Low-Voltage 10-Bit Analog-To-Digital Converter with **Serial Control and 8 Analog Inputs**

HIGHLIGHTS

The TLV1548 is a CMOS 10-bit switched-capacitor successive approximation (SAR) analog-to-digital (A/D) converter. The device has a chip select (CS), input-output clock (I/O CLK), data input (DATA IN) and serial data output (DATA OUT) that provide a direct 4-wire synchronous serial peripheral interface (SPI™, QSPI™) port of a host microprocessor. When interfacing with a TMS320™ DSP, an additional frame sync signal (FS) indicates the start of a serial data frame. The device allows high-speed data transfers from the host. The INV CLK input provides further timing flexibility for the serial interface. In addition to a high-speed converter and versatile control capability, the device has an on-chip 11-channel multiplexer that can select any one of eight analog inputs or any one of three internal self-test voltages. The sample-and-hold function is automatic except for the extended sampling cycle where the sampling cycle is started by the falling edge of asynchronous CSTART. At the end of the A/D conversion, the end-of-conversion (EOC) output goes high to indicate that the conversion is complete. The TLV1548 is designed to operate with a wide range of supply voltages with very low power consumption. The power saving feature is further enhanced with a software-programmed power-down mode and conversion rate.

KEY FEATURES/BENEFITS
- Conversion Time <= 10 us
- 10-Bit-Resolution ADC
- Programmable Power-Down Mode...1 uA
- Wide Range Single-Supply Operation of 2.7 V dc to 5.5 V dc
- Analog Input Range of 0 V to VCC
- Built-in Analog Multiplexer with 8 Analog Input Channels
- SMJ320 DSP and Microprocessor SPI and QSPI Compatible Serial Interfaces
- End-of-Conversion (EOC) Flag
- Inherent Sample-and-Hold Function
- Built-In Self-Test Modes
- Programmable Power and Conversion Rate
- Asynchronous Start of Conversion for Extended Sampling
- Hardware I/O Clock Phase Adjust Input
- Operating Free-Air Temperature Range: -55°C to 125°C

DIE SIZE
The current die (BDLE1548IN) has a size of: 69 mils x 70 mils

TECHNOLOGY
- 1 µm CMOS Process
- Class 2 ESD rating per MIL-STD-883, Method 3

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PACKAGING

Package Option: 20-pin Ceramic Dual in Line Package (J)
                                20-pin Leadless Ceramic Chip Carrier (FK)

POWER DISSIPATION

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

Package Thermal Data

Package	$R_\theta JA$	$R_\theta JC$
20 Pin DIP	66º C/W	15º C/W
20 Pin LCC	90.9º C/W	25.7º C/W

DEVICE NOMENCLATURE

Available DSCC SMDs

Parent	SMD
TLV1548MJB	**5962- 9853801QRA**
TLV1548MFKB	**5962- 9853801Q2A**

Note: SN version is also available

SUPPORT

Additional information regarding this product is available by calling the Texas Instruments Product Information Center (PIC) at (972) 644-5580 during normal business hours (CST/CDT) .   More information available at: www.ti.com/sc/docs/pic/americas.htm

TOOLS/SUPPORT LITERATURE

You can access a data sheet via TI's home page on the internet (http://www.ti.com) or reference the literature number SLAS139B when contacting the PIC. Visit our military products internet site at: http://www.ti.com/sc/docs/military/welcome.htm

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