



Thyristors type T52 are of modern design with internal spring loaded contacts, glass-to-metal seal and pressure welding encapsulation. Designed for use in power electronic circuits and equipment under normal operating conditions.

### KEY PARAMETERS

|                    |                                 |
|--------------------|---------------------------------|
| $U_{DRM}, U_{RRM}$ | <b>up to 1200 V</b>             |
| $I_{T(AV)}$        | <b>100 A</b>                    |
| $I_{TSM}$          | <b>1600 A</b>                   |
| $du/dt^*$          | <b>1000 V/<math>\mu</math>s</b> |
| $di/dt$            | <b>100 A/<math>\mu</math>s</b>  |

\* maximum (non standard) value

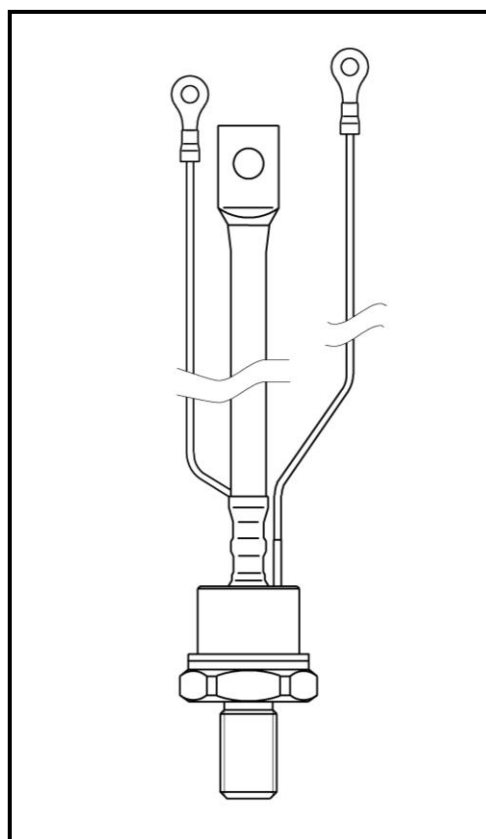
### FEATURES

- all diffused design
- high current capabilities
- high surge current capabilities
- high rates voltages
- high  $du/dt$
- low gate current
- dynamic gate
- low thermal impedance
- tested according to IEC standards
- compact size and small weight

### APPLICATION

- High Power Drives
- DC Motor Control
- High Voltage Power Supplies

Designed for use in high power industrial and commercial power electronic circuits and equipment where high currents are encountered and high reliability is essential.



Outline type code: JEDEC TO-209AC  
(TO-94)

See package details for further information

# T52-100

## Phase Control Thyristor



KKT52100, April 2003 version

### ORDERING INFORMATION

When ordering please refer to device code builder presented below.  
Please use the complete part number when ordering, quote or in any future correspondence relating to your order.

**T52-100-□□**

└─── voltage class (hundreds of volts)

This is standard device, with no dynamic parameters specified and standard accessory set.  
Please refer to **Electrical Parameters** if specific dynamic demands have to be met.  
Those information, as well as any other concerning non-standard accessories e.g. stud thread, custom leads length or lead terminal connector type should be included in the order.

### ELECTRICAL PARAMETERS

#### Voltage ratings

| Voltage class | $U_{DRM}, U_{RRM}$ | $U_{DSM}, U_{RSM}$ | $I_{DRM}, I_{RRM}$ |
|---------------|--------------------|--------------------|--------------------|
|               | V                  | V                  | mA                 |
| 04            | 400                | 500                | 10                 |
| 06            | 600                | 700                |                    |
| 08            | 800                | 900                |                    |
| 10            | 1000               | 1100               |                    |
| 12            | 1200               | 1300               |                    |

#### du/dt group codes

| Group code | du/dt              |
|------------|--------------------|
|            | V/μs               |
| 0          | no specified value |
| 4          | 200                |
| 5          | 320                |
| 6          | 500                |
| 7          | 1000               |

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### Electrical properties

| Parameter                                   | Unit         | Test conditions        | Value   |
|---|--------------|------------------------|---|
| Average on-state current                    | $I_{T(AV)}$  | A                      | 100   |
| Case temperature                            | $T_c$        | °C                     | 85  |
| RMS forward current                         | $I_{T(RMS)}$ | A                      | 157   |
| Surge forward current                       | $I_{TSM}$    | A                      | $T_j=125^\circ\text{C}$ , $U_R=0,8U_{RRM}$ ,<br>$t_p=10\text{ms}$   |
| $I^2t$ – value                              | $I^2t$       | $\text{kA}^2\text{s}$  | 12,8  |
| On-state voltage max.                       | $U_{TM}$     | V                      | $T_j=25^\circ\text{C}$ , $I_{TM}=500\text{A}$   |
| Threshold voltage                           | $U_{T(T0)}$  | V                      | 0,82  |
| Slope resistance                            | $r_T$        | $\text{m}\Omega$       | 2,30  |
| Latching current                            | $I_L$        | $\text{mA}$            | $T_j=25^\circ\text{C}$ , $U_D=12\text{V}$   |
| Holding current                             | $I_H$        | $\text{mA}$            | $T_j=25^\circ\text{C}$ , $U_D=12\text{V}$   |
| Circuit commutated turn-off time (typical)  | $t_q$        | $\mu\text{s}$          | $T_j=125^\circ\text{C}$ , $I_{TM}=50\text{A}$ ,<br>$di_R/dt=5\text{A}/\mu\text{s}$ , $du/dt=20\text{V}/\mu\text{s}$ ,<br>$U_D=0,67U_{DRM}$ , $U_{RM}=100\text{V}$ |
| Turn-On time (typical)                      | $t_{on}$     | $\mu\text{s}$          | $I_{TM}=100\text{A}$ , $U_{DM}=100\text{V}$   |
| Rate of rise of on-state current-repetitive | $di/dt$      | $\text{A}/\mu\text{s}$ | $T_j=125^\circ\text{C}$ , $I_{TM}=3I_{T(AV)}$ ,<br>$U_D=0,67U_{DRM}$ , $f=50\text{Hz}$ , $I_{GM}=1\text{A}$ ,<br>$di_G/dt=1\text{A}/\mu\text{s}$                  |
| Critical rate of raise of off-state voltage | $du/dt$      | $\text{V}/\mu\text{s}$ | $T_j=125^\circ\text{C}$ , $U_D=0,67U_{DRM}$ ,<br>200 - 1000   |
| Gate current to trigger                     | $I_{GT}$     | $\text{mA}$            | $T_j=25^\circ\text{C}$ , $U_D=12\text{V}$   |
| Gate voltage to trigger                     | $U_{GT}$     | V                      | $T_j=25^\circ\text{C}$ , $U_D=12\text{V}$   |

### Thermal properties

| Parameter                            | Unit                      | Test conditions | Value      |
|--------------------------------------|---------------------------|-----------------|------------|
| Thermal resistance, junction to case | $R_{thJC}$                | °C/W            | DC         |
| Thermal resistance, case to heatsink | $R_{thCS}$                | °C/W            | 0,25       |
| Operating junction temperature       | $T_{jmin} \dots T_{jmax}$ | °C              | 0,12       |
| Storage temperature                  | $T_{stg}$                 | °C              | -40...+125 |

### Mechanical properties

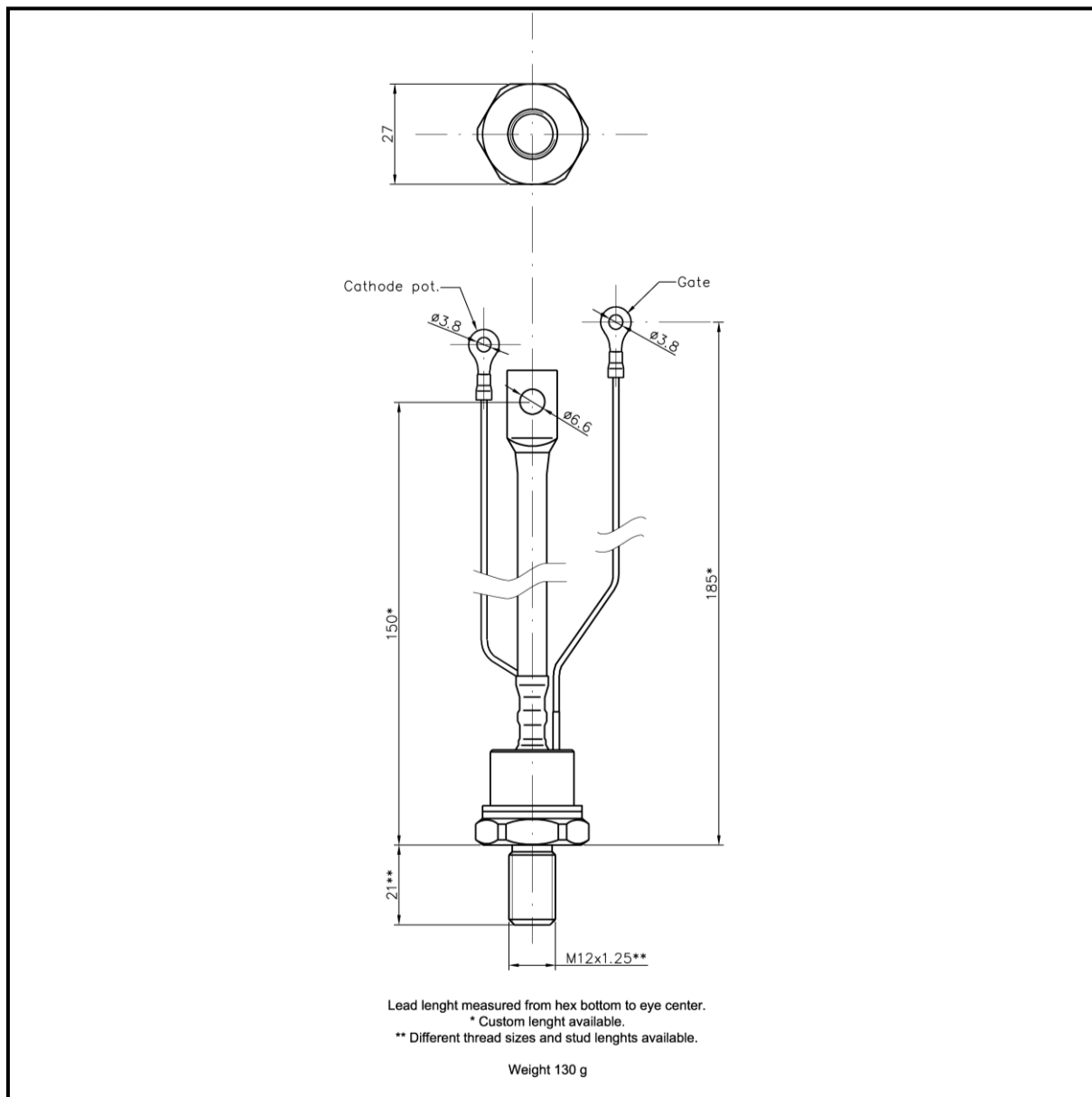
| Parameter       | Unit | Value |
|-----------------|------|-------|
| Mounting torque | M    | Nm    |
| Weight          | m    | g     |

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### Package details



For further package information, please contact Sales & Marketing Department. All dimensions in mm, unless stated otherwise.  
Do not scale.

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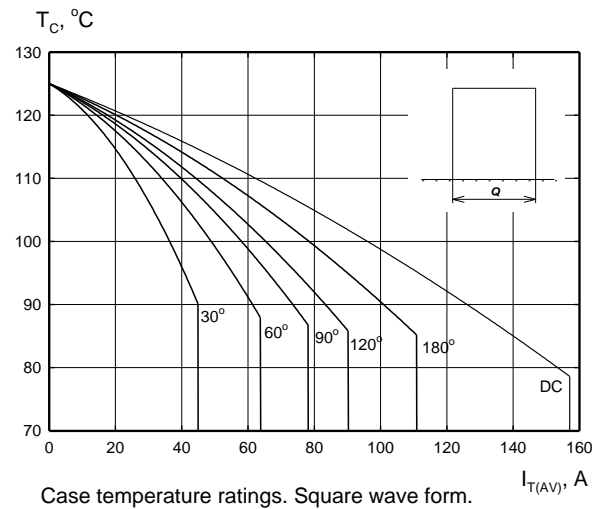
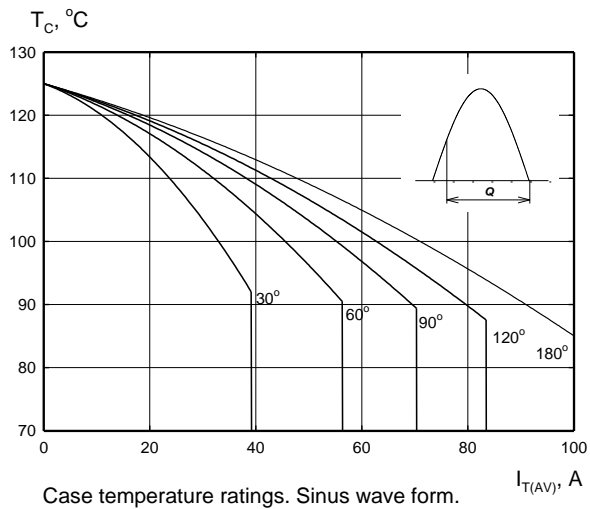
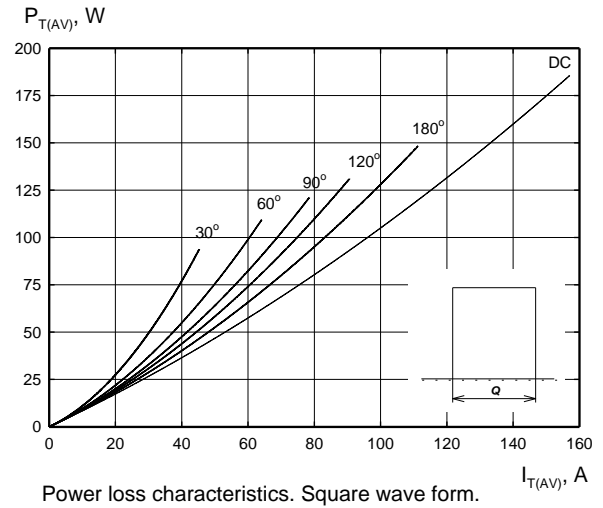
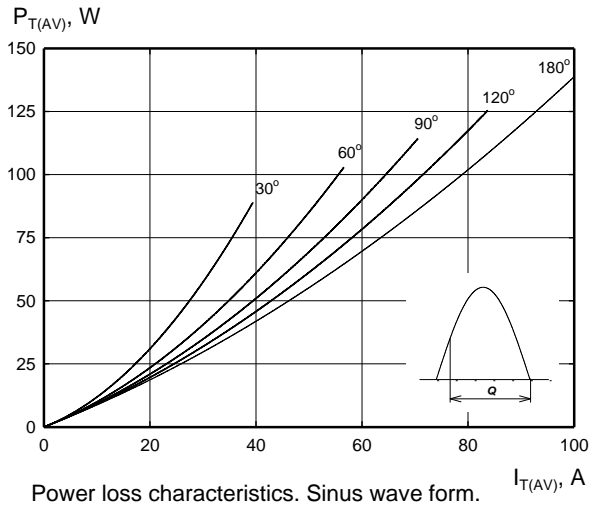
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### CHARACTERISTICS



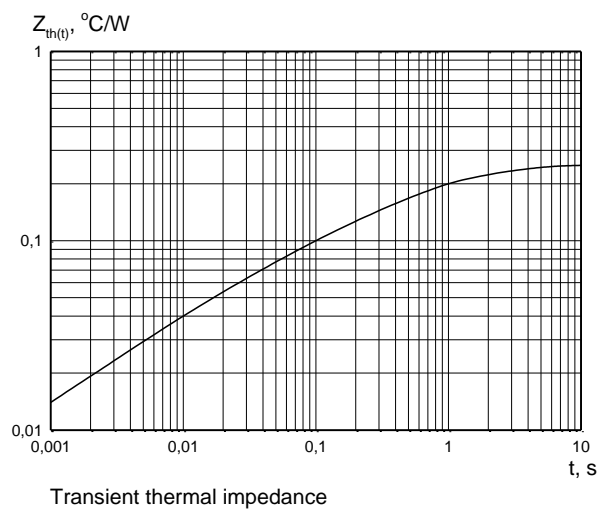
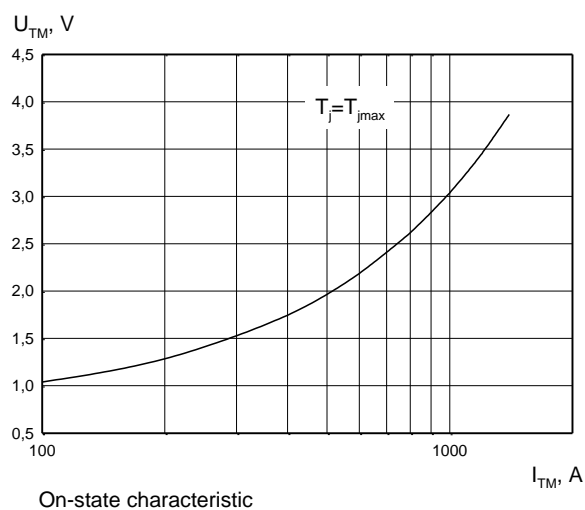
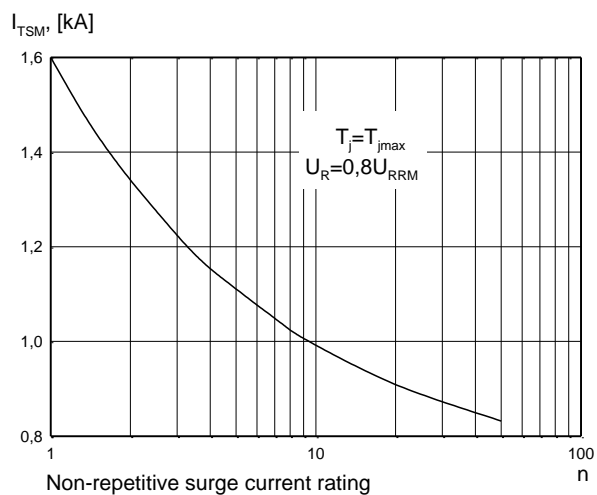
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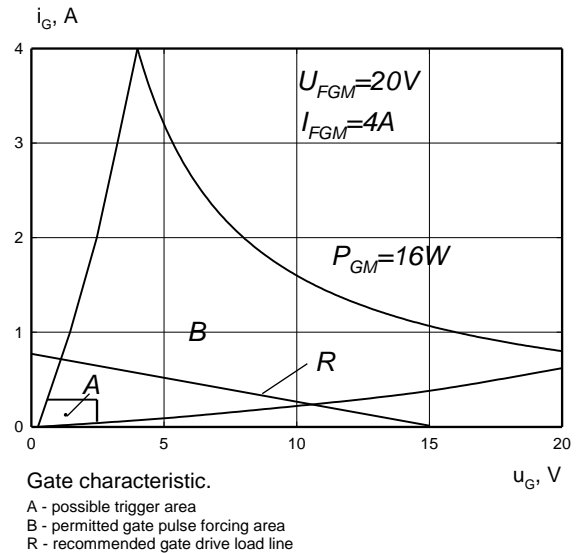
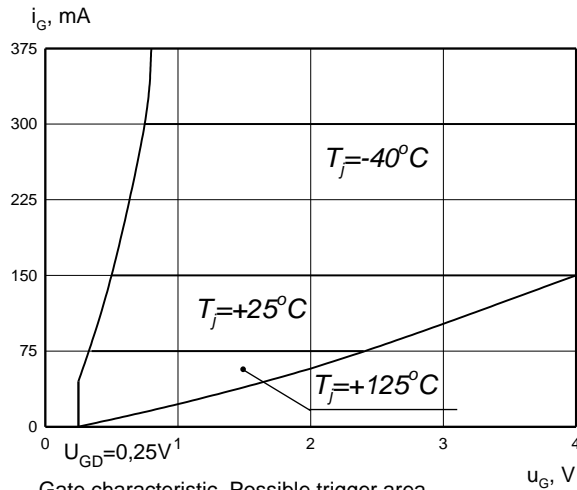


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### Gate characteristics



## HEATSINKS

LAMINA S.I. has its own proprietary range of extruded aluminium heatsinks designed to optimise the performance of our semiconductors with natural and forced air flow. High efficiency water cooled copper heatsinks are also available.

## POWER ASSEMBLY CAPABILITY

LAMINA S.I. provides a support for those customers requiring more than a basic semiconductor and offers precisely assembled Power Blocks according to factory or customer standards.