

# Fact Sheet

## Military Semiconductor Products

THS1206M / 5962-9957701NXD

SGYV084, May 2000

### ADC, 12-BIT, 6 MSPS, QUAD CHAN, DSP/μP IF, W/ 16xFIFO, AUTOSCAN, LOW PWR

#### HIGHLIGHTS / DESCRIPTION

The THS1206M is a CMOS, low-power, 12-bit, 6 MSPS analog-to-digital converter (ADC). The speed, resolution, bandwidth and single-supply operation are suited for applications in radar, imaging, high-speed acquisition and communications. A multistage pipelined architecture with output error correction logic provides for no missing codes over the full operating temperature range. Internal control registers are used to program the ADC into the desired mode. The THS1206M consists of four analog inputs, which are sampled simultaneously. These inputs can be selected individually and configured to single-ended or differential inputs. An integrated 16-word deep FIFO allows the storage of data in order to take the load off of the processor connected to the ADC. Internal reference voltages for the ADC (1.5 V and 3.5 V) are provided.

An external reference can also be chosen to suit the DC accuracy and temperature drift requirements of the application. Two different conversion modes can be selected. In single conversion mode, a single and simultaneous conversion of up to four inputs can be initiated by using the single conversion start signal (CONVST). The conversion clock in single conversion mode is generated internally using a clock oscillator circuit. In continuous conversion mode, an external clock signal is applied to the CONV\_CLK input of the THS1206M. The internal clock oscillator is switched off in continuous conversion mode.

The THS1206M is characterized for operation over the full military temperature range,  $-55^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ .

#### KEY FEATURES/BENEFITS

- High-Speed 6 MSPS ADC
- Simultaneous Sampling of 4 Single-Ended Signals or 2 Differential Input Signals or Combination of Both
- Differential Nonlinearity Error:  $\pm 1$  LSB
- Integral Nonlinearity Error:  $\pm 1.5$  LSB
- S-to-N & Distortion Ratio: 68dB at  $f_I=2\text{MHz}$
- Auto-Scan Mode for 2, 3, or 4 Inputs
- 3-V or 5-V Digital Interface Compatible
- Low Power: 216 mW Max
- 5-V Analog Single Supply Operation
- Internal Voltage References
- Glueless DSP Interface
- Parallel uC/DSP Interface
- Integrated FIFO
- Available in TSSOP Package

Parameter Name	TLV1206M
Resolution	12 Bits
Sample Rate	6 MSPS
Supply	3.0 V to 5.0 V
Data-Bus Interface	Parallel
Analog Inputs	4 Channels
Power (typ)	216 mW
Vref (Int/Ext)	Internal or External
DNL (max)	+/- 1 LSB
INL (max)	+/- 1.5 LSB

#### APPLICATIONS

- Radar / Sonar
- Communications / Control
- High-Speed DSP Front-End

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## TECHNOLOGY

CMOS, ESD level: 2 KV

## PACKAGING

Package Option: 32-pin TSSOP QML-Plastic

## DIE SIZE

The current die has a size of 87 mils x 169 mils, subject to change.

## POWER DISSIPATION

The table below shows modeled data. This data can be used for approximating system thermal characteristics:

**Package Thermal Data**

Package	R <sub>θJA</sub>	R <sub>θJC</sub>
32 Pin TSSOP	86°C/W	8 °C/W

\*modeled data

Note: Better thermal impedances can be achieved by using air flow, or by increasing metal backplane thickness or trace area in the Printed Circuit Board (PCB).

## PROCESS/PERFORMANCE OPTIONS

The THS1206M is processed to the military temperature range at the SNJ-level for programs requiring devices processed to MIL-PRF-38535. The DSCC Standard Microcircuit Drawings (SMD) for these devices are given below.

### DSCC SMD

TI Parent	DSCC SMD #
THS1206MDA	5962-9957701NXD

**Please Note: This part must be ordered by the DSCC number only.**

## SUPPORT

You can access data sheets via TI's home page on the internet (<http://www.ti.com>) or reference the literature number SLAS217D when contacting the PIC.

For additional information on this and other Mixed Signal/Analog Products, visit our Mixed Signal home page at: [http://www.ti.com/sc/docs/military/product/mix\\_sig/mixsig\\_1.htm](http://www.ti.com/sc/docs/military/product/mix_sig/mixsig_1.htm)

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## Product Information Center

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PIC E-mail - [sc-infomaster@ti.com](mailto:sc-infomaster@ti.com)  
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[www.ti.com/sc/docs/military/welcome.htm](http://www.ti.com/sc/docs/military/welcome.htm)  
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