Hall Sensor

KSY 16

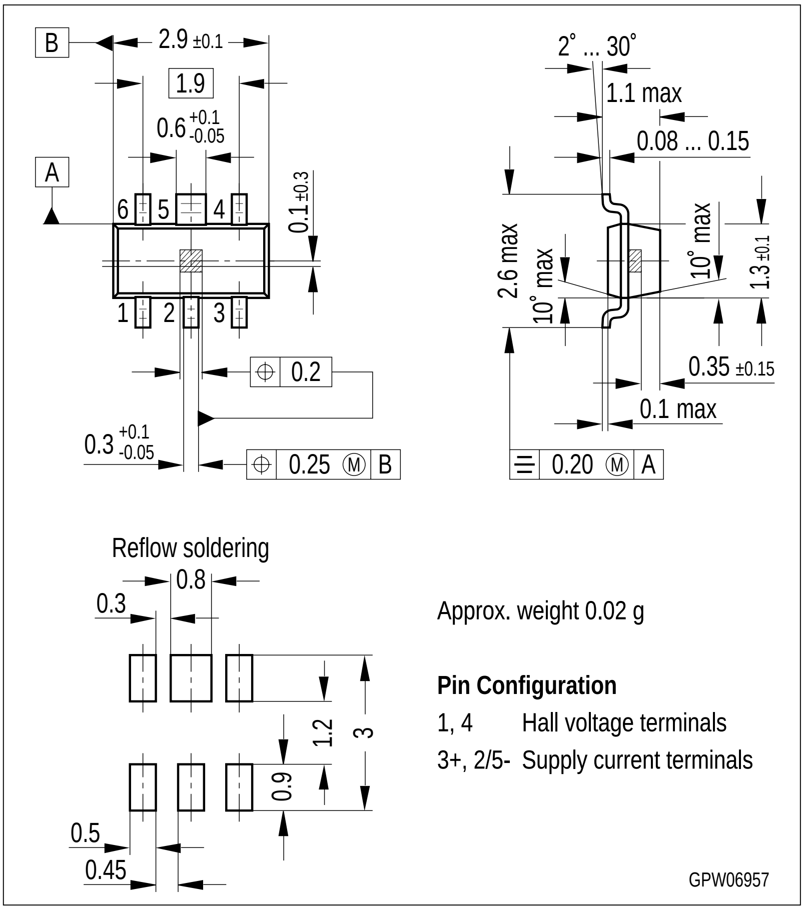
Version 2.0

Features

- Hall sensor on Cu-leadframe for SMT-technology, MW-6 package
- High sensitivity
- High temperature range
- Small linearity error
- Low offset voltage
- Low TC of sensitivity resistances
- This Hall sensor combines the avantages of non-magnetic leadframe and SMT capability

Typical Applications

- Rotation and position sensing
- Current and power measurement
- Magnetic field measurement
- Control of brushless DC motors



Dimensions in mm

Type	Marking	Ordering Code
KSY 16	s16	Q62705-K338

The KSY 16 is an ion-implanted Hall sensor in a monocrystalline GaAs-material, built into an SMT package (MW-6). It is outstanding for a high magnetic sensitivity and low temperature coefficients. The 0.35 × 0.35 mm² chip is mounted onto a non-magnetic leadframe. The active area is placed approx. 0.45 mm below the surface of the package.

Absolute Maximum Ratings

Parameter	Symbol	Limit Values	Unit
Operating temperature	T_A	– 40…+ 150	°C
Storage temperature	T_{stg}	– 50…+ 160	°C
Supply current	I_1	7	mA
Thermal conductivity[1]	G_{thC}	≥ 2.2	mW/K

Electrical Characteristics (T_A = 25 °C)

Nominal supply current	I_{1N}	5	mA
Open-circuit sensitivity	K_{B0}	190…260	V/AT
Open-circuit Hall voltage $I = I_{1N}$, B = 0.1 T	V_{20}	95…130	mV
Ohmic offset voltage $I = I_{1N}$, B = 0 T	V_{R20}	≤ ± 20	mV
Linearity of Hall voltage B = 0…0.5 T B = 0…1 T	 F_L F_L	 ≤ ± 0.2 ≤ ± 0.7	 % %
Input resistance B = 0 T	R_{10}	900…1200	Ω
Output resistance B = 0 T	R_{20}	900…1200	Ω
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}$, B = 0.1 T	TC_{V20}	~ – 0.03…– 0.07	%/K
Temperature coefficient of the internal resistance B = 0 T	$TC_{R10,\ R20}$	~ 0.1…0.18	%/K
Change of offset voltage within the temperature range[2]	$\lvert \Delta V_{R0} \rvert$	≤ 2	mV

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. This is to avoid damage to the Hall sensor due to power peaks.

[1] Thermal conductivity chip-ambient when mounted on alumina ceramic 15 mm × 17 mm × 0.7 mm
[2] AQL: 0.65