Ultra-Low-Power Contactless MEMS Temperature Sensor

TIDesigns

(ACTIVE) TIDM-LPBP-CONTACTLESS-TEMP-SENSE

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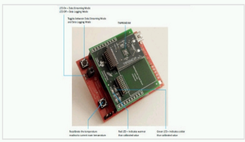

Description

This reference design features the world's smallest MEMS-based contact-less infrared temperature sensor. The TMP006 is a highly-integrated, low-cost solution for a contact-less infrared temperature sensor with digital output to a microcontroller. This solution enables the development of contact-less temperature readings that can be used in both the industrial and consumer electronic space.

Note: This design is based on the MSP430G2 LaunchPad and the TMP006 evaluation module.

Features

- Based on the TMP006 MEMS IR temperature sensor
- Measurement range: -40° to 125°C (+/- 1°C)
- Complete solution in 1.6-mm × 1.6-mm Wafer Chip-Scale Package (WCSP) device (DSBGA)
- I2C interface to a host microcontroller
- Low current consumption: 240 µA quiescent / 1 µA shutdown
- Supply voltage: 2.4V to 5.5V

View available purchase options for designs kits, evaluation modules and/or the bill of materials.

$9.99 - 49.00(USD)

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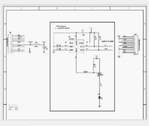
Schematic/Block Diagram

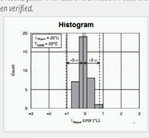
Quickly understand overall system functionality.



Download Schematic

Test Data

Get results faster with test and simulation data that's been verified.



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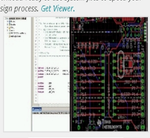
Source Files

Download ready-to-use system files to speed your design process. Get Viewer.



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Bill of Materials (BOM)

Find the complete list of components in this reference design.

Download BOM

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MSP-EXP430G2: MSP430 LaunchPad Value Line Development kit	$9.99(USD) In Stock Typically Ships in 1 to 3 Business Days Buy from TI	Pricing may vary. Buy from distributor	ACTIVE
430BOOST-TMP006: TMP006 Booster Pack	$25.00(USD) In Stock Typically Ships in 1 to 3 Business Days Buy from TI	Pricing may vary. Buy from distributor	ACTIVE
TMP006EVM: TMP006EVM	$49.00(USD) In Stock Typically Ships in 1 to 3 Business Days Buy from TI	Pricing may vary. Buy from distributor	ACTIVE

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TI Devices (2)

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Part Number	Name	Product Family	Sample & Buy	Design Kits & Evaluation Modules
MSP430G2553	MSP430G2x53, MSP430G2x13 Mixed Signal Microcontroller	Ultra-low Power	Sample & Buy	View Design Kits & Evaluation Modules
TMP006	Infrared Thermopile Sensor in Ultra Small Chipscale Package	Temperature Sensors	Sample & Buy	View Design Kits & Evaluation Modules

CAD/CAE symbols

Part #	Package | Pins	CAD File [.bxl]	STEP Model [.stp]
MSP430G2553	TSSOP (PW) | 20	Download	Download
	TSSOP (PW) | 28	Download	Download
	VQFN (RHB) | 32	Download	-
TMP006	DSBGA (YZF) | 8	Download	-

Texas Instruments and Accelerated Designs Inc. have collaborated together to provide TI customers with schematic symbols and PCB layout footprints for TI products.

Step 1: Download and install the Ultra Librarian software ZIP: 62MB

Step 2: Download the Symbol and Footprint .bxl file.

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Technical Documents

User Guides (4)

Title	Abstract	Type	Size [KB]	Date	Views
MSP-EXP430G2 LaunchPad Evaluation Kit User's Guide (Rev. E)		PDF	886	06 Mar 2014	11,780
TMP006 BoosterPack User's Guide		PDF	732	04 Jun 2012	468
TMP006EVM User Guide (Rev. A)	Read Abstract	PDF	4278	14 Oct 2011	1,217
TMP006 Layout and Assembly Guidelines	Read Abstract	PDF	1271	06 May 2011	867

Design Files (3)

Title	Abstract	Type	Size [KB]	Date	Views
Ultra-Low-Power Contactless MEMS Temperature Sensor Gerber Design Files		ZIP	681	07 Apr 2014	94
Ultra-Low-Power Contactless MEMS Temperature Sensor Bill of Materials (BOM)		PDF	211	07 Apr 2014	227
Ultra-Low-Power Contactless MEMS Temperature Sensor Schematic		PDF	450	07 Apr 2014	604

Related Tools & Software

Software (2)

TMP006EVM User Software (Rev. A)
(ZIP, 90951 KB) 324 views, 04 Oct 2011

TMP006EVM Software Source Code (Rev. B)
(ZIP, 3402 KB) 306 views, 04 Oct 2011

Applications

- Field Transmitter: Temperature sensor
- Thermostat

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