

# SS495B

SS490 Series Cost-Reduced Miniature Ratiometric Linear Hall-Effect Sensor; radial lead IC

## Features

- Small size
- Low power consumption
- Single current sinking or current sourcing output
- Linear output for circuit design flexibility
- Built-in thin-film resistors - laser trimmed for precise sensitivity and temperature compensation
- Rail-to-rail operation provides more useable signal for higher accuracy
- Responds to either positive or negative gauss
- Quad Hall sensing element for stable output



## Description

The SS490 Series MRL (Miniature Ratiometric Linear) sensors are versatile linear Hall effect devices operated by the magnetic field from a permanent magnet or an electromagnet. The ratiometric output voltage is set by the supply voltage. It varies in proportion to the strength of the magnetic field.

The integrated circuitry provides increased temperature stability and sensitivity. Laser trimmed thin film resistors on the chip provide high accuracy (null to  $\pm 3\%$ , sensitivity up to  $\pm 3\%$ ) and temperature compensation. The positive temperature coefficient of the sensitivity ( $+0.02\%/^{\circ}\text{C}$  typical) compensates for the negative temperature coefficients of low cost magnets.

The SS490B Series sensors offer cost-effective MRL sensing with slightly wider specifications than the SS490 products. The SS490B has a typical sinking or sourcing output of 1.5 mA continuous, uses seven mA of supply current at 5.0 volts at 25°C, for predictable performance over the full temperature range. SS490B Series sensors have wider null and sensitivity tolerances and a wider drift over temperature.

NOTE: Products ordered in bulk packaging (plastic bags) may not have perfectly straight leads as a result of normal handling and shipping operations. Please order tape packaging option for applications with critical lead straightness requirements.

Product Specifications	
Product Type	Miniature Hall-Effect Linear Position Sensor
Package Quantity/Type	Available in 1,000/Bag
Package Style	Radial Lead IC
Supply Voltage	4.5 Vdc to 10.5 Vdc
Output Type	Sink/Source
Magnetic Actuation Type	Ratiometric
Operating Temperature Range	-40 °C to 150 °C [-40 °F to 302 °F]
Output Voltage	0.2 Vdc to ( $V_s - 0.2$ Vdc) typ., 0.4 Vdc to ( $V_s - 0.4$ Vdc) min.
Linearity (% of Span)	-1.0 % typ., -1.5 % max.
Output Voltage Span (min.)	0.4 Vdc to ( $V_s - 0.4$ Vdc)
Availability	Global
Supply Current (max. @ 25 °C)	8.7 @ 5 Vdc
Sensitivity @ 25 °C	3.125 mV $\pm$ 0.250 mV/G
Output Voltage Swing (Negative G)	0.4 Vdc
Output Voltage Swing (Positive G)	$V_s - 0.4$ Vdc
Temperature Error (@ 25 °C) Null Shift (%/°C)	-0.08 % min., 0.08 % max.
Temperature Error (@ 25 °C) Sensitivity (%/°C)	-0.02 % min., 0.08 % max.
Output Current Typical Source ( $V_s > 4.5$ Vdc)	1.5 mA
Output Current Minimum Source ( $V_s > 4.5$ Vdc)	1 mA
Output Current Minimum Sink ( $V_s > 4.5$ Vdc)	0.6 mA
Output Current Minimum Sink ( $V_s > 5.0$ Vdc)	1 mA
Magnetic Range (typ.)	-67 mT to 67 mT [-670 G to 670 G]
Magnetic Range (min.)	-60 mT to 60 mT [-600 G to 600 G]
Output Voltage Span (typ.)	0.2 Vdc to ( $V_s - 0.2$ Vdc)
Null (Output @ 0 G)	2.50 Vdc $\pm$ 0.150 Vdc
Response Time (f's)	3 f's
Series Name	SS490 Series

