Hall Sensor KSY 13

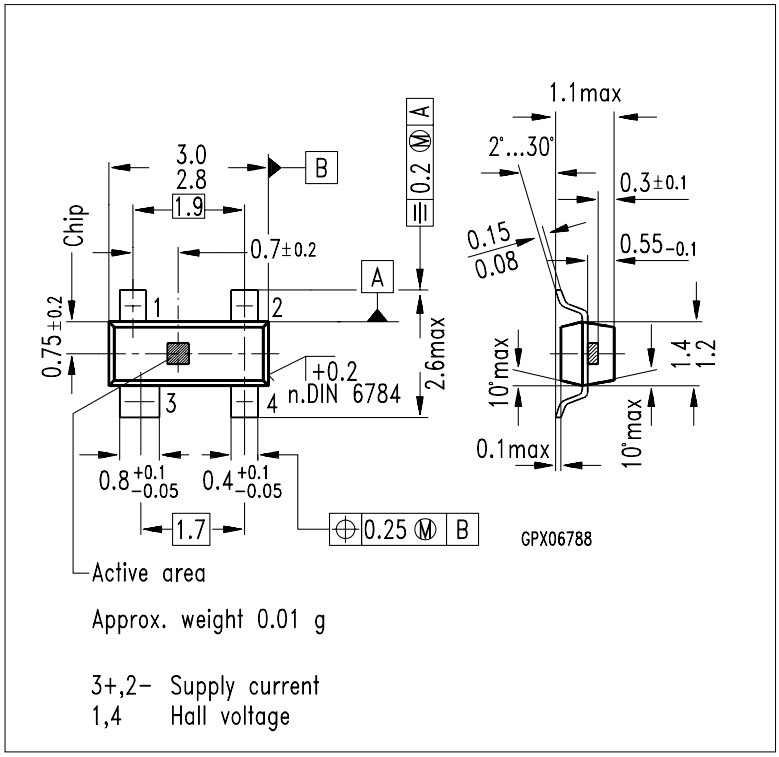
Version 2.0

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

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 mm × 0.2 mm and is placed approx. 0.3 mm below the plastic surface of the package. The chip carrier is softmagnetic.

Absolute Maximum Ratings

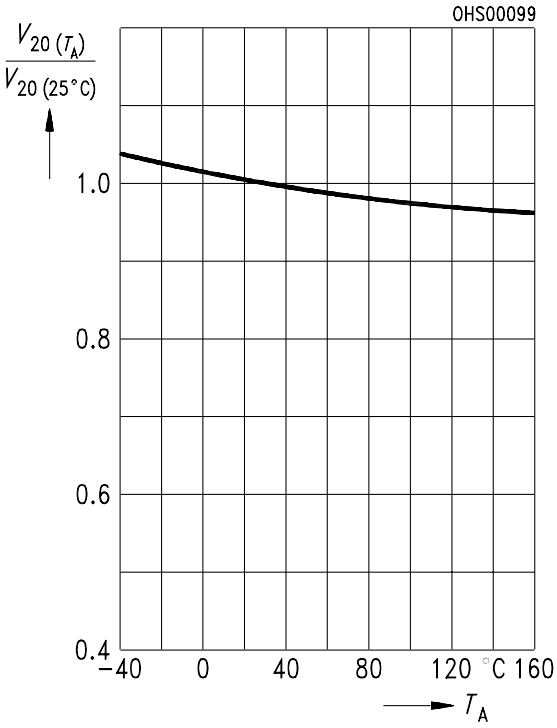
Parameter	Symbol	Limit Values	Unit
Operating temperature range	T_A	– 40 / + 150	°C
Storage temperature range	T_{stg}	– 50 / + 160	°C
Supply current	I_1	7	mA
Thermal conductivity[1)]	$G_{th\ A}$	≥ 2.7	mW/K

Electrical Characteristics (T_A = 25 °C)

Nominal supply current	I_{1N}	5	mA
Open-circuit Hall voltage $I_1 = I_{1N}$, B = 0.1 T	V_{20}	95…145	mV
Ohmic offset voltage $I_1 = I_{1N}$, B = 0 T	V_{R0}	≤ ± 20	mV
Supply and Hall side internal resistance B = 0 T	$R_{10,\ 20}$	900…1200	Ω
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}$, B = 0.2 T	TC_{V20}	approx. –0.05	%/K
Temperature coefficient of the internal resistance B = 0.2 T	$TC_{R10,\ R20}$	approx. + 0.1…0.18	%/K

1) Thermal conductivity chip-ambient when mounted on alumina ceramic 15 mm × 16.7 mm × 0.7 mm

Open-circuit Hall voltage V_{20} versus temperature
referred to V_{20} at T_A = 25 °C



Max. permissible supply current I_1 versus temperature T_A

