

Hall Sensor KSY 13

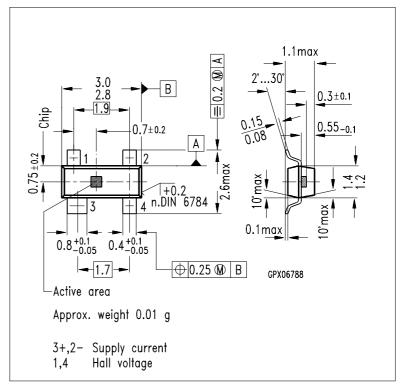
#### Version 2.0

#### **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

Туре	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.  $0.2 \text{ mm} \times 0.2 \text{ mm}$  and is placed approx. 0.3 mm below the plastic surface of the package. The chip carrier is softmagnetic.



### **Absolute Maximum Ratings**

Parameter	Symbol	Limit Values	Unit
Operating temperature range	$T_{A}$	- 40 / <b>+</b> 150	°C
Storage temperature range	$T_{ m stg}$	- 50 / + 160	°C
Supply current	$I_1$	7	mA
Thermal conductivity <sup>1)</sup>	$G_{\sf th\;A}$	≥ 2.7	mW/K

## Electrical Characteristics ( $T_{\rm A}$ = 25 °C)

Nominal supply current	$I_{1N}$	5	mA
Open-circuit Hall voltage $I_1 = I_{1N}, \ B = 0.1 \ T$	$V_{20}$	95145	mV
Ohmic offset voltage $I_1 = I_{1N}, \ B = 0 \ T$	$V_{R0}$	≤±20	mV
Supply and Hall side internal resistance $B = 0$ T	R <sub>10, 20</sub>	9001200	Ω
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}$ , $B = 0.2$ T	$TC_{V20}$	approx0.05	%/K
Temperature coefficient of the internal resistance $B = 0.2 \text{ T}$	<i>TC</i> <sub>R10, R20</sub>	approx. + 0.10.18	%/K

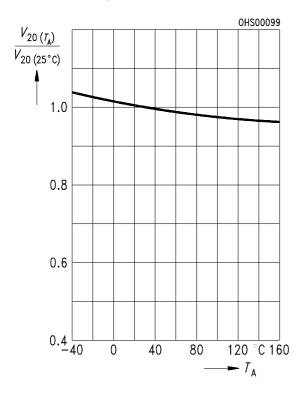
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 $<sup>^{1)}</sup>$  Thermal conductivity chip-ambient when mounted on alumina ceramic 15 mm  $\times$  16.7 mm  $\times$  0.7 mm



## Open-circuit Hall voltage $V_{\rm 20}$ versus temperature

referred to  $V_{20}$  at  $T_{\rm A}$  = 25 °C



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

