

BST7274

1. Product Overview

The BST7274 series is a 12-bit high-speed, low-power successive approximation analog-to-digital converter. It operates at a supply voltage of 2.97 V to 3.63 V and a throughput rate of 3 MHz. The BST7274 series includes a low-noise, wide-bandwidth (over 55MHz) track-and-hold op amp. The conversion process and data processing are controlled by a serial clock, allowing the device to interface with a microprocessor and DSP. The input signal is sampled on the falling edge of the CS, while the conversion process is initialized. Since it is a successive approximation conversion, there is no pipeline ADC delay. The BST7274 series adopts optimized design to keep low power consumption even at high speed. The conversion rate is determined by the SCLK rate.

2. Product Features

- Throughput: 3 MSPS.
- VDD Voltage: 2.97V to 3.63 V.
- Power consumption: 12.6 mW (Working conditions 3M Conversion rate 3 V Power supply voltage.
- Wide input bandwidth range.
- Variable output power / serial clock rate management.
- There is no pipeline between the output and input of the ADC The delay generated..
- High-speed serial interface.
- Supports the following interfaces SPI-/QSPI -/MICROWIRE -/ DSP-.
- Temperature range: – 55 °C to + 125 °C (Industrial temperature range – 40 °C to + 85 °C).
- Low power mode: 0.1 μ A typical.
- 8-pin CSOP/MSOP Encapsulation.

3. Functional Block Diagram

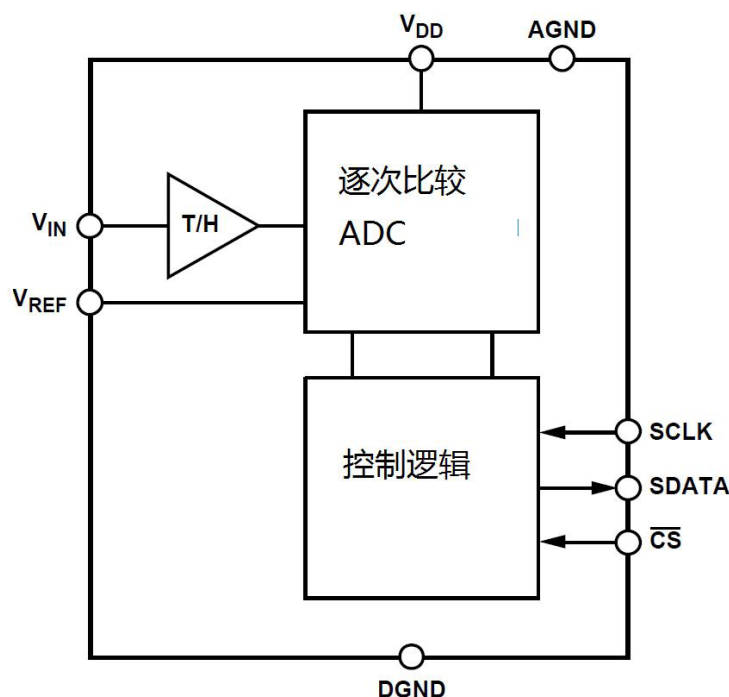


Figure 1. Functional Block Diagram

4. Electrical Parameters

Table 1. Electrical properties

Unit	Symbol	Condition Unless otherwise specified VDD = 3.3 × (1 ± 10%) V -55°C ≤ T A ≤ 125°C	Limit value		Unit
			Minimum	Maximum	
Resolution	RES	VDD=3.3V	12	—	Bits
Integral Nonlinearity	INL	VDD=3.3V	- 2	+2	LSB
Differential Nonlinearity	DNL	VDD=3.3V	- 1	+1.5	LSB
Offset Error	EOE	VDD=3.3V	- 5	+5	LSB
Gain Error	EGE	VDD=3.3V	- 6	+6	LSB
Input signal amplitude range	VIN	VDD=3.6V	0	3.6	V
Logic Input					
Input high level voltage	VIH	VDD=3.63V	2.0	—	V
Input low level voltage	VIL	VDD=3.63V	—	0.8	V
Input Current	IIN	VIN = 0V or VDD = 3.63V	—	±5	μA
Logic Output					
Output high level voltage	VOH	ISOURCE=200μA, VDD=3.3V	2.8	—	V
Output low level voltage	VOL	ISINK=200μA, VDD=3.3V	—	0.4	V
power supply					
Supply Current	IDDOP	VDD = 3.0V to 3.6V, fSAMPLE=3 MSPS	—	8	mA
Full power-down mode supply current	IS	VDD=3.6V	—	20	μA
Power consumption	PD	VDD=3.0V, fSAMPLE=3 MSPS	—	24	mW
Full power-off mode power consumption	PS	VDD=3.6V	—	72	μW
Signal-to-Noise Ratio	SINAD	VDD=3.3V	65	—	dB
Total Harmonic Distortion	THD	VDD=3.3V	—	- 65	dB
Conversion rate	f	VDD=2.97V	—	3.00	MSPS
Clock frequency	fSCLK	VDD=2.97V	—	48	MHz

5. Ordering Information

Table 2. Product Ordering Information

Serial number	Model	Package	Packaging materials	Device level
1	BST7274	CSOP8	ceramics	B class
2	BST7274EAA	MSOP8	plastic	Military temperature level
3	BST7274MSOP8M3	MSOP8	plastic	N1 class
4	BST7274MSOP8I	MSOP8	plastic	Industrial temperature zone

Note 1: Note 1: a) B-level devices meet GJB 597B-2012 “General Specification for Semiconductor Integrated Circuits” Class B screening requirements.

b) N1-level devices meet the N1-level screening requirements of GJB 7400 “General Specification for Semiconductor Integrated Circuits for Qualified Manufacturer Certification”

c) Industrial temperature range devices meet the screening requirements of Q/BST40022-2021 “General Specifications for Industrial Temperature Range Products”, operating temperature range -40°C~+85°C.

d) Military temperature grade devices meet the screening requirements of Q/BST40020-2018 “General Specifications for Military Temperature Grade Products”, operating temperature -55°C~+125°C.

Note 2: The product ordering information is for our existing products or confirmed developed devices.

We can develop devices with other packaging forms according to user needs.