

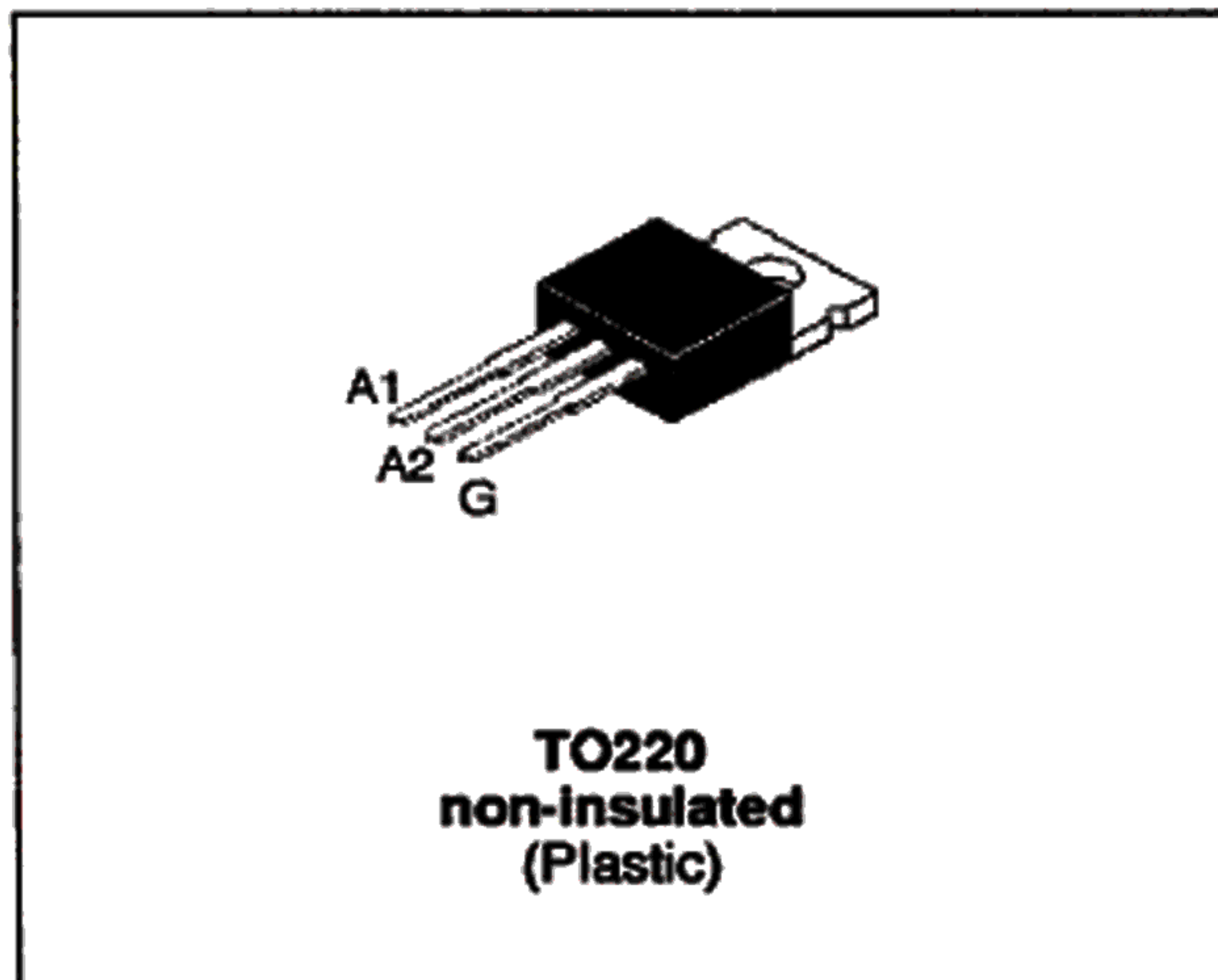
**STANDARD TRIACS**

**FEATURES**

- $I_{T(RMS)} = 16A$
- $V_{DRM} = 400V$  to  $800V$
- High surge current capability

**DESCRIPTION**

The T16xxxH series of triacs uses a high performance MESA GLASS technology. These parts are intended for general purpose switching and phase control applications.



**ABSOLUTE RATINGS (limiting values)**

| Symbol             | Parameter  |                           | Value                      | Unit       |
|--------------------|--|---------------------------|----------------------------|------------|
| $I_{T(RMS)}$       | RMS on-state current (360° conduction angle)   | $T_c = 90^\circ C$        | 16                         | A          |
| $I_{TSM}$          | Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )            | $t_p = 8.3$ ms            | 157                        | A          |
|                    |  | $t_p = 10$ ms             | 150                        |            |
| $I^2t$             | $I^2t$ Value for fusing  | $t_p = 10$ ms             | 112                        | $A^2s$     |
| $di/dt$            | Critical rate of rise of on-state current<br>$I_G = 500$ mA $di_G/dt = 1$ A/ $\mu s$ . | Repetitive<br>$F = 50$ Hz | 10                         | A/ $\mu s$ |
|                    |  | Non Repetitive            | 50                         |            |
| $T_{stg}$<br>$T_j$ | Storage and operating junction temperature range                                       |                           | - 40, + 150<br>- 40, + 125 | $^\circ C$ |
| $T_l$              | Maximum lead temperature for soldering during 10s at 4.5mm from case                   |                           | 260                        | $^\circ C$ |

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



**T16xxxH**

**THERMAL RESISTANCES**

| Symbol   | Parameter   | Value | Unit |
|----------|---|-------|------|
| Rth(j-a) | Junction to ambient                                     | 60    | °C/W |
| Rth(j-c) | Junction to case for D.C                                | 2.4   | °C/W |
| Rth(j-c) | Junction to case for A.C 360° conduction angle (F=50Hz) | 1.8   | °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 |     |                        |
|------------------------|---|---------------------------|-------------|-----|------|-----|------------------------|
|                        |   |                           | 12          | 13  |      |     |                        |
| $I_{GT}$               | $V_D = 12\text{V (DC)}$ $R_L = 33\ \Omega$  | $T_j = 25^\circ\text{C}$  | I-II-III    | MAX | 50   | 50  | mA                     |
|                        |   |                           | IV          | MAX | 50   | 75  |                        |
| $V_{GT}$               | $V_D = 12\text{V (DC)}$ $R_L = 33\ \Omega$  | $T_j = 25^\circ\text{C}$  | I-II-III-IV | MAX | 1.5  |     | V                      |
| $V_{GD}$               | $V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$   | $T_j = 125^\circ\text{C}$ | I-II-III-IV | MIN | 0.2  |     | V                      |
| $t_{gt}$               | $V_D = V_{DRM}$ $I_G = 500\text{mA}$<br>$I_T = 22.5\text{A}$<br>$di_G/dt = 3\text{A}/\mu\text{s}$ | $T_j = 25^\circ\text{C}$  | I-II-III-IV | TYP | 2    |     | $\mu\text{s}$          |
| $I_H^*$                | $I_T = 250\text{mA}$ Gate open  | $T_j = 25^\circ\text{C}$  |             | MAX | 50   | 75  | mA                     |
| $I_L$                  | $I_G = 1.2 I_{GT}$  | $T_j = 25^\circ\text{C}$  | I-III-IV    | TYP | 50   | 75  | mA                     |
|                        |   |                           | II          | TYP | 100  | 150 |                        |
| $V_{TM}^*$             | $I_{TM} = 22.5\text{A}$ $t_p = 380\ \mu\text{s}$  | $T_j = 25^\circ\text{C}$  |             | MAX | 1.5  |     | V                      |
| $I_{DRM}$<br>$I_{RRM}$ | $V_D = V_{DRM}$<br>$V_R = V_{RRM}$  | $T_j = 25^\circ\text{C}$  |             | MAX | 10   |     | $\mu\text{A}$          |
|                        |   | $T_j = 110^\circ\text{C}$ |             | MAX | 2.5  |     | mA                     |
| $dV/dt^*$              | $V_D = 67\%V_{DRM}$<br>Gate open  | $T_j = 110^\circ\text{C}$ |             | MIN | 500  |     | $\text{V}/\mu\text{s}$ |
| $(dV/dt)_c^*$          | $(dI/dt)_c = 7\text{ A/ms}$   | $T_j = 110^\circ\text{C}$ |             | MIN | 5    | 10  | $\text{V}/\mu\text{s}$ |

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

**ORDERING INFORMATION**

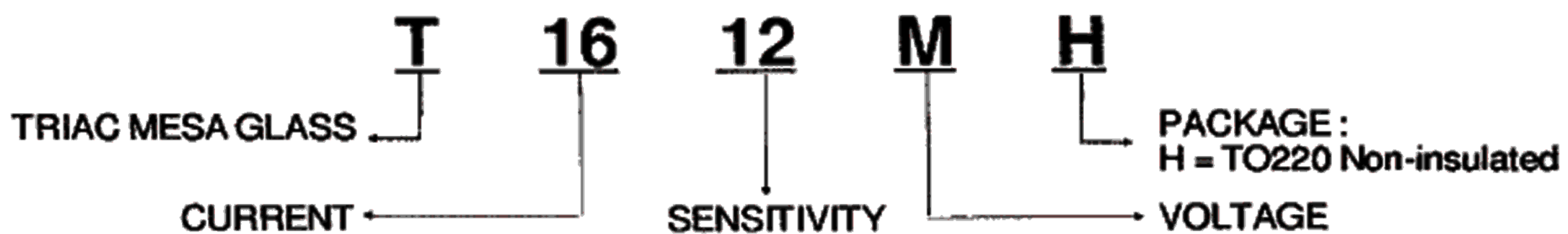




Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

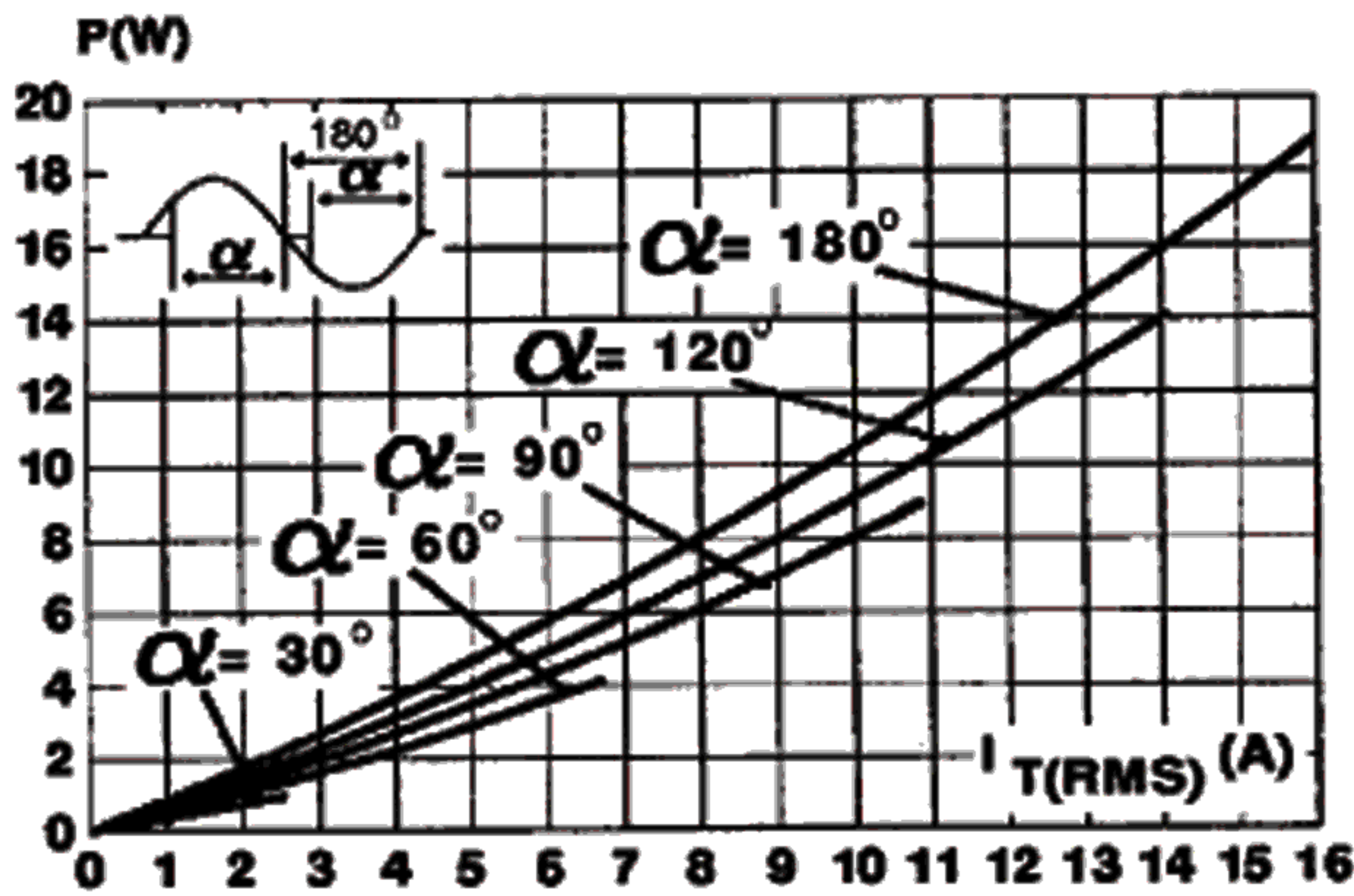


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

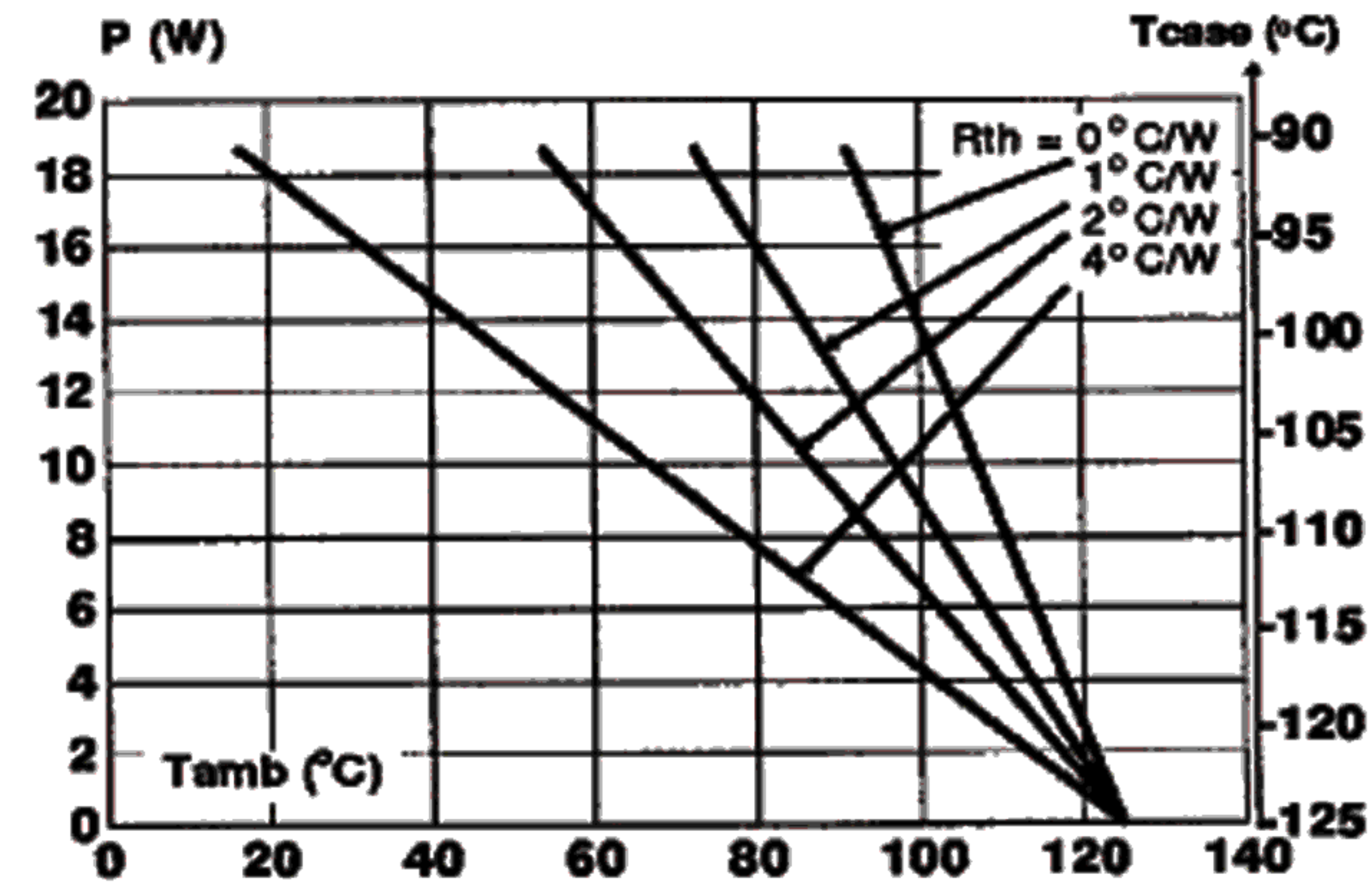


Fig.3 : RMS on-state current versus case temperature.

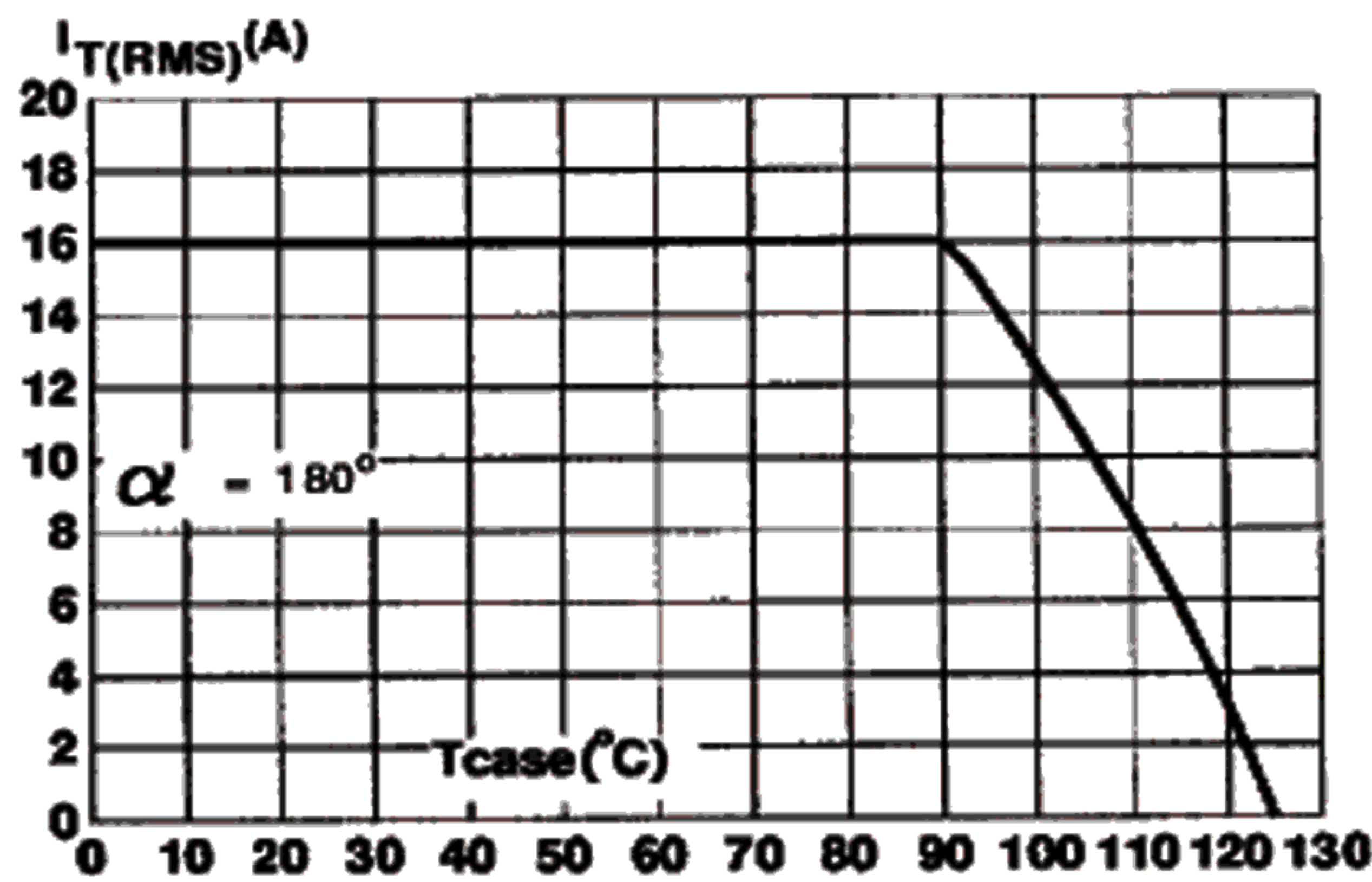


Fig.4 : Relative variation of thermal impedance versus pulse duration.

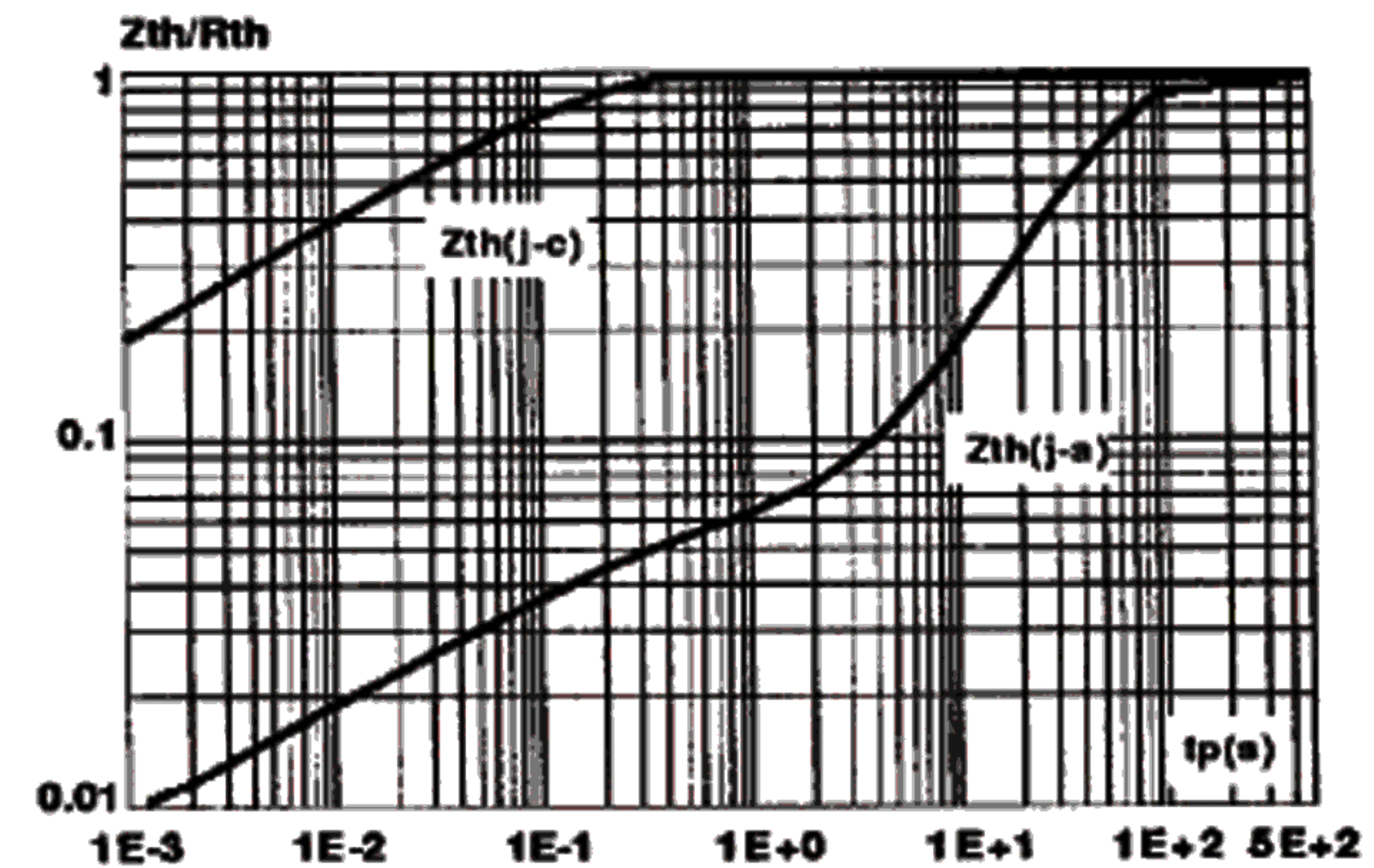


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

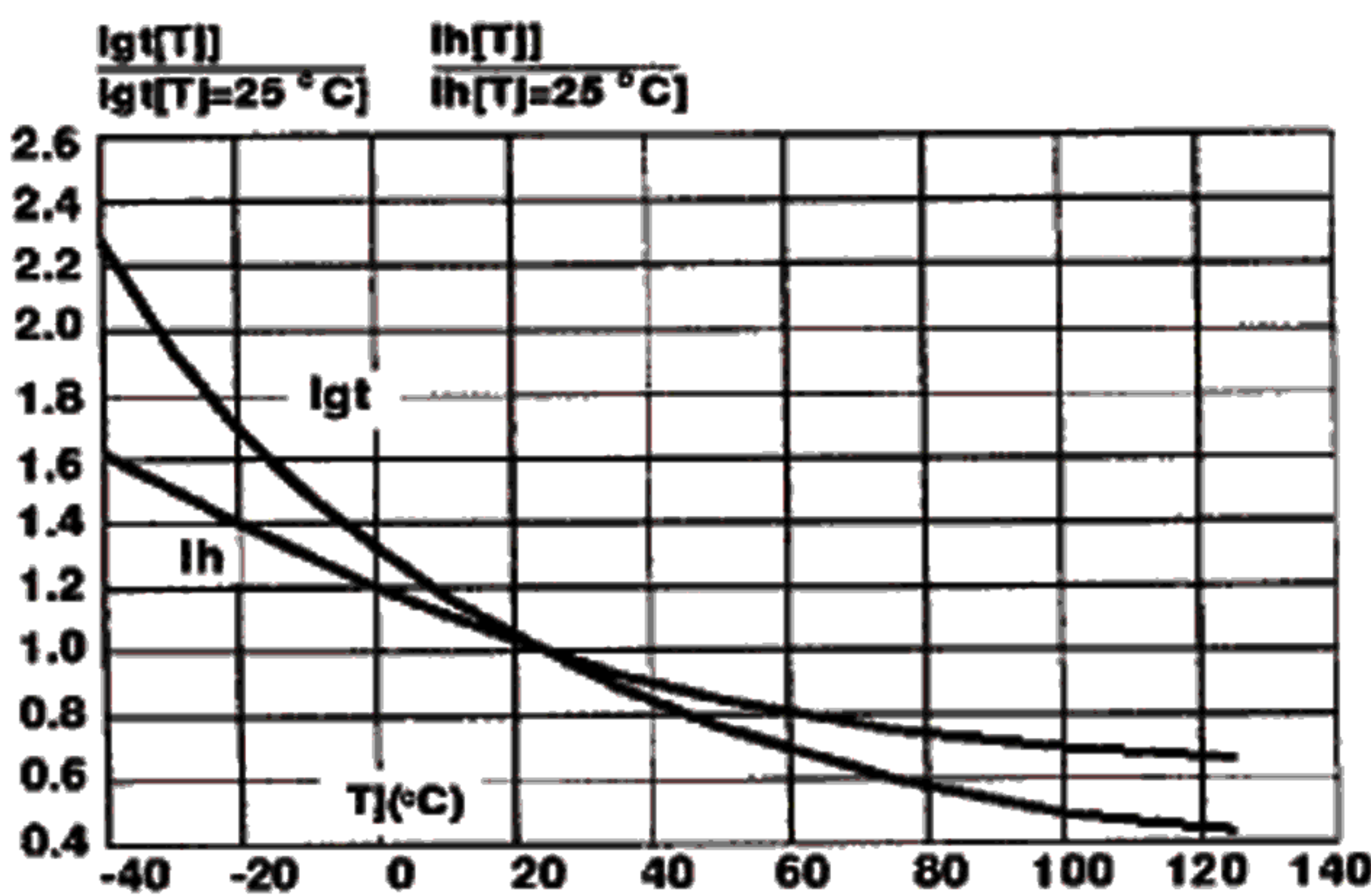
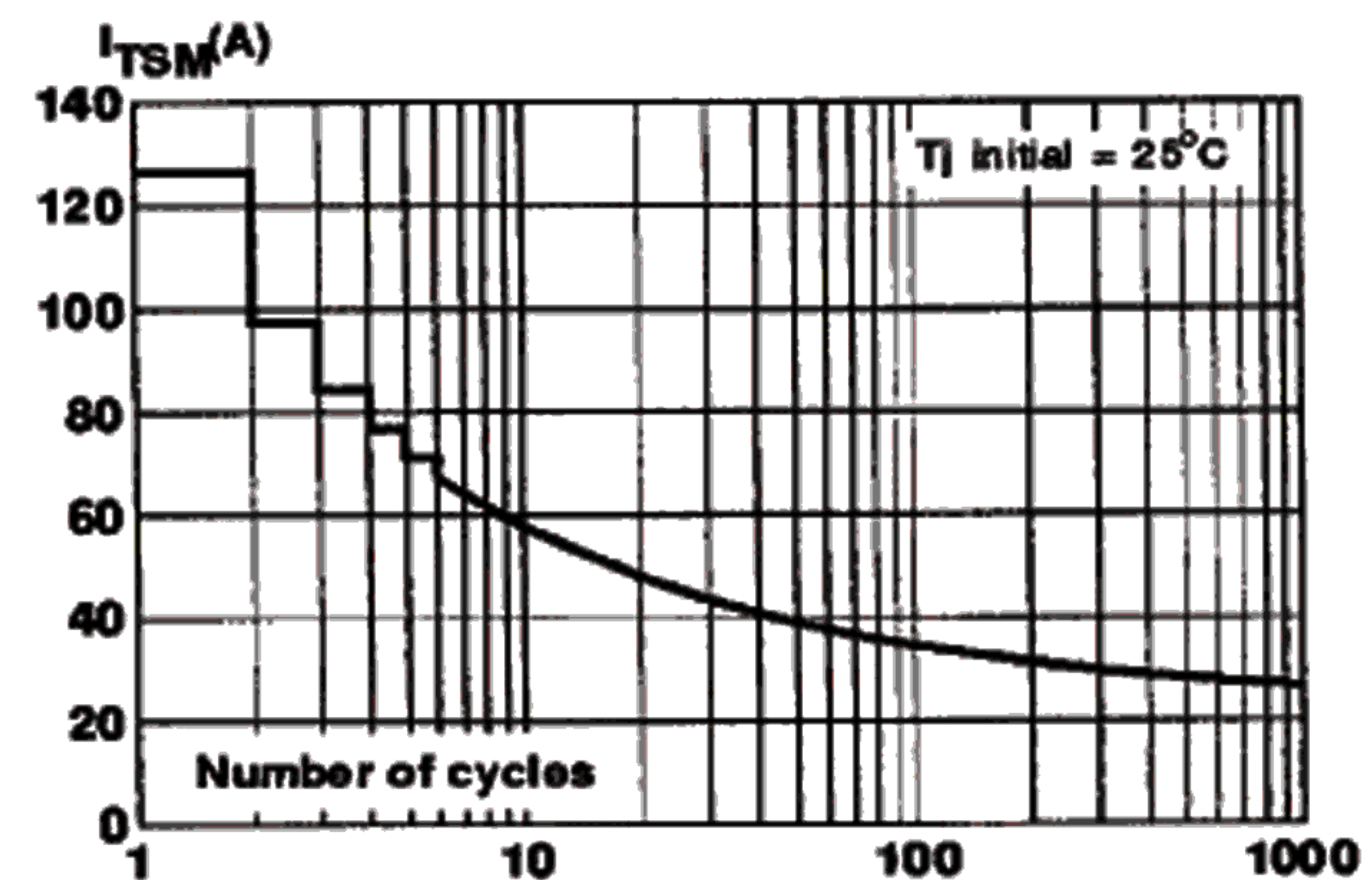


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.





T16xxxH

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

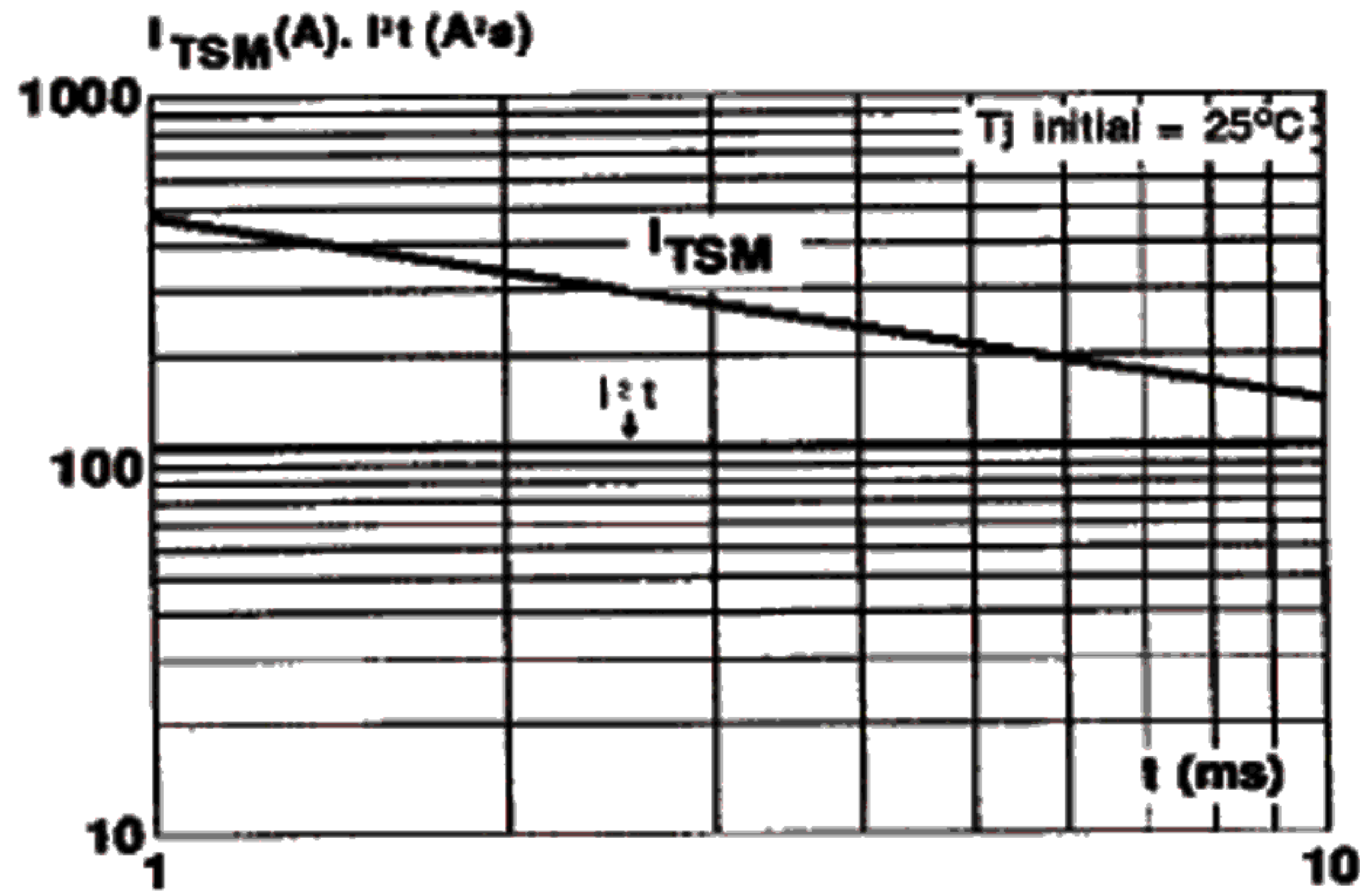
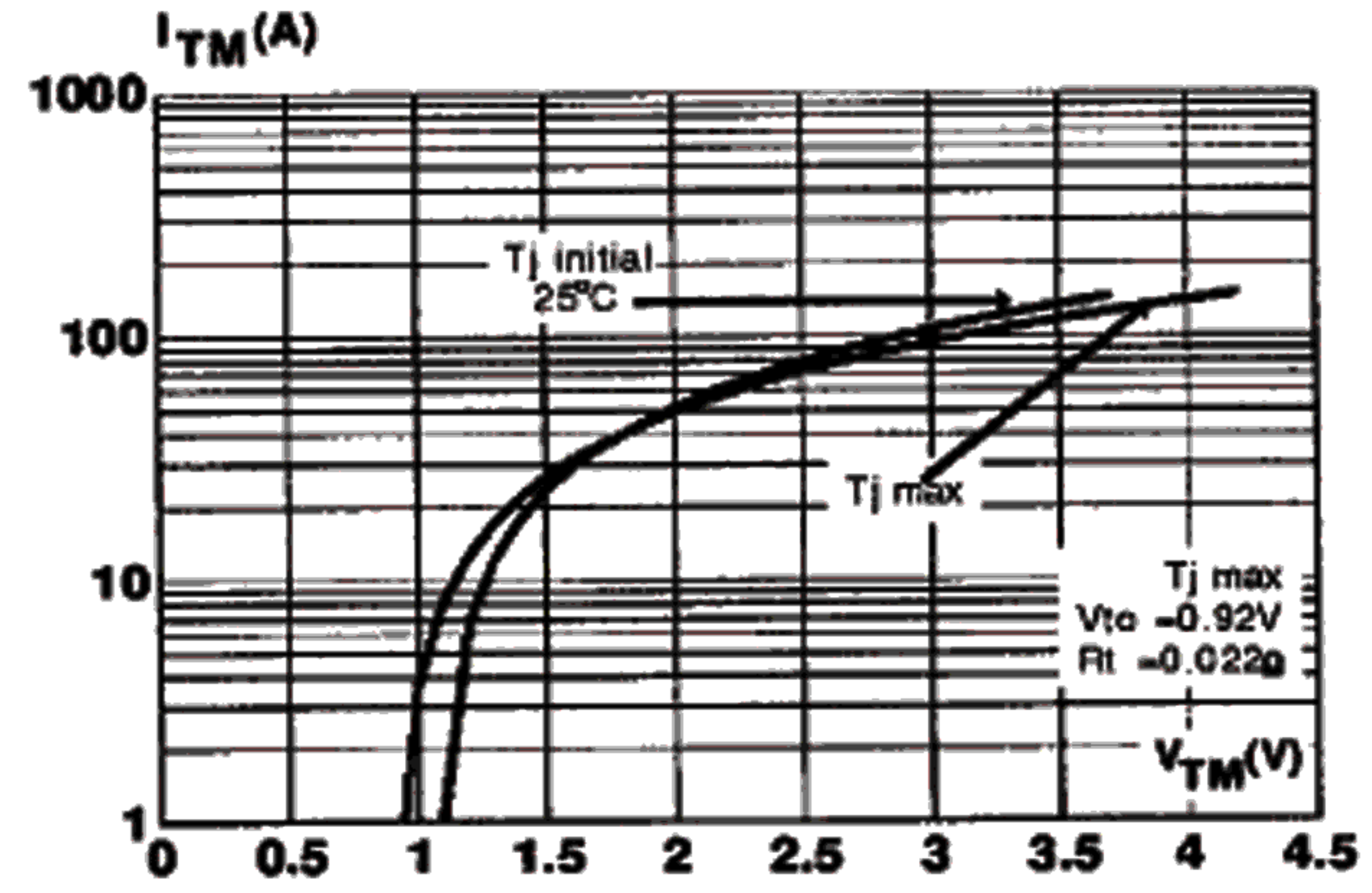
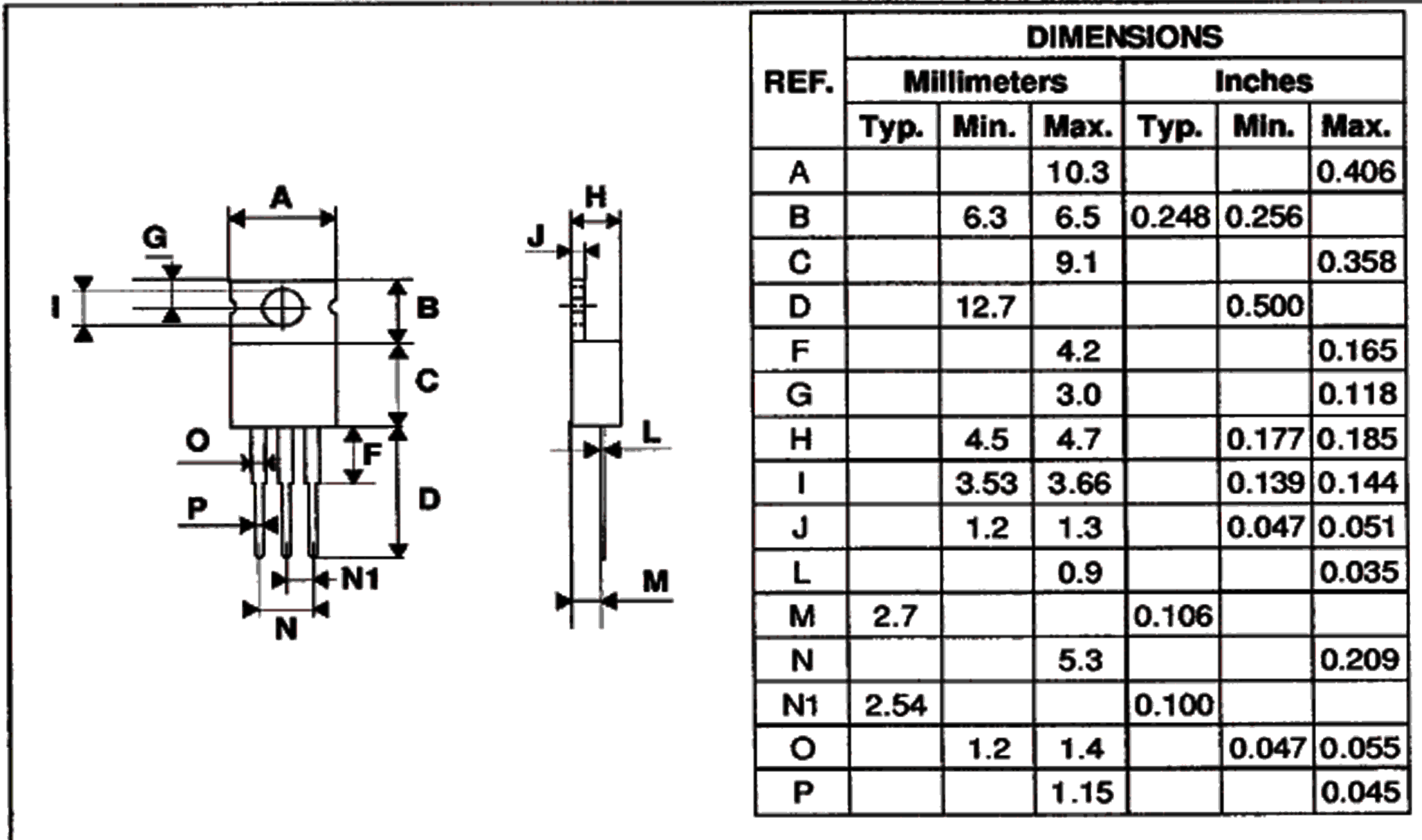


Fig.8 : On-state characteristics (maximum values).





**PACKAGE MECHANICAL DATA**  
TO220 Non-insulated (Plastic)



Marking : type number  
Weight : 1.8 g

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