SIEMENS

Magnetic Fieldprobe

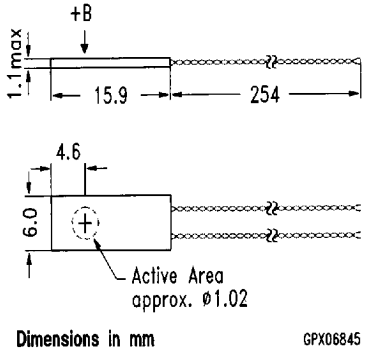
BH 701

Features

- Very low linearity error
- Rugged construction

Typical applications

- Magnetic field measurement
- Current measurement
- Watthour meter
- Proximity sensors
- Electronic compass



Pin configuration

red	+	Supply Current
black	–	Supply Current
blue	+	Hall Voltage
yellow	–	Hall Voltage

Type	Ordering Code
BH 701	Q68000-A8760-F261

The BH 701 is a magnetic fieldprobe in InAs semiconductor-material for general magnetic field measurement. The chip area is 1.02 mm in diameter. It is mounted in a ceramic case. The wire leads with polyurethane isolation are 254 mm long.

Maximum ratings

Parameter	Symbol	Value	Unit
Operating temperature	T_A	– 40...+ 100	°C
Storage temperature	T_{stg}	– 40...+ 105	°C
Supply current	I_1	300	mA
Thermal conductivity soldered, in air	G_{thA} G_{thC}	10 100	mW/K mW/K

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Characteristics (T_A = 25 °C)

Parameter	Symbol	Value	Unit
Nominal supply current	I_{1N}	100	mA
Open-circuit sensitivity	K_{B0}	0.6...0.9	V/AT
Open-circuit Hall voltage $I_1 = I_{1N}$, B = 1 T	V_{20}	60...90	mV
Ohmic offset voltage $I_1 = I_{1N}$, B = 0 T	V_{R0} [1]	< 75	µV
Load resistance for optimum linearity B = 0...1 T	R_{LL} [2]	20...50	W
Linearity of Hall voltage $I_1 = I_{1N}$, B = 0...1 T, R_{LL}	F_L	< 0.25	%
Input resistance B = 0 T	R_{10}	< 2	W
Output resistance B = 0 T	R_{20}	< 2	W
Temperature coefficient of the open-circuit Hall voltage $I_1 = I_{1N}$, B = 0.1 T, T = – 10...+ 80 °C	TC_{V20}	typ. – 0.04	%/K
Temperature coefficient of the internal resistance B = 0 T, T = – 10...+ 80 °C	T_{CR}	typ. 0.18	%/K
Temperature coefficient of ohmic offset voltage $I_1 = I_{1N}$, B = 0 T, T = – 10...+ 80 °C	T_{CV0}	typ. 0.3	µV/K
Inductive zero component I_{1N} = 0	A_2 [3]	0.003	cm²

1) The influence of thermo electric voltages must be taken into account according to: $V_{R0} = \frac{(V_0^+ + V_0^-)}{2}$
   V_0^+ at B = 0 T and $+I_{1N}$
   V_0^- at B = 0 T and $-I_{1N}$
2) This value is given in the test report, which is enclosed in each package.
3) With time varying induction there exists an induction 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)

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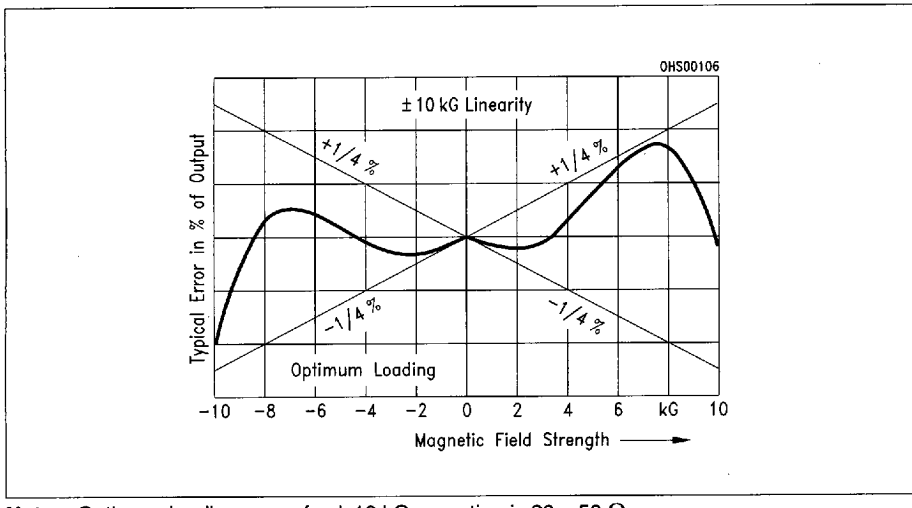
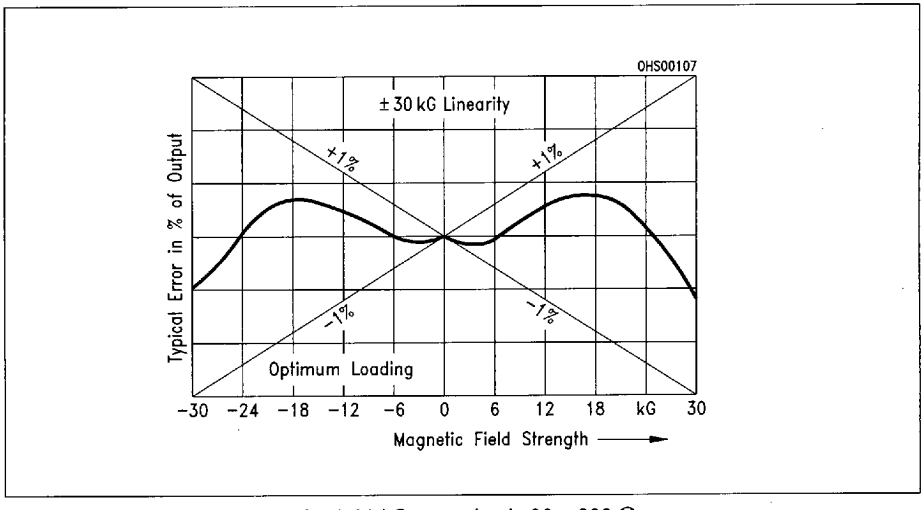


Note: Optimum loading range for ± 10 kG operation is 20 – 50 Ω



Note: Optimum loading range for ± 30 kG operation is 90 – 200 Ω

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