

Description

Triad Semiconductor’s TS4032 is a highly integrated, general purpose IC for space applications. It combines three basic building blocks required for a general-purpose system: measuring analog voltages from the various system sensors, two on-chip 11-bit DAC’s for driving actuators, and driving-receiving up to 8 digital IO signals. The analog sensing block is comprised of a 16-1 analog mux, a 14-bit Sigma Delta ADC, and two on-chip references (bandgap and DTMOS) and one off-chip reference input. The digital block is comprised of 8 General Purpose IO’s, 14-bit Decimation Filter, and a I2C-SPI Bus for reading and writing registers from the processor.

The TS4302 is available in a 100-pin BGA package (11mm x 11mm, 0.4mm pitch). The device operates from +3.0V to +3.6V and 1.62V to 1.98V supply inputs and is specified over a -55°C to +85°C operating temperature range.

Features

- *Analog Chiplet*
 - 16-to-1 parallel Input MUX
 - Sigma-Delta ADC
 - Reference/Bias circuitry
 - Sensor Bias
 - 2x 11-bit resistor-string DAC
- *Digital Chiplet*
 - SPI/I2C interface
 - Register map
 - S/D decimation filter
 - 8 General Purpose I/O
- *Clock and SCAN control*
- *-55°C to +85°C Operating Temperature Range*
- *Package optimized for spaceborne applications*
 - 100-Ball BGA Package
 - 11mm x 11mm, 0.4mm pitch

Applications

- Spaceborne uses are:
 - Easy method for adding digital control and monitoring for the Processor
 - Easy method for adding telemetry monitoring from the sensors to the system

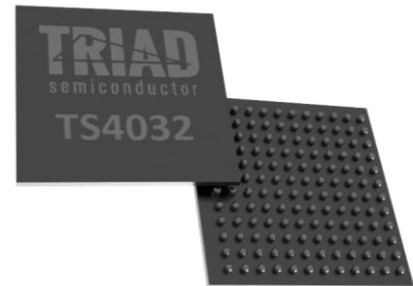


Figure 1: TS4032 100-Ball BGA
11mm x 11mm, 0.4mm Pin Pitch

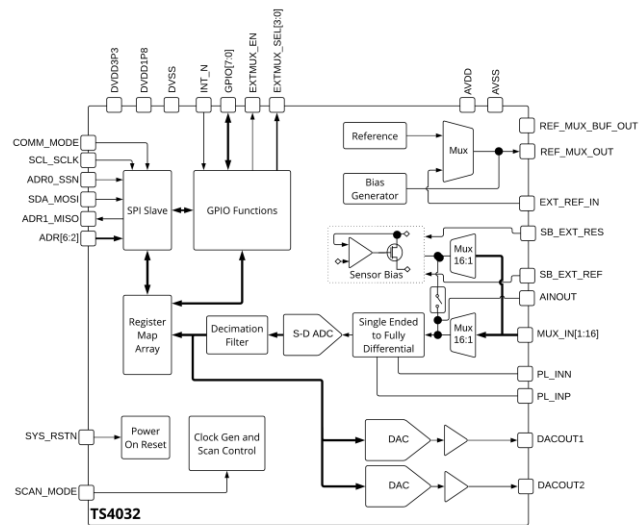


Figure 2: IC Block diagram

Revision History

Revision	Modifications	Modification Date
0p1	Draft Product Concept	Aug 2019
0p2	Updated 3D package picture, updated IC block diagram	Oct 22 2019

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Triad Semiconductor designs and manufactures analog and mixed signal integrated circuits. Founded in 2002, Triad provides custom IC, ASSP and standard product solutions to customers in all major markets.

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