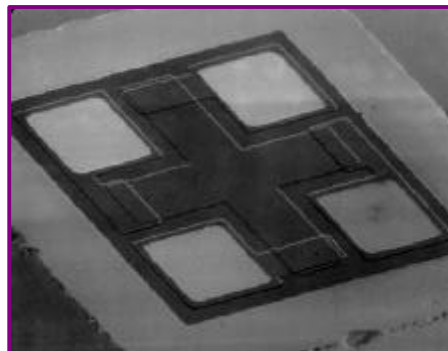


# EMCORE's Indium Antimonide (InSb) Hall Device

## EMCORE InSb Hall Device (Preliminary Information)

EMCORE introduces its InSb Hall device designed to provide a cost-effective and accurate solution for a wide variety of consumer electronic, automotive and industrial magnetic sensing applications. These highly sensitive, accurate, and efficient devices are designed and manufactured in a state-of-the-art fabrication facility at E<sup>2</sup>D (EMCORE Electronic Devices), EMCORE's semiconductor device division. Through the use of exclusive *TurboDisc*® MOCVD technology, EMCORE InSb Hall devices achieve exceptionally low output offset voltages (typically  $\pm 0.5$  mV/V) and tight device characteristics. For example, amplification of the signal used in brushless motor control can be achieved inexpensively and simply. External circuitry can also be optimized without the need to provide for wide variations in sensitivity. Available packages will include TO-92 and surface mount. The advantages of EMCORE's InSb Hall effect device are outlined below.



*Hall Device Die*

## EMCORE InSb Hall Device vs. Other Commercial Devices

Input Voltage: 1.0 Volt

Device	R <sub>in</sub> Range (25°C)	R <sub>in</sub> Typ. (25°C) <sup>1</sup>	Output Range 50 mT (25°C)	Typ. Output 50 mT (25°C) <sup>2</sup>	Offset Voltage (25°C)	EOB <sup>3</sup> (25°C)	Variation <sup>4</sup>
Emcore H130-8*	160-240 $\Omega$	200 $\Omega$	50-75 mV	60 mV	$\pm 0.5$ mV	0.41 mT	8%
Asahi HW-101A**	240-550 $\Omega$	437 $\Omega$	122-320 mV	220 mV	$\pm 7$ mV	1.6 mT	90%
JVC VHE701-2p1**	240-550 $\Omega$	305 $\Omega$	30-54 mV	39 mV	$\pm 7$ mV	9.0 mT	57%

\*Preliminary Data, \*\*Published Data

1. Temperature coefficient of R<sub>in</sub> = 0.9% / °C (10-40°C)
2. Temperature coefficient of output = 0.4% / °C (10-40°C)
3. Equivalent Offset Magnetic Induction = 50 mT x V<sub>Offset</sub>/V<sub>Out</sub> (values for average device). Lower preferred.
4. Variation = Range/Mean of device characteristics. Lower preferred.

### EMCORE Hall Device Performance Advantages

- ◆ Low zero field output offset (low EOB) allows optimized level of amplification and predictable threshold detection.
- ◆ Small variation in performance characteristics allows EMCORE to offer devices meeting the customer's precise requirements and simplifies external circuitry needs (i.e. no binning).
- ◆ InSb has an inherently low piezo-Hall effect compared to silicon, therefore device packaging is a less critical step.

For more information, contact the offices of E<sup>2</sup>D  
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E<sup>2</sup>D reserves the right to change at any time the specifications of its devices listed herein.