## SIEMENS

## Features

- High sensitivity
- High operating temperature
- Low offset voltage
- Low TC of sensitivity and internal resistance
- Plastic miniature package SOT 143 for surface mounting (SMT)


## Typical applications

- Digital speed sensors
- Digital position sensors
- Commutatorless DC motors


Dimensions in mm

| Type | Marking | Ordering Code |
| :--- | :--- | :--- |
| KSY 13 (E 7502) | S 13 | Q62705-K209 (taped on 18-cm reel) |

The position sensor KSY 13 is an ion-implanted Hall generator made of mono-crystalline GaAs material. Enclosed in a miniature package (SOT 143), it is suitable for surface mounting (SMT).
If the sensor is operated with a constant supply current, the output Hall voltage is directly proportional to a magnetic field acting upon the sensor. This sensor is outstanding for its high magnetic field sensitivity and very low temperature coefficient.
The active area of the GaAs chip is approx. $0.2 \mathrm{~mm} \times 0.2 \mathrm{~mm}$ and is placed approx. 0.3 mm below the plastic surface of the package. The chip carrier is softmagnetic.

Maximum ratings

| Parameter | Symbol | Value | Unit |
| :--- | :--- | :--- | :--- |
| Operating temperature range | $T_{\mathrm{A}}$ | $-40 /+150$ | ${ }^{\circ} \mathrm{C}$ |
| Storage temperature range | $T_{\text {stg }}$ | $-50 /+160$ | ${ }^{\circ} \mathrm{C}$ |
| Supply current | $I_{1}$ | 7 | mA |
| Thermal conductivity ${ }^{1)}$ | $G_{\mathrm{th} \mathrm{A}}$ | $\geq 2.7$ | $\mathrm{~mW} / \mathrm{K}$ |

Characteristics ( $T_{\mathrm{A}}=25^{\circ} \mathrm{C}$ )

| Nominal supply current | $I_{1 \mathrm{~N}}$ | 5 | mA |
| :--- | :--- | :--- | :--- |
| Open-circuit Hall voltage <br> $I_{1}=I_{1 \mathrm{~N}}, B=0.1 \mathrm{~T}$ | $V_{20}$ | $95 \ldots 145$ | mV |
| Ohmic offset voltage |  |  |  |
| $I_{1}=I_{1 \mathrm{~N}}, B=0 \mathrm{~T}$ | $V_{\mathrm{R} 0}$ | $\leq \pm 30$ | mV |
| Supply and Hall side internal resistance <br> $B=0 ~ \mathrm{~T}$ | $R_{10,20}$ | $900 \ldots 1200$ | $\Omega$ |
| Temperature coefficient of the <br> open-circuit Hall voltage <br> $I_{1}=I_{1 \mathrm{~N}}, B=0.2 \mathrm{~T}$ | $T C_{\mathrm{V} 20}$ | approx. -0.05 | $\% / \mathrm{K}$ |
| Temperature coefficient of the internal <br> resistance <br> $B=0.2 \mathrm{~T}$ | $T C_{\mathrm{R} 10, \mathrm{R} 20}$ | approx. <br> $+0.1 \ldots 0.18$ | $\% / \mathrm{K}$ |

[^0]Open-circuit Hall voltage $V_{20}$ versus temperature
referred to $V_{20}$ at $T_{\mathrm{A}}=25^{\circ} \mathrm{C}$


Max. permissible supply current $I_{1}$ versus temperature $T_{\mathrm{A}}$



[^0]:    1) Thermal conductivity chip-ambient when mounted on alumina ceramic $15 \mathrm{~mm} \times 16.7 \mathrm{~mm} \times 0.7 \mathrm{~mm}$
    2) Selection upon request
