MXM1120 digital Hall sensor IC

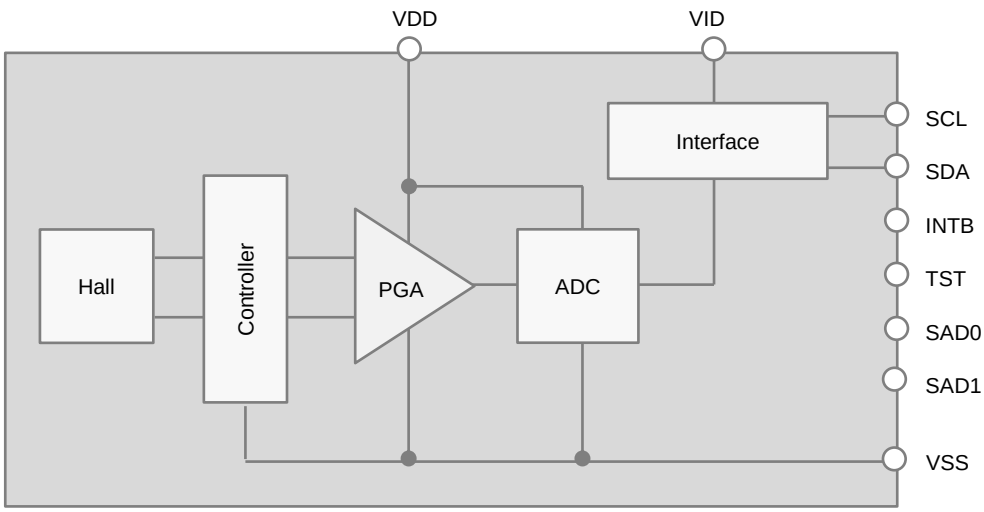
MagnaChip

The MXM1120 is a multi-function Hall-effect sensor designed with mixed signal CMOS technology. The device integrates Hall elements, dynamic offset cancellation system, a programmable gain amplifier, low power ADC and arithmetic logic in a single chip. Bop, Brp, operation magnetic polarity and operation period are programmable by I2C interface. Off-the-shelf software is available to transform magnetic field strength into the angle between the magnet and the device with robust algorithm. Small WLCSP footprint and low power operation enables an angle gauging system in mobile handsets and industrial systems.

Key Feature

- Magnetometer device for magnets on external devices
- Built-in analog to digital converter for magnetometer data outputs
- 10/8-bit selectable data outputs for each built-in Hall element
- Interfaces
  - ✓ I^2C: standard mode and fast mode compliant with Philips I^2C specification Ver.2.1
  - ✓ Interrupt output
- Configurable magnetic sensitivity level and measurable range, for example;
  - ✓ High sensitivity mode: ±3.1mT at 6μT/LSB (10bit)
  - ✓ High dynamic range mode: ±40mT at 78μT/LSB (10bit)
- Operating temperatures:
  - ✓ -30°C to +85°C
- Operating supply voltage:
  - ✓ Analog power supply (V_{DD}): +2.7V to +3.6V (3.0V typ.)
  - ✓ Digital Interface supply (V_{ID}): +1.65V to V_{DD} (1.8V typ.)
- Current consumption:
  - ✓ Power-down mode: 1.0 μA (typ.)
  - ✓ Normal operating mode: 18 μA typical at 10 Hz repetition rate
- Package:
  - ✓ 9-ball WLCSP: 1.33mm × 1.33mm × 0.5mm (typ.)

Block Diagram



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