

Key Features of the ADuC824

Analogue I/O

- High Resolution Sigma-Delta ADCs
- Two Independent ADCs (16-Bit and 24-Bit Resolution)
- Programmable Gain Front End
- 24-Bit No Missing Codes, Primary ADC
- 13-Bit p-p Resolution @ 20Hz, 20mV Range
- 18-Bit p-p Resolution @ 20Hz, 2.56V Range

Memory

- 8 Kbytes On-Chip Flash/EE Program Memory
- 640 Bytes On-Chip Flash/EE Data Memory
- Flash/EE, 100 Year Retention, 100 Kcycles Endurance
- 256 Bytes On-Chip Data RAM

8051-Based Core

- 8051-Compatible Instruction Set (12.58MHz Max)
- 32kHz External Crystal, On-Chip Programmable PLL
- Three 16-Bit Timer/Counters
- 26 Programmable I/O Lines
- 11 Interrupt Sources, Two Priority Levels

Power

- Specified for 3V and 5V Operation
- Normal: 3mA @ 3V (Core CLK = 1.5MHz)
- Power-Down: 20A (32kHz Crystal Running)

On-Chip Peripherals

- On-Chip Temperature Sensor
- 12-Bit Voltage Output DAC
- Dual Excitation Current Sources
- Reference Detect Circuit
- Time Interval Counter (TIC)
- UART Serial I/O
- I²C[®] Compatible and SPI[®] Serial I/O
- Watchdog Timer (WDT), Power Supply Monitor (PSM)

Tools Support

- Development Tools
- QuickStart[™] Development System
- Accutron - ACE Emulator
- Keil - C-Compiler



Technical Benefits of the ADuC824

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| • ADC Parameters (Primary Channel) | |
| Output Word Rate | 5.4Hz - 105Hz |
| Input Voltage Range | ±20mV - ±2.56V differential |
| No Missing Codes | 24-bits guaranteed @ 20Hz |
| INL | ±15ppm max (i.e. >16-bits) |
| SNR | >18-bits peak-peak (@ 20Hz, ±2.56V) |
| Drift | ±10nV/°C typical offset ±0.5ppm/°C typical gain |
| • Memory | |
| Flash/EE, 100 Year Retention, 100 Kcycles Endurance | |
| • Power Specified for 3V or 5V Operation | |
| Normal | 3mA @ 3V (Core CLK = 1.5MHz) |
| Powerdown | 20µA (32kHz Crystal Running) |
| • Power Supply Monitor (PSM) | |
| AVDD Trip Point Selection Range | |
| 2.63V min Four Trip Points Selectable 4.63V max | |
| • Lower Noise and Faster than Multi-Chip Solution | |
| • Ordering Information | |
| ADuC824BS | Dual 16 and 24-bit ADC with Embedded Flash/EE MCU |
| Eval-ADuC824QS | QuickStart [™] Development System |

Key Applications of the ADuC824

Key Applications

- Intelligent Sensors (1EEE1451.2-Compatible)
- Weigh Scales
- Portable Instrumentation
- Pressure Transducers
- 4-20 mA Transmitters

