



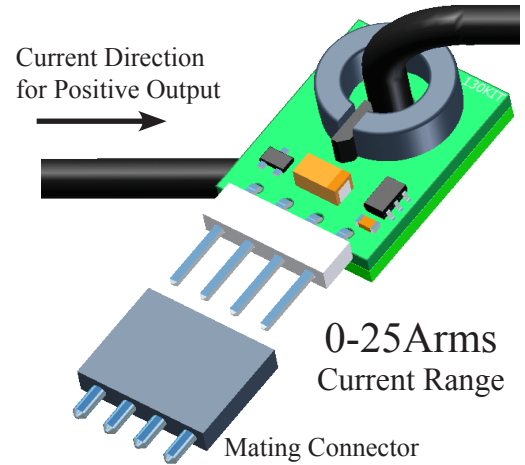
# AN\_131KIT - Asahi EQ-731L Hall Sensor Gapped Core, Open Loop, Current Sensor Application

## General Description

The AN\_131KIT provides an easy method of evaluating the Asahi EQ-731L Linear Hall sensor IC in a “gapped core” current sensor application. The AN\_131KIT includes the Asahi EQ-731L linear IC mounted in the nominal 1.25mm wide gap cut into a 10mm x 6 mm x 4mm Ferrite core. This configuration produces a nominal output sensitivity of 60mV/A. The full scale current range is 25Arms or 35A peak. The kit includes a +5V regulator, however the circuit will work down to 2.7VDC. With the input voltage below 5V, the Hall IC supply is no longer regulated and the sensitivity, supply current and full scale output range will reduce by an amount directly proportional to the supply voltage. For example; at 3V, the sensitivity is 3/5 of 60mV/A will be equal to 36mV/A

The Asahi EQ-731L has a very fast response time, < 5uS, thereby making it very useful for over current applications. The Asahi EQ-731L broadband output noise characteristic is low, < 5mVpp, to give an operating range of about 2000mV/2.5mV or about 800:1.

Included in the kit is a mating connector



AN\_131KIT with mating connector

## Features

**Measures AC or DC currents in wires up to 12AWG**

**Nominal Sensitivity: 63 ±20 mV/A for 5V Supply and 36 ±12 mV/A for 3V Supply**  
(EQ-731L Magnetic Sensitivity of 65 ±15 mV/mT)

**Nominal Quiescent Output Voltage: 2.5V+/- 0.15V @ Iprimary = 0A**

**Fast response time: <5uS**

**Wide bandwidth: DC to 300kHz (-3dB)**

**Low noise:< 5mVpp**

**Large Dynamic range > 800:1**

**Full scale output linear of 2.5V+/- 2.0V (With input supply voltage of 5.0 to 15VDC)**

**Supply current: ≈ 8mA**

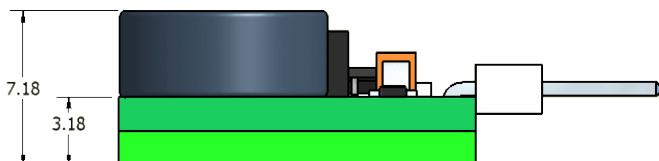
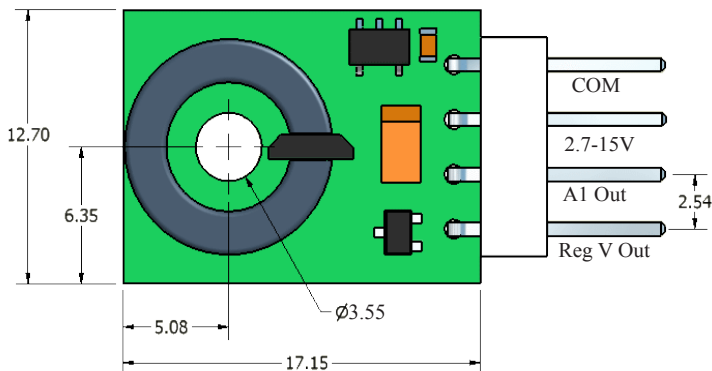
**Supply voltage range of 2.7V to 15V (Below 5.0V, the voltage to the EQ-731L is unregulated)**

**Galvanic isolation between primary conductor and sensor**

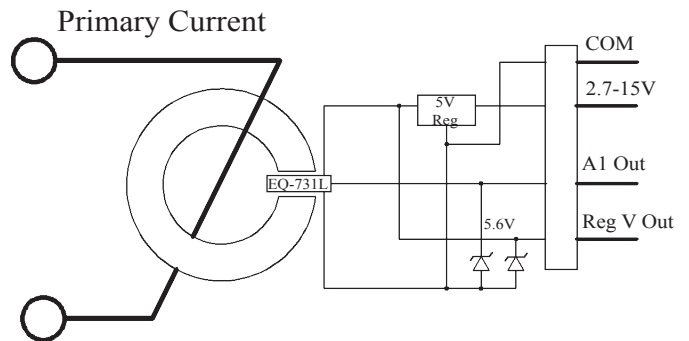
**Interface Connector - 4 Pin 0.100” centers (Mating connector included)**

**Bi-directional sensing**

**Regulated Voltage Output (+5V) Pin (available for external use- up to 20mA)**



AN-131KIT Outline Drawing (all dimensions in mm)



AN\_131KIT Electrical Block Diagram

## References:

Hall IC Specification EQ-731L

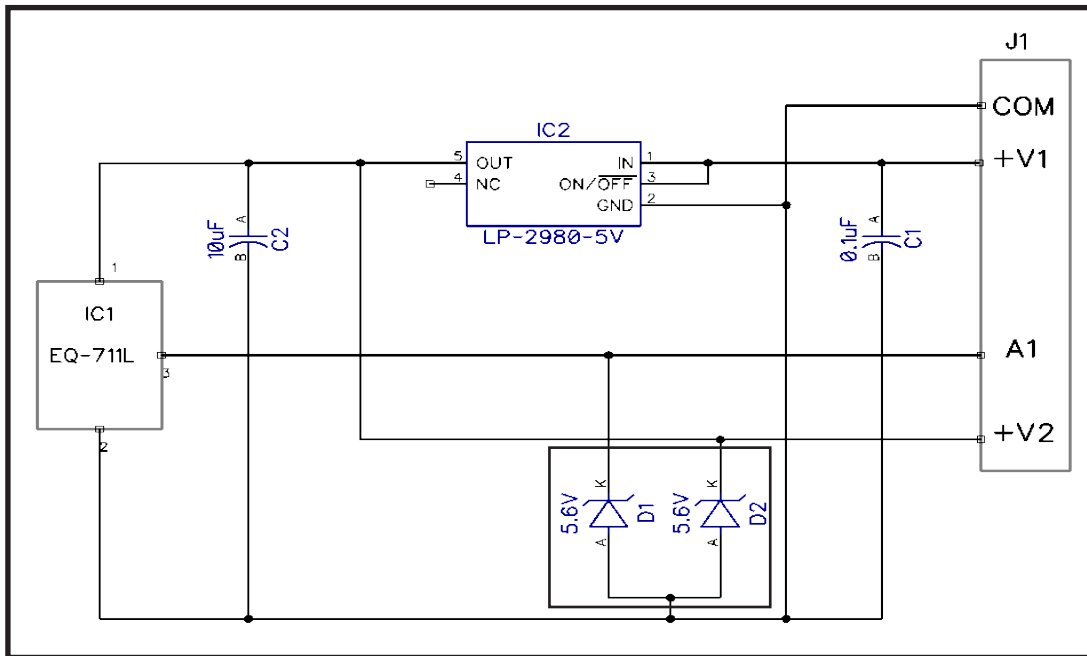
Ferrite Core Specification T 22G 10 06 04-02

Revision Date: Feb 17, 2011



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Schematic, AN\_131KIT



Parts List, AN\_131KIT

Item	Qty	P/N	Title	Reference(m)	Vendor	Vendor P/N
1	1	12900-2427-0	IC, Linear Hall Effect, +/- 69mV/mT, EQ-711L	IC1	GMW Associates	EQ-711L
2	1	12900-2413-0	IC REG LDO MICROPOWER SOT23-5	IC2	Digi-Key Corporation	LP2980IM5-5.0CT-ND
3	1	12900-2201-0	CAP .1UF 50V CERAMIC X7R 0805	C1	Digi-Key Corporation	PCC1840TR-ND
4	1	12900-2302-0	Diode, Zener, 5.6V, SMD	D1/D2	Digi-Key Corporation	AZ23C5V6-FD1TR-ND
5	1	12900-2213-0	CAP TANTALUM 10UF 6.3V 10% SMD	C2	Digi-Key Corporation	495-2180-1-ND
6	1	12900-2709-0	Conn Header 4POS 0.100 R/A Tin	J1	Digi-Key Corporation	WM6004-ND
7	1	12900-2812-0	Core, Ferite, 10mm x 6 mm x 4mm 1.25mm Gap	T1	Ceramic Magnetics, Inc.	T22G 10 06 04-02

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