

Evaluation Board for the $\pm 300^\circ/\text{sec}$, Single-Axis Digital Output Rate Gyroscope

GENERAL DESCRIPTION

The EVAL-ADXRS450Z-V is a simple breakout board that facilitates quick evaluation of the performance of the [ADXRS450](#) $\pm 300^\circ/\text{sec}$ digital output single-axis rate gyroscope in an SMT-compatible vertical mount package.

The EVAL-ADXRS450Z-V has two sets of 5-lead, 0.1-inch pin spacing headers that allow electrical connections to be made between the ADXRS450 and the existing system. Four mounting holes are also provided for mechanical attachment of the EVAL-ADXRS450Z-V to the application. An external host processor is required for communication to the ADXRS450 gyroscope.

The dimensions of the EVAL-ADXRS450Z-V are 1.3 inch $\times$ 1.3 inch (33 mm $\times$ 33 mm) with two sets of mounting holes. The outer set of holes is 0.125 inch (3.175 mm) in diameter and arranged in a 0.945 inch $\times$ 0.945 inch (24 mm $\times$ 24 mm) square around the center of the printed circuit board (PCB). The inner set of mounting holes are 0.120 inch (3.05 mm) in diameter and arranged in a 0.575 inch $\times$ 0.575 inch (14.6 mm $\times$ 14.6 mm) square around the center of the PCB.

CIRCUIT DESCRIPTION

The board layout and schematic of the EVAL-ADXRS450Z-V are shown in Figure 1 and Figure 2, respectively. A list of parts that are populated on the board is shown in Table 1.

Pin names are indicated on the schematics and board layout, as well as on the board itself, for easy identification. For additional information, refer to the ADXRS450 data sheet.

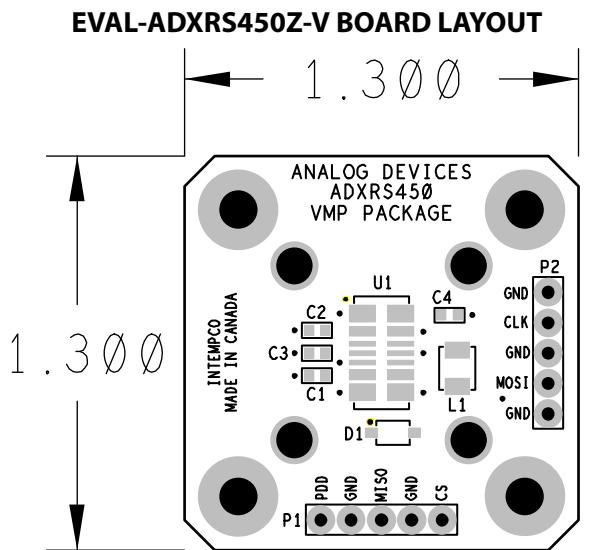


Figure 1.

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REVISION HISTORY

3/11—Revision 0: Initial Version

The schematic diagram illustrates the electrical connection between the ADXRS450 module and a microcontroller. The module, labeled U1, is a black rectangular component with 14 pins. It includes a 470uH inductor (L1) and a 10.1uF capacitor (C1) for power filtering. The module is connected to a microcontroller via two headers, P1 and P2. P1 provides PDD, MISO, CS, and ground. P2 provides CLK, MOSI, and ground. The module's pins are connected to the microcontroller's pins: AVDD to PDD, AVSS to MISO, DVDD to CS, DVSS to ground, PDD to PDD, PSS to ground, VX to ground, MISO to MISO, SCLK to CLK, CS to CS, and CP5 to ground. The module also has TPA and TPC pins connected to ground.

Figure 2. EVAL-ADXRS450Z-V Schematic

COMPONENTS LISTING

See Table 1 for the parts list for the EVAL-ADXR450Z-V. Note that these parts are factory-installed.

SPECIAL NOTES ON HANDLING

Note that the EVAL-ADXR450Z-V is not reverse polarity-protected. Reversing the power supply or applying inappropriate voltages to any pin (outside the Absolute Maximum Ratings listed in the ADXR450 data sheet) may damage the EVAL-ADXR450Z-V.

Table 1. EVAL-ADXR450Z-V Parts List

Reference Designator	Value	Package
U1	ADXR450BEYZ	LCC_V
C1	0.1 μ F	0603
C2	1 μ F	0603
C3	1 μ F	0603
C4	1 μ F	0603
L1	470 μ H	1210
D1	MMSD4148T1	SOD-123

**ESD Caution**

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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