AS1506

Product Brief

256-Tap Digital Potentiometer with SPI Interface and High Endurance EEPROM

1 General Description

The AS1506 is a linear, 256-tap digital potentiometer specifically designed to replace discrete/mechanical potentiometers and is ideal for applications requiring a low-temperature-coefficient variable resistor, such as low-drift, programmable gain, and amplifier circuit configurations.

The device is controlled via a 3-wire SPI-compatible interface and features an internal EEPROM for storing wiper positions.

Several device variants are available differentiated by end-to-end resistance as shown in Table 1.

Table 1. Standard Products

Model	End-to-End Resistance (kΩ)
AS1506-10	10
AS1506-50	50
AS1506-100	100

The 3-wire SPI-compatible serial interface allows communication at data rates up to 5MHz.The internal EEPROM stores the last wiper position for initialization during power-up and a low-power standby mode.

The devices are available in an 8-pin TDFN 3x3mm package.

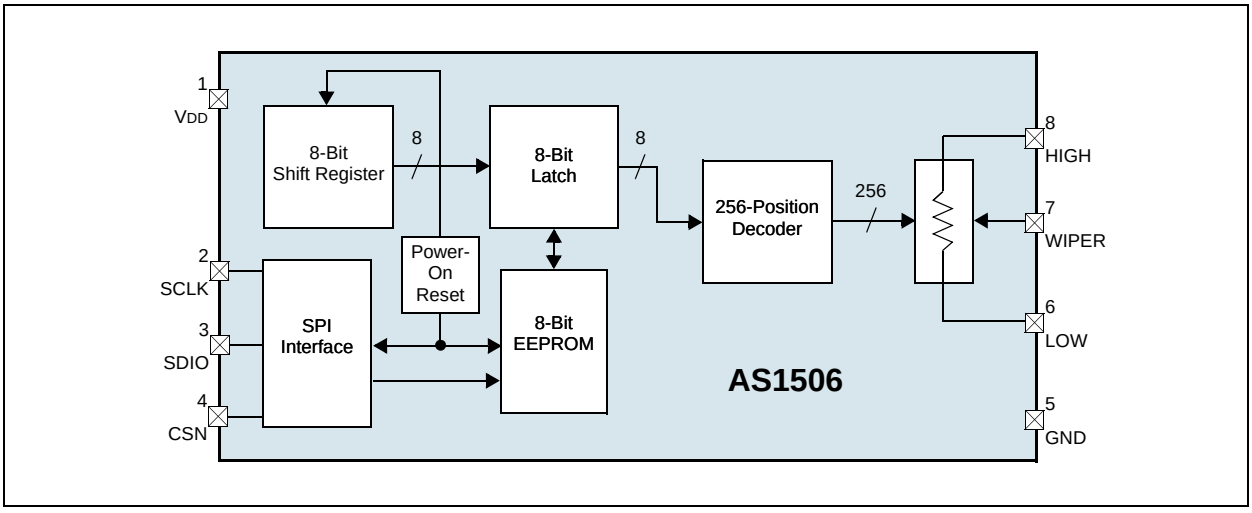
2 Key Features

- High Endurance: EEPROM up to 10M cycles
- High Reliability: EEPROM up to 150 years data retension @ 85°C
- Wiper Position Retained in EEPROM and loaded at Power-Up
- 256 Tap Positions
- ±0.5LSB DNL in Voltage Divider Mode
- ±0.5LSB INL in Voltage Divider Mode
- End-to-End Resistance: 10/50/100kΩ
- Low End-to-End Resistance Temperature Coefficient: 90ppm/ºC
- Low-Power Standby Mode: 100nA
- 5MHz SPI-Compatible Serial Interface
- Single-Supply Operation: +2.7 to +5.5V
- 8-pin TDFN 3x3mm Package

3 Applications

The device is ideal for mechanical potentiometer replacement, low-drift programmable gain amplifiers, audio volume control, LCD contrast control, and low-drift programmable filters.

Figure 1. Block Diagram



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