

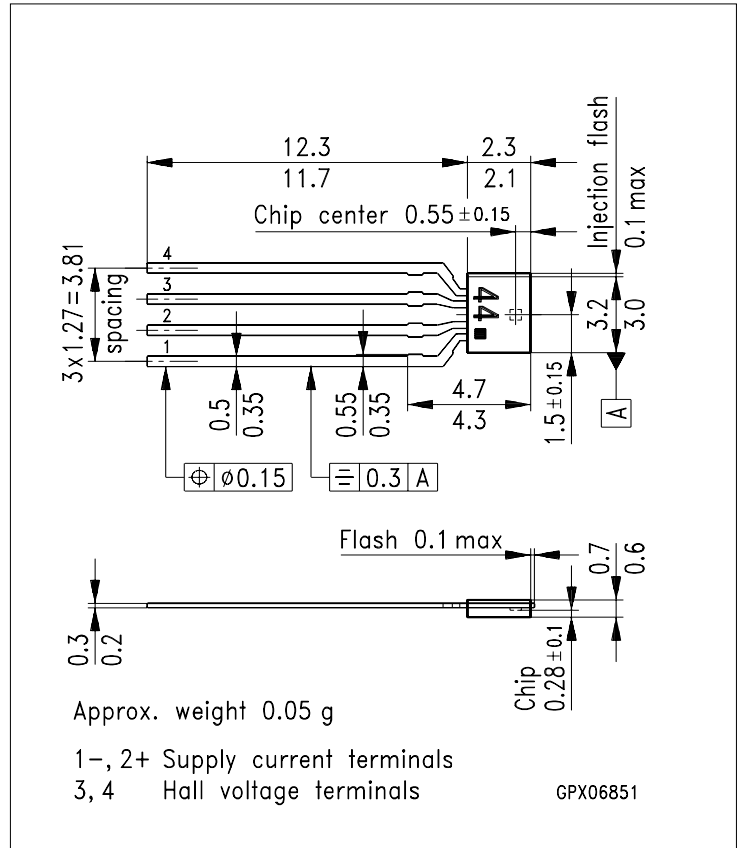
Version 2.0

Features

- High sensitivity
- High operating temperature
- Small linearity error
- Low offset voltage
- Low TC of sensitivity
- Specified TC of offset voltage
- 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 44	44	Q62705-K265

The KSY 44 is a MOVPE¹⁾ Hall sensor 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 × 0.35 mm² chip is mounted onto a non-magnetic leadframe.

¹⁾ Metal Organic Vapour Phase Epitaxy

Absolute Maximum Ratings

Parameter	Symbol	Limit Values	Unit
Operating temperature	T_A	- 40...+ 175	°C
Storage temperature	T_{stg}	- 50...+ 180	°C
Supply current	I_1	10	mA
Thermal conductivity soldered, in air	G_{thA} G_{thC}	≥ 1.5 ≥ 2.2	mW/K mW/K

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

Nominal supply current	I_{1N}	7	mA
Open-circuit sensitivity	K_{B0}	150...265	V/AT
Open-circuit Hall voltage $I_1 = I_{1N}, B = 0.1\text{ T}$	V_{20}	105...185	mV
Ohmic offset voltage $I_1 = I_{1N}, B = 0\text{ T}$	V_{R0}	$\leq \pm 15$	mV
Linearity of Hall voltage $B = 0...0.5\text{ T}$ $B = 0...1.0\text{ T}$	F_L	$\leq \pm 0.2$ $\leq \pm 0.7$	% %
Input resistance $B = 0\text{ T}$	R_{10}	600...900	Ω
Output resistance $B = 0\text{ T}$	R_{20}	1000...1500	Ω
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}, B = 0.1\text{ T}$	TC_{V20}	$\sim - 0.03$	%/K
Temperature coefficient of the internal resistance, $B = 0\text{ T}$	$TC_{R10, R20}$	$\sim + 0.3$	%/K
Temperature coefficient of ohmic offset voltage, $I_1 = I_{1N}, B = 0\text{ T}$	TC_{VR0}	~ 0.3	%/K
Inductive zero component, $I_{1N} = 0$	$A_2^{1)}$	0.16	cm ²
Switch-on drift of the ohmic offset voltage $I_1 = I_{1N}, B = 0\text{ T}$	$dV_0^{2)}$ $\Delta V_0^{3)}$	≤ 0.3 ≤ 0.1	mV mV
Noise figure	F	~ 10	dB

1) With time varying induction there exists an inductive voltage V_{ind} between the Hall voltage terminals (supply current $I_1 = 0$):

$$V_{ind} = A_2 \times dB/dt \times 10^{-4} \text{ with } V(V), A_2 (\text{cm}^2), B(\text{T}), t(\text{s})$$

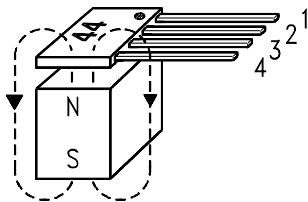
2) $dV_0 = |V_0(t = 1\text{ s}) - V_0(t = 0.1\text{ s})|$

3) $\Delta V_0 = |V_0(t = 3\text{ min}) - V_0(t = 1\text{ s})|$

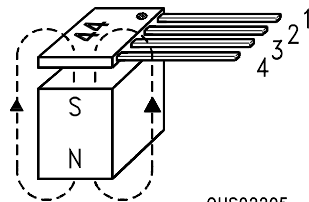
Connection of a Hall Sensor with a Power Source

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}	+



OHS02205

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