NVE CORPORATION
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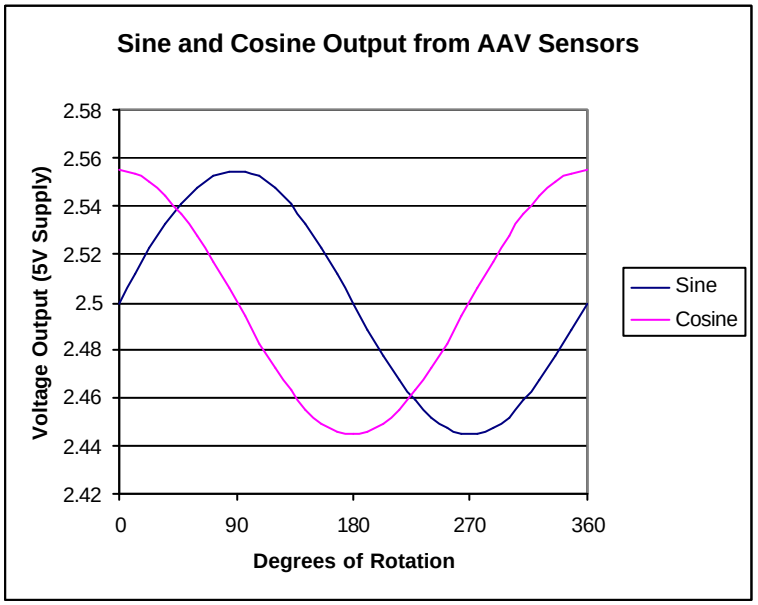
Preliminary Data Sheet

NVE AAV001-11, AAV002-11
Spin Valve GMR Bridge Sensor

- For Angle Detection and Magnetic Encoder Applications
- Sine and Cosine Outputs Available
- Utilizes Spin Valve GMR Material
- Precise Detection of Magnetic Field
- Ultra – Small PLLP Package
- Cannot Be Damaged By Large Magnetic Fields

Description – The AAV001-11 and AAV002-11 are arrays of four GMR resistors, rotated at 90 degree intervals in the package. The AAV001-11 features independent resistors that can be wired together to form two half bridges, or used as independent resistors. The AAV002-11 has the bridge connections made internally to the package. For either part, the output can be configured to represent the sine and cosine function of the magnetic field being applied to the sensor. Each resistor is 1.2KOhms nominal resistance, and output of each half bridge is ratiometric with the power supply voltage. The part features NVE's PLLP6 housing, which is a 3.0mm X 3.0mm X 0.9mm thick surface mount package.

Operation – The end user must apply a magnetic field planar with the IC package. As this magnetic field varies, the resistance values of the individual resistors change and output is provided by the half bridges. An example output signal is shown in the diagram below:



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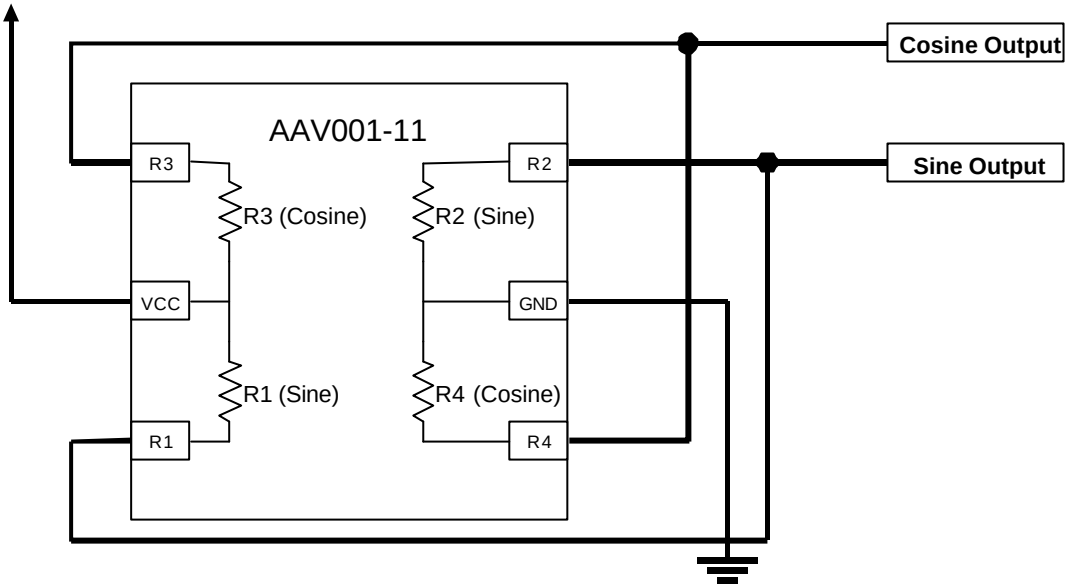
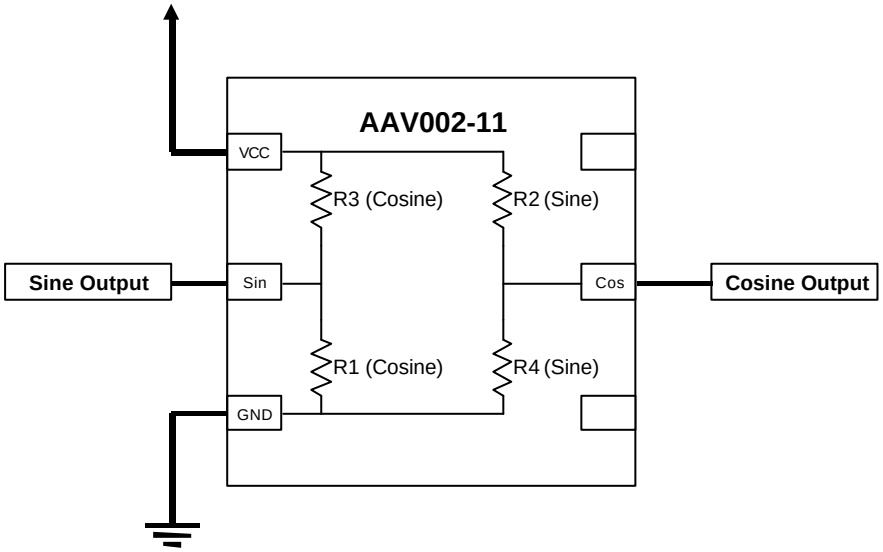
Functional Block Diagram and Pinout:





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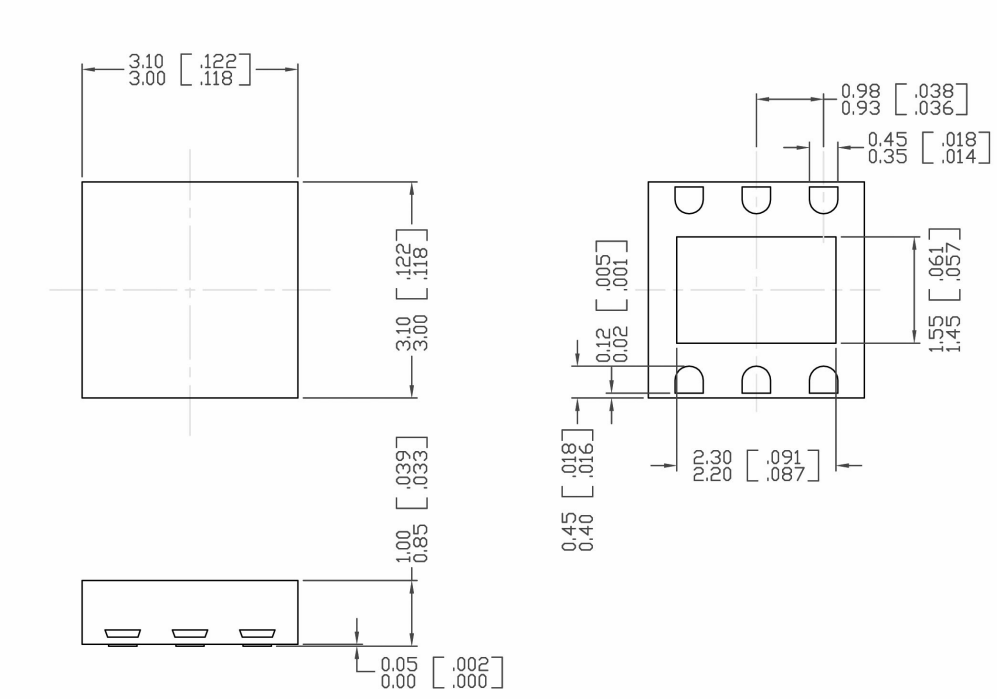
Specifications:

Parameter	Test Condition	Min	Typ	Max	Units
Nominal Resistance of Each Resistor	25C	900	1200	1500	Ohms
Maximum Resistance Decrease with Field Rotation	Operating at 25C	4.5%	5.2%	6.0%	
Required Strength of Applied Magnetic Field	Operating	30		200	Oersted[2]
Accuracy Error of Angular Measurement	Operating			2	Degrees
Supply Voltage	Operating			12	Volts
Offset Voltage	Operating at 25C	-10		10	mV/V
Temperature Range of Operation	Operating	-40		150	°C
Storage Temperature		-40		170	°C
Temperature Coefficient of Resistance	Operating		+0.3		%/°C
TCOV[3]	Operating		-0.4		%/°C

Notes:

1. ***Large Magnetic Fields WILL NOT cause damage to NVE GMR Sensors***
2. 1 Oe (Oersted) = 1 Gauss in air = 0.1 mT
3. TCOV is the percent change in output signal over temperature, with a constant voltage source powering the part

PLLP6 Package Dimensions (mm [inches]):



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