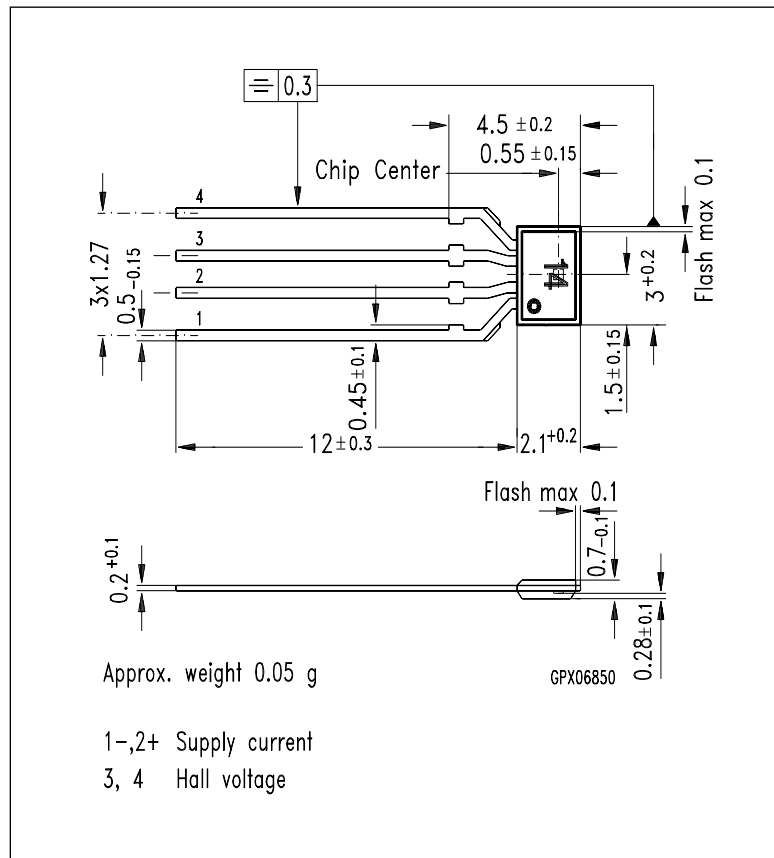


Features

- High sensitivity
- High operating temperature
- Small linearity error
- Low offset voltage
- Low TC of sensitivity and internal resistance
- Ultra-flat plastic miniature package
- Low inductive zero component
- Package thickness 0.7 mm
- Connections from one side of the package

Typical applications

- Current and power measurement
- Magnetic field measurement
- Control of brushless DC motors
- Rotation and position sensing
- Measurement of diaphragm
- Movement for pressure sensing



Dimensions in mm

Type	Marking	Ordering Code
KSY 14	14	Q62705-K227

The KSY 14 is an ion-implanted Hall sensor generator in a mono-crystalline GaAs material, built into an extremely flat plastic package (SOH). It is outstanding for a high magnetic sensitivity and low temperature coefficients. The $0.35 \times 0.35 \text{ mm}^2$ chip is mounted onto a non-magnetic leadframe.

Maximum ratings

Parameter	Symbol	Value	Unit
Operating temperature	T_A	- 40...+ 175	°C
Storage temperature	T_{stg}	- 50...+ 180	°C
Supply current	I_1	7	mA
Thermal conductivity soldered, in air	G_{thA} G_{thC}	≥ 1.5 ≥ 2.2	mW/K mW/K

Characteristics ($T_A = 25\text{ °C}$)

Nominal supply current	I_{1N}	5	mA
Open-circuit sensitivity	K_{B0}	190...260	V/AT
Open-circuit Hall voltage $I_1 = I_{1N}, B = 0.1\text{ T}$	V_{20}	95...130	mV
Ohmic offset voltage $I_1 = I_{1N}, B = 0\text{ T}$	V_{R0}	$\leq \pm 20$	mV
Linearity of Hall voltage $B = 0...0.5\text{ T}$ $B = 0...1\text{ T}$	F_L	$\leq \pm 0.2$ $\leq \pm 0.7$	% %
Input resistance $B = 0\text{ T}$	R_{10}	900...1200	Ω
Output resistance $B = 0\text{ T}$	R_{20}	900...1200	Ω
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}, B = 0.1\text{ T}$	TC_{V20}	$\sim - 0.03...- 0.07$	%/K
Temperature coefficient of the internal resistance $B = 0\text{ T}$	$TC_{R10, R20}$	$\sim 0.1...0.18$	%/K
Change of offset voltage within the temperature range	$ \Delta V_{R0} ^{1)}$	≤ 2	mV
Inductive zero component $I_{1N} = 0$	$A_2^{2)}$	0.16	cm ²
Noise figure	F	~ 10	dB

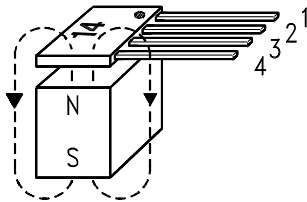
1) AQL: 0.65

2) With time varying induction there exists an inductive voltage V_{ind} between the Hall voltage terminals (supply current $I_1 = 0$):
 $V_{ind} = A_2 \times dB/dt \times 10^{-4}$ with $V(V)$, A_2 (cm²), $B(T)$, $t(s)$

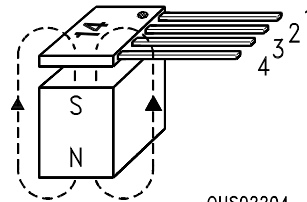
Connection of a Hall sensor with a power source

Since the voltage on the component must not exceed 10 V, the connection to the constant current supply should only be done via a short circuit by-pass. The by-pass circuit-breaker shall not be opened before turning on the power source, in order to avoid damage to the Hall sensor due to power peaks.

Polarity of Hall voltage



Pin 1	I_1	-
Pin 2	I_1	+
Pin 3	U_{20}	-
Pin 4	U_{20}	+



OHS02204

Pin 1	I_1	-
Pin 2	I_1	+
Pin 3	U_{20}	+
Pin 4	U_{20}	-