

# JXA8782MN

24-Bit, 8-Channel, 144KSPS Delta-Sigma High-Precision ADC

Pin-to-Pin Compatible with ADS1278

|                                               |                                         |                                                              |                                         |
|-----------------------------------------------|-----------------------------------------|--------------------------------------------------------------|-----------------------------------------|
| <div>Up to 144 KSPS</div> <div>ADC Rate</div> | <div>24 Bit</div> <div>Resolution</div> | <div>8 (simultaneous<br/>sampling)</div> <div>Channels</div> | <div>111 dB</div> <div>SNR (typ.)</div> |
|-----------------------------------------------|-----------------------------------------|--------------------------------------------------------------|-----------------------------------------|

## Product Overview

The JXA8782MN is a 24-bit, 8-channel simultaneously sampling high-precision delta-sigma ADC with up to 144KSPS per channel and a typical SNR of 111 dB. Built on a fourth-generation delta-sigma modulator architecture with on-chip digital decimation filters, it achieves an extremely low noise floor and excellent linearity across a wide dynamic range. All eight channels share a single reference source and clock for superior channel-to-channel matching.

## Key Features

- 24-bit resolution, 8-channel simultaneous sampling
- Up to 144 KSPS per channel, 111 dB typical SNR
- THD <-108 dB, SFDR >115 dBc typical
- Input range:  $\pm V_{REF}$  /  $\pm 2V_{REF}$  (selectable), CMRR >100 dB
- Linear-phase FIR digital filter, configurable
- SPI / daisy-chain interface
- Pin-to-pin 100% compatible with ADS1278 — zero hardware modification
- <120 mW/channel typical, 64-pin TQFP, -40°C to +105°C

Key Specifications

| Parameter                 | Value                          |
|---------------------------|--------------------------------|
| Resolution                | 24 Bit                         |
| Number of Channels        | 8 (simultaneous sampling)      |
| Sample Rate (per channel) | Up to 144 KSPS                 |
| ADC Architecture          | Delta-Sigma                    |
| SNR (typical)             | 111 dB                         |
| THD (typical)             | <-108 dB                       |
| SFDR (typical)            | >115 dBc                       |
| Input Range               | ±VREF / ±2VREF (selectable)    |
| CMRR                      | >100 dB                        |
| Digital Filter            | Linear-phase FIR, configurable |
| Interface                 | SPI / Daisy-chain              |
| Supply Voltage            | Analog 3.3V / Digital 1.8V     |
| Power Consumption         | <120 mW/channel (typical)      |
| Operating Temperature     | -40°C to +105°C                |
| Package                   | 64-Pin TQFP                    |
| Lead Time                 | ~6 Weeks                       |

Applications

- Power System Monitoring — Power quality analysis, fault recording, relay protection
  - High-Precision Industrial Measurement — Load cells, pressure transmitters
  - Medical Equipment — ECG, EEG, ultrasound diagnostic devices
  - Seismic Detection — Seismic data acquisition, geological exploration
- Professional Audio — High-end audio interfaces, studio equipment
  - Scientific Instruments — Precision measurement, spectrometers, chromatographs
  - Data Acquisition Systems — High-precision DAQ, industrial recorders
  - Structural Health Monitoring — Bridges, buildings, wind turbine monitoring

Ordering Information

| Attribute         | Details                               |
|-------------------|---------------------------------------|
| Part Number       | JXA8782MN                             |
| Package           | 64-Pin TQFP                           |
| Temperature Range | -40°C to +105°C                       |
| Compatible Device | ADS1278 (pin-to-pin, 100% compatible) |