



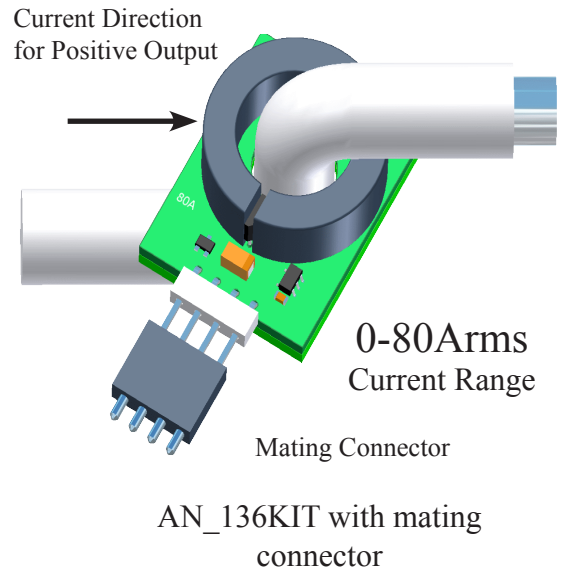
# AN\_136KIT - Asahi EQ-733L Hall Sensor Gapped Core, Open Loop, Current Sensor Application

## General Description

The AN\_136KIT provides an easy method of evaluating the Asahi EQ-733L Linear Hall sensor IC in a “gapped core” current sensor application. The AN\_136KIT includes the Asahi EQ-733L linear IC mounted in the nominal 1.25mm wide gap cut into a 22mm x 14 mm x 7mm Ferrite core. This configuration produces a nominal output sensitivity of 37mV/A. The full scale current range is 40Arms or 57A 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 37mV/A will be equal to 22mV/A

The Asahi EQ-733L has a very fast response time, < 5uS, thereby making it very useful for over current applications. The Asahi EQ-733L 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



## Features

**Measures AC or DC currents in wires up to 4AWG**

**Nominal Sensitivity: 18 ±6 mV/A for 5V Supply and 11 ±3.5mV/A for 3V Supply**  
(EQ-733L Magnetic Sensitivity of 20 ±5 mV/mT)

**Nominal Quiescent Output Voltage: 2.5V+/- 0.05V @ 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**

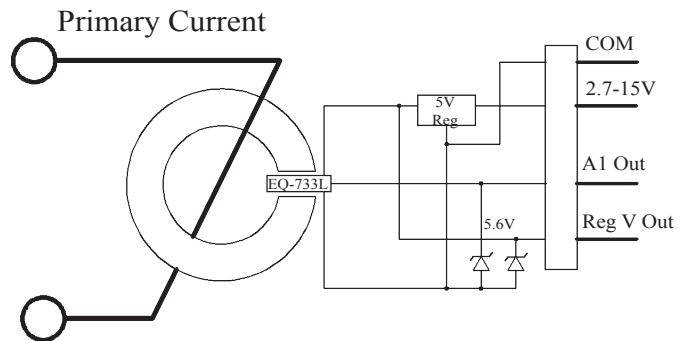
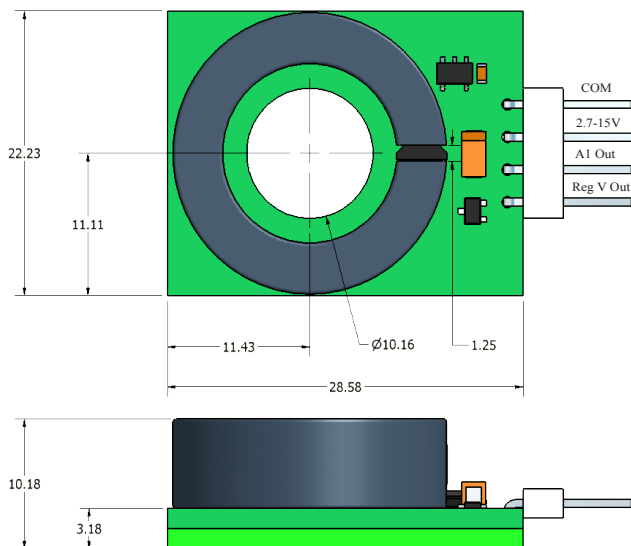
**Supply voltage range of 2.7V to 15V (Below 5.0V, the voltage to the EQ-733L is unregulated)**

**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\_136KIT Electrical Block Diagram

## References:

Hall IC Specification EQ-733L

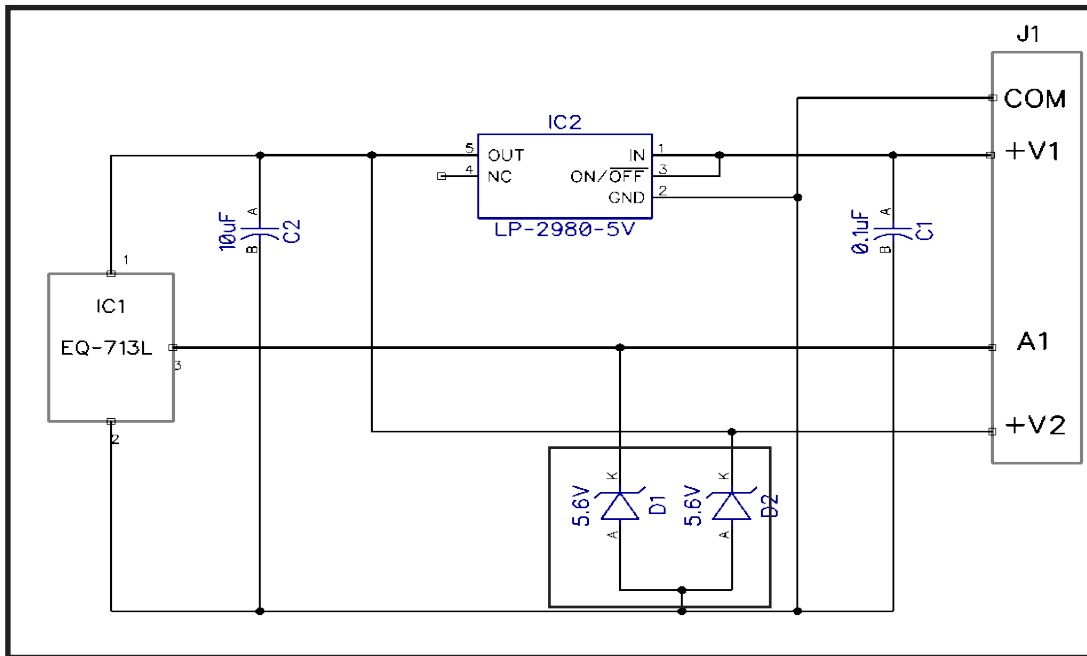
Ferrite Core Specification T 22G 22 14 07-05

AN-136KIT Outline Drawing (all dimensions in mm)

Revision Date: 27 Oct 2009

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Schematic, AN\_136KIT



Parts List, AN 1356KIT

Item	Qty	Title	Reference(m)	Vendor	Vendor P/N
1	1	IC, Linear Hall Effect, +/- 20mV/mT, EQ-713L	IC1	GMW Associates	EQ-713L
2	1	IC REG LDO MICROPOWER SOT23-5	IC2	Digi-Key Corporation	LP2980IM5-5.0CT-ND
3	1	CAP .1UF 50V CERAMIC X7R 0805	C1	Digi-Key Corporation	PCC1840TR-ND
4	1	Diode, Zener, 5.6V, SMD	D1/D2	Digi-Key Corporation	AZ23C5V6-FDITR-ND
5	1	CAP TANTALUM 10UF 6.3V 10% SMD	C2	Digi-Key Corporation	495-2180-1-ND
6	1	Conn Header 4POS 0.100 R/A Tin	J1	Digi-Key Corporation	WM6004-ND
7	1	Core, Ferite, 22mm x 14 mm x 7mm 1.25mm Gap	T1	Ceramic Magnnetics, Inc.	T 22G 22 14 07-02