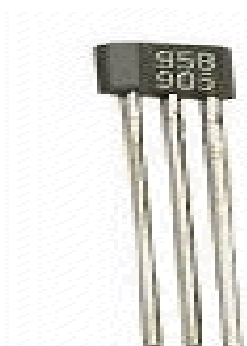




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SS495B-T3



Actual product appearance may vary.

SS490 Series Cost-Reduced Miniature Ratiometric Linear Hall-Effect Sensor; radial lead IC package; tape-and-box (ammopack) version with straight leads

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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

Potential Applications

Current sensing
 Motor control
 Position sensing
 Magnetic code reading
 Rotary encoder
 Ferrous metal detector
 Vibration sensing
 Liquid level sensing
 Weight sensing

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.

Supporting Documentation

[Dimensions](#)

[Circuit Block Diagram](#)

[Required Accessories—Magnets](#)

[Engineering Drawing](#)

| Product Specifications | |
|---|---|
| Product Type | Miniature Hall-Effect Linear Position Sensor IC |
| Package Quantity/Type | Available in 5,000/Tape and Box (ammopack) |
| Package Style | Ammopack style T3 |
| Supply Voltage | 4.5 Vdc to 10.5 Vdc |
| Output Type | Sink/Source |
| Termination Type | PC Board |
| Magnetic Actuation Type | Ratiometric |
| Operating Temperature Range | -40°C to 150°C [-40°F to 302°F] |
| Storage Temperature | -55°C to 165°C [-67°F to 329°F] |
| Output Voltage | 0.2 Vdc to $(V_s - 0.2 \text{ Vdc})$ typ., 0.4 Vdc to $(V_s - 0.4 \text{ Vdc})$ min. |
| Linearity (% of Span) | $\pm 1.0\%$ typ. |
| Output Voltage Span (min.) | 0.4 Vdc to $(V_s - 0.4 \text{ Vdc})$ |
| Availability | Global |
| Supply Current (max. @ 25°C) | 8.7 mA @ 5 Vdc |
| Sensitivity @ 25°C | $3.125 \text{ mV} \pm 0.250 \text{ mV/G}$ |
| Output Voltage Swing (Negative G) | 0.4 Vdc |
| Output Voltage Swing (Positive G) | $V_s - 0.4 \text{ Vdc}$ |
| Temperature_Error_25_Null_Shift_2 | ± 0.08 |
| Temperature_Error_25_Sensitivity_1 | -0.02 min., 0.08 max. |
| Output_Current_Typical_Source_45 | 1.5 mA |
| Output_Current_Minimum_Source_45 | 1 mA |
| Output_Current_Minimum_Sink_45 | 0.6 mA |
| Output_Current_Minimum_Sink_5 | 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 $(V_s - 0.2 \text{ Vdc})$ |
| Null (Output @ 0 G) | $2.50 \text{ Vdc} \pm 0.150 \text{ Vdc}$ |
| Response Time (μs) | 3 μs |
| Series Name | SS490 |

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All Sensing and Control

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Specification Search