CS49X Series **Linear Hall-Effect Integrated Circuits**

Description

The CS49X series linear Hall-effect IC includes a voltage regulator, Hall generator, linear amplifier, and emitter-follower output stage. The output of the IC changes linearly with the magnetic flux density.

Features

- Small Size
- High Accuracy
- High Sensitivity
- Excellent Reliability
- Low Power
- Single Supply Operation

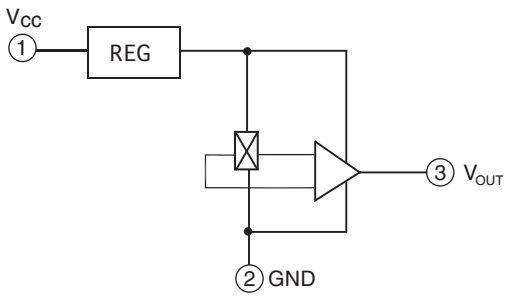
Applications

- Motion Sensors
- Gear Tooth Sensors
- Proximity Sensors
- Current Sensors

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	9	V
Operating Temperature Range	T_A	– 40 to 85	°C
Storage Temperature Range	T_S	– 65 to 150	°C

FUNCTIONAL BLOCK DIAGRAM



Electrical & Magnetic Characteristics

(T_A=25°C V_{CC}=5.0V)

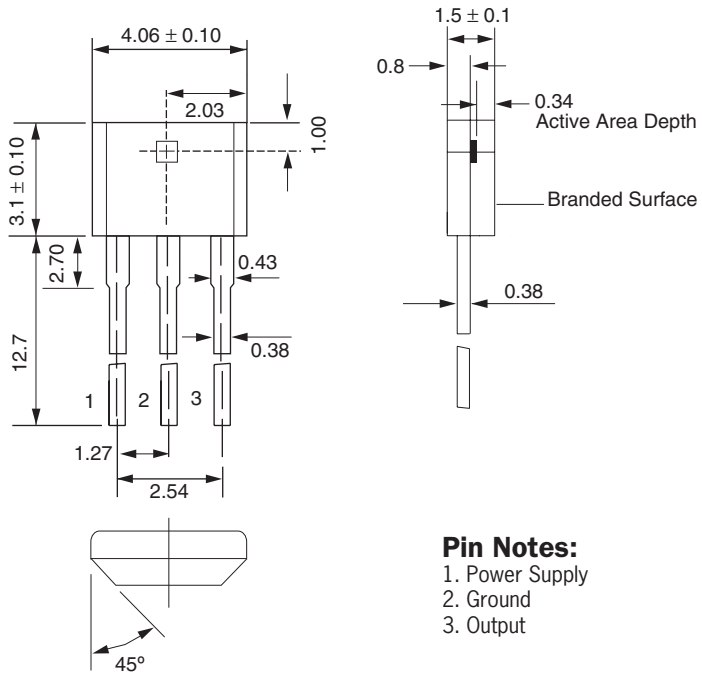
Models	Supply current I_{CC} (mA)	Output Upper Limit Voltage V_T (V) B ≥ 90mT	Output Lower Limit Voltage V_L (V) B ≤ – 90mT	Quiescent Output Voltage Vo (V) B=0 mT	Sensitivity (mV/mT)	Operating Temperature Range (°C)	Output Function
CS49E	≤ 8mA	≥ 4.20	≤ 1	2.5 ± 0.1	15 to 20	– 40 to 85	Linear
CS49F	≤ 8mA	≥ 4.20	≤ 1	2.5 ± 0.1	18 to 25	– 40 to 85	Linear
CS49G	≤ 8mA	≥ 4.20	≤ 1	2.5 ± 0.1	22 to 30	– 40 to 85	Linear
CS49H	≤ 8mA	≥ 4.20	≤ 1	2.5 ± 0.1	28 to 35	– 40 to 85	Linear

SYPRIS TEST & MEASUREMENT
6120 Hanging Moss Road • Orlando, Florida 32807
Phone (407) 678-9748 • Fax (407) 677-5765 • **www.fwbell.com**

F.W. BELL®

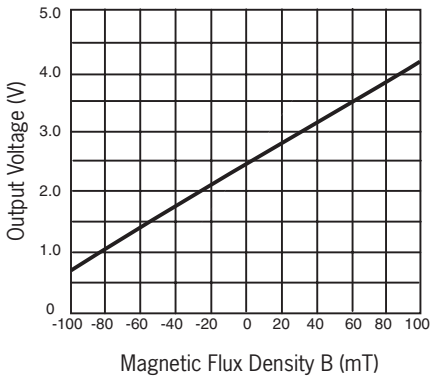
Rev. date 08/2004

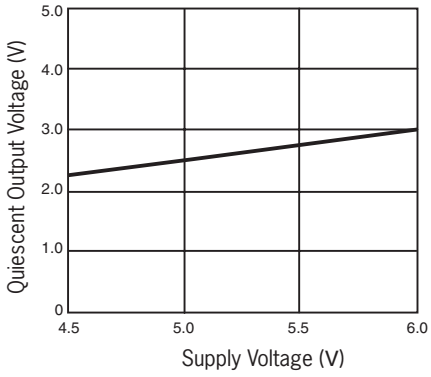
Package (units mm)

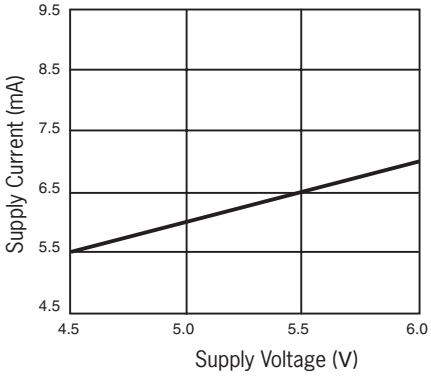


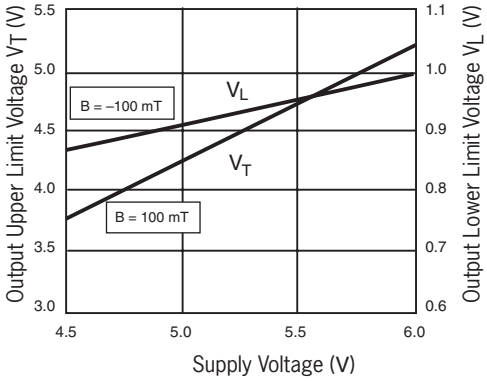
Pin Notes:
1. Power Supply
2. Ground
3. Output

Characteristic Curves









Principles

The quiescent output voltage (B=0mT) is nominally one-half the supply voltage. When a south magnetic pole is presented to the branded face of the Hall-effect IC, it will drive the output higher than the quiescent voltage. A north magnetic pole will drive the output below the quiescent output voltage. Output voltage levels are dependent on magnetic flux density at the most sensitive area of the device. Greatest sensitivity is obtained with a supply voltage of 6V, but at the cost of increased supply current and a slight loss of output symmetry.

Notes:

- Mechanical stress should be minimized in the process of assembly.
- The soldering temperature at the leads should be less than 260°C not exceeding 5 seconds.

SYPRIS TEST & MEASUREMENT
6120 Hanging Moss Road • Orlando, Florida 32807
Phone (407) 678-9748 • Fax (407) 677-5765 • **www.fwbell.com**

F.W. BELL®

Rev. date 08/2004