

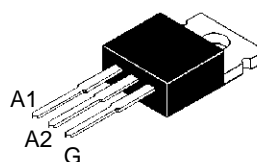
STANDARD TRIACS

FEATURES

- $I_{T(RMS)} = 12A$
- $V_{DRM} = 400V$ to $800V$
- High surge current capability

DESCRIPTION

The T12xxxH 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) | $T_c = 90\text{ }^\circ\text{C}$ | 12 | A |
| I_{TSM} | Non repetitive surge peak on-state current (T_j initial = $25\text{ }^\circ\text{C}$) | $t_p = 8.3\text{ ms}$ | 115 | A |
| | | $t_p = 10\text{ ms}$ | 110 | |
| I^2t | I^2t Value for fusing | $t_p = 10\text{ ms}$ | 60 | 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 | $A/\mu\text{s}$ |
| | | 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 |

T12xxxH

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 = 17A 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} = 17A 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 = 5.3 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

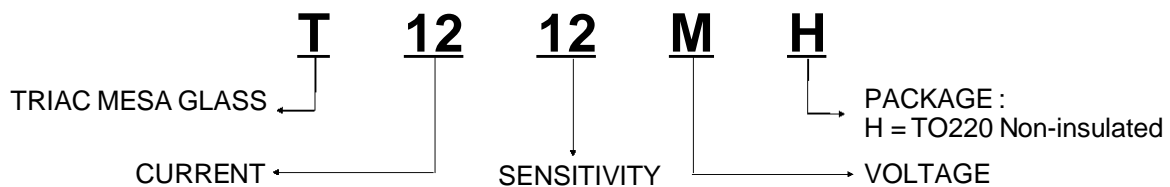


Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

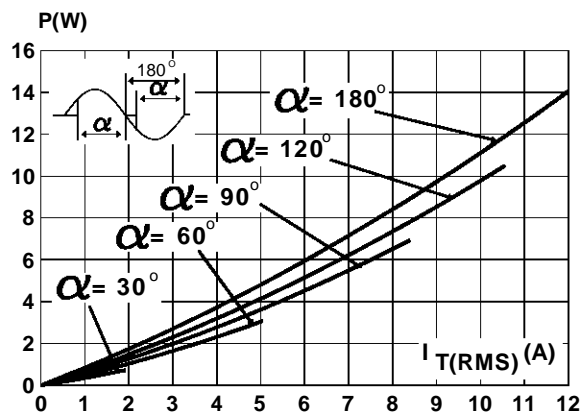


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

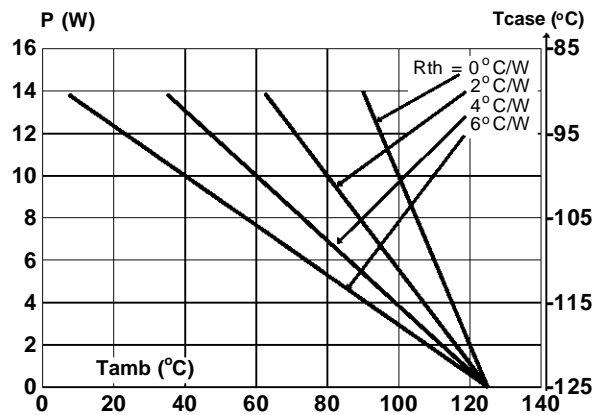


Fig.3 : RMS on-state current versus case temperature.

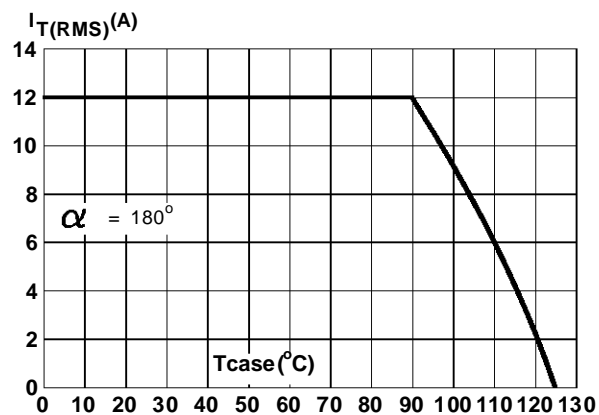


Fig.4 : Relative variation of thermal impedance versus pulse duration.

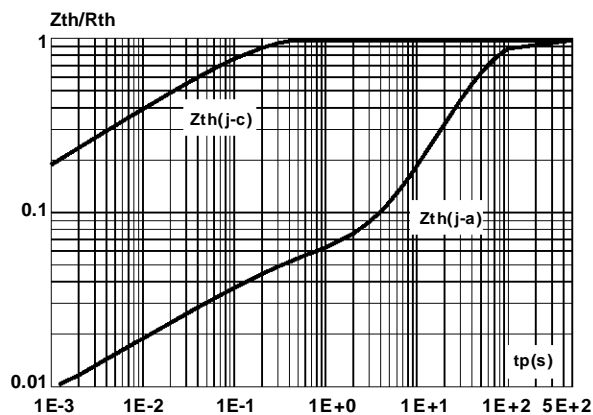


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

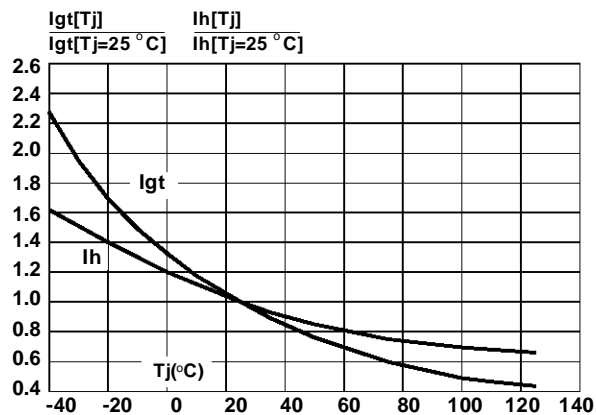
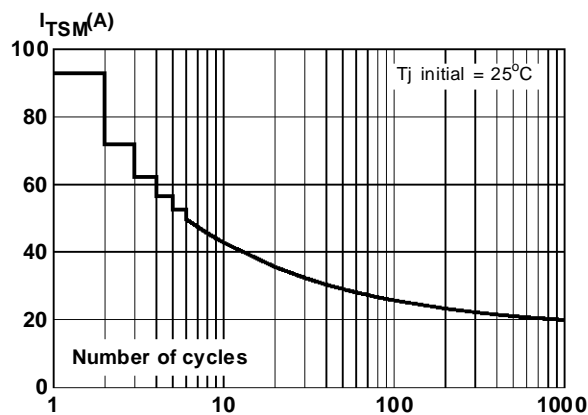


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



T12xxxH

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 .

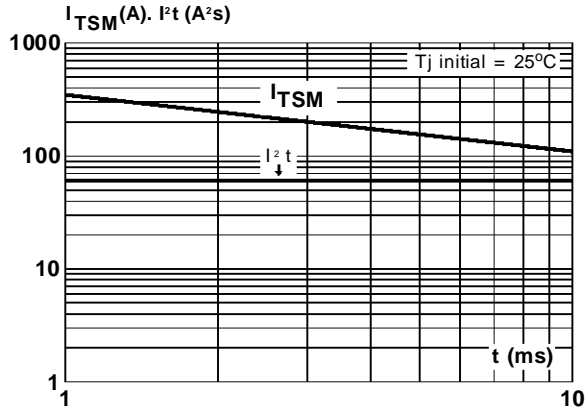
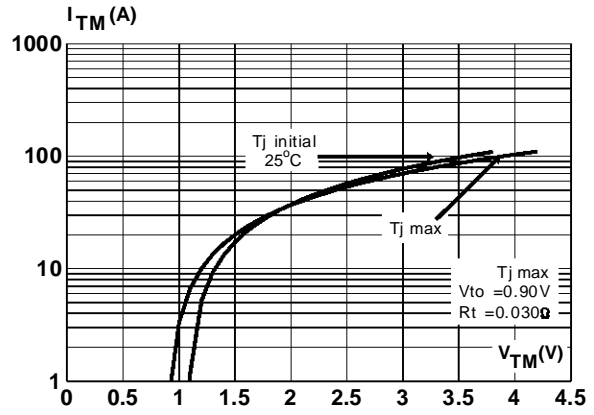


Fig.8 : On-state characteristics (maximum values).



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

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