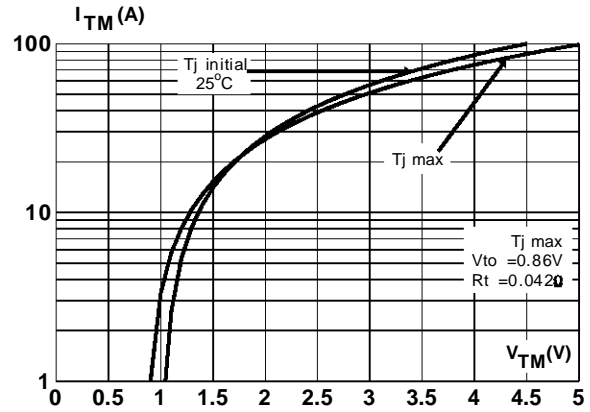


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
TO220 Non-insulated (Plastic)

| REF. | DIMENSIONS | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Typ. | Min. | Max. | Typ. | Min. | Max. |
| A | | | 10.3 | | | 0.406 |
| B | | 6.3 | 6.5 | 0.248 | 0.256 | |
| C | | | 9.1 | | | 0.358 |
| D | | 12.7 | | | 0.500 | |
| F | | | 4.2 | | | 0.165 |
| G | | | 3.0 | | | 0.118 |
| H | | 4.5 | 4.7 | | 0.177 | 0.185 |
| I | | 3.53 | 3.66 | | 0.139 | 0.144 |
| J | | 1.2 | 1.3 | | 0.047 | 0.051 |
| L | | | 0.9 | | | 0.035 |
| M | 2.7 | | | 0.106 | | |
| N | | | 5.3 | | | 0.209 |
| N1 | 2.54 | | | 0.100 | | |
| O | | 1.2 | 1.4 | | 0.047 | 0.055 |
| P | | | 1.15 | | | 0.045 |

Marking : type number
Weight : 1.8 g

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.