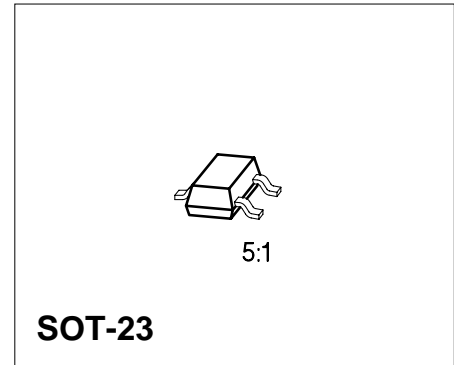# SIEMENS

## Silicon Spreading Resistance Temperature Sensor in Surface Mount Technology

**KT 130, KT 230, KTY 13, KTY 23**

### Features

- Temperature dependent Resistor with Positive Temperature Coefficient
- SMD plastic package for very small thermal time constants
- Fast response
- High reliability due to multilayer gold contacts
- n-conducting silicon crystal
- Polarity independent due to symmetrical construction
- Available selected in $\pm$ 1% tolerance groups



5:1

**SOT-23**

| Type | Marking | Ordering Code | Pin Configuration | | Package |
|------|---------|---------------|-------|-------|---------|
| | | | **1** | **2** | |
| KT 130 | T-1 | Q62705-K333 | electrical contact | electrical contact | SOT-23 |
| KTY 13-5 | T-5 | Q62705-K249 | | | |
| KTY 13-6 | T-6 | Q62705-K250 | | | |
| KTY 13-7 | T-7 | Q62705-K251 | | | |
| KT 230 | N-1 | Q62705-K335 | | | |
| KTY 23-5 | N-5 | Q62705-K262 | | | |
| KTY 23-6 | N-6 | Q62705-K263 | | | |
| KTY 23-7 | N-7 | Q62705-K264 | | | |

### Maximum Ratings

| Parameter | Symbol | KT 130 KTY 13 | KT 230 KTY 23 | Unit |
|-----------|--------|---------------|---------------|------|
| Maximum operating voltage [1] $T_A \leq 25\ °C$, $t \leq 10$ ms | $V_{opmax}$ | 25 | | V |
| Maximum operating current | $I_{opmax}$ | 5 | 7 | mA |
| Peak operating current $T_A \leq 25\ °C$, $t \leq 10$ ms | $I_{opp}$ | 7 | 10 | mA |
| Operating temperature range | $T_{op}$ | $-50 \ldots +150$ | | °C |
| Storage temperature range | $T_{stg}$ | $-50 \ldots +150$ | | °C |

[1] ESD Class 1. When the temperature sensor is operated with long supply leads, it should be protected through the parallel connection of a > 10 nF capacitor to prevent damage to the sensor through induced voltage peaks.
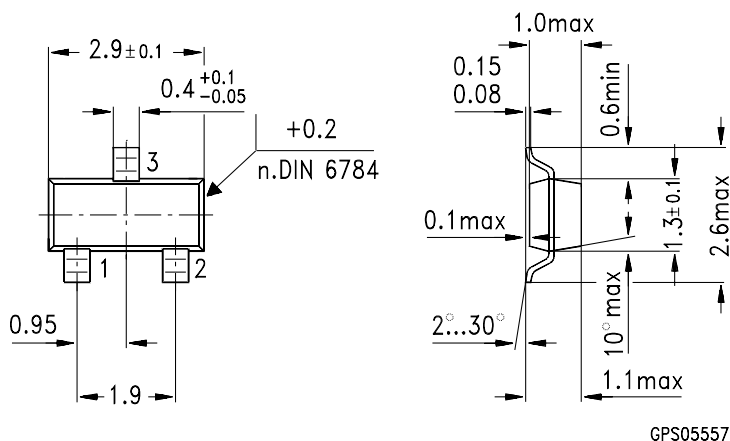
## Electrical Characteristics

at $T_A$ = 25 ˚C unless otherwise specified

| Parameter | Symbol | Limit Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| Temperature sensor resistance IB = 1 mA | $R_{25}$ | | | | $\Omega$ |
| KT  130 | | 1940 | – | 2060 | |
| KTY 13-5 | | 1950 | – | 1990 | |
| KTY 13-6 | | 1980 | – | 2020 | |
| KTY 13-7 | | 2010 | – | 2050 | |
| KT  230 | | 970 | – | 1030 | |
| KTY 23-5 | | 975 | – | 995 | |
| KTY 23-6 | | 990 | – | 1010 | |
| KTY 23-7 | | 1005 | – | 1025 | |
| Thermal time constant (63% of $\Delta T_A$) | | | | | s |
| in still air | $\tau_{air}$ | – | 7 | – | |
| in still oil (Freon FC40/PP7) | $\tau_{oil}$ | – | 1 | – | |

## Package Outline

**SOT-23 (SMD)**



2.9±0.1

$0.4\,^{+0.1}_{-0.05}$

$^{+0.2}$ n.DIN 6784

3

1    2

0.95

1.9

1.0max

0.15
0.08

0.6min

0.1max

1.3±0.1

2.6max

2˚...30˚

10˚max

1.1max

GPS05557

Weight approx. 0.01 g

Dimensions in mm

## Exterior Packaging

I.e. tubes, trays, boxes are shown in our Data Book "Package Information".

SMD = Surface Mounted Device