

PRELIMINARY

12bit 3.3Ksps Analog to Digital Converter IC

MM4013, MM4014, MM4015



Outline

The MM401X, MM4014 and MM4015 are precision, low-power, 12-bit delta sigma analog-to-digital converter IC with I2C compatible interface. MM4014 and MM4015 have build-in PGA (programmable gain amplifier) and well suited sensor mesurement applications by switching input voltage range. MM4015 can measure by two differntial or four single-ended input. This ADC operate in either continuous-conversion mode or single-shot conversion mode.

Applications

Industrinal Instrumentation

Robot Control

Temperature Measurement System

Battery Voltage and Current Monitoring

Portable Instrumentation

Features

① Ultra Small SQFN package: $2.0(W) \times 1.5(D) \times 0.4(H)$ mm

2 12-Bit Noise-Free Resolution

③ Programmable Data Rate: 128 sps to 3.3 Ksps

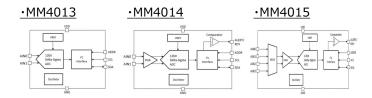
4 Single-Cycle Settling

- (5) Four Single-Ended or Two Differential Inputs(MM4015)
- 6 Low Current Consumption:150µA(Continuous-Conv. Mode)
- ① Internal Low-Drift Voltage Referrence and Internal Oscillator
- 8 Programmable Comparator(MM4014 or MM4015)

Specification

Item	Specification	Unit
Operation temperature	-40~+125	℃
Power supply range	2.0~5.5	V
Differencial input impedance	22 (FSR=±6.144V)	ΜΩ
Resolution(no missing codes)	12	bit
Data rate (DR)	128,250,490,920,1600,2400,3300	SPS
INL	±0.5 (FSR=±2.048V,DR=128sps)	LSB
Offset error	±0.5 (FSR=±2.048V,Diff.inputs)	LSB
Offset drift over temperature	0.005 (typ.)	LSB/℃
Supply current	150(@Operating,25℃)	μΑ
	0.5(@Power-down,25℃)	
Gain error	0.25 (FSR=±2.048V,25℃)	%
Communication IF	I ² C (max. 3.4MHz)	-

Block Diagram

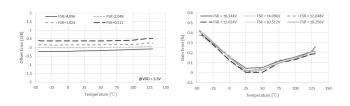


Package

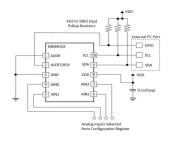
·SQFN-10A



Typical Performance Characteristics



Application circuit



MinebeaMitsumi Passion to Create Value through Difference



Mitsumi QSearch

https://mtm-sec.mitsumi.co.jp/web/ic/

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