Analog Temperature Sensors

Introducing TI's LMT Analog Temperature Sensors

Overview

From the innovative team who brought you the world's first temperature sensor IC, TI announces the LMT series of products featuring seven new analog temp sensors that provide accurate and reliable performance across the operating temperature range of -50°C to 150°C. The new LMT analog temp sensors deliver unmatched value-for-performance by combining high accuracy, very low power consumption and simple design-in capability all in a small package.

TI offers a comprehensive portfolio of easy-to-use analog temp sensors that are ideal for system temperature monitoring tasks such as protection, control and calibration. Analog temp sensors are the new favorites in nearly every application of automotive, industrial, consumer and white goods where NTC thermistors have been used in the past.

In addition, TI's analog temp sensors provide highly accurate and repeatable results that are extremely linear without the use of any external compensating circuitry, lookup table or in-system calibration. Similarly, the consistently low power consumption across temperature of analog temp sensors minimizes self-heating and system power, further easing the design challenge of temperature monitoring that system engineers encounter when using thermistors.

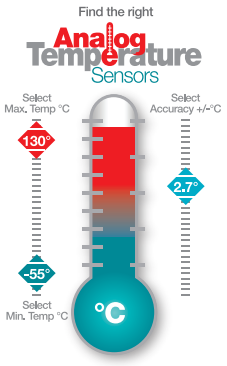
TI's versatile analog temp sensors address multiple applications and are available in low-power, automotive-qualified versions and with positive and negative temperature coefficients (PTC/NTC).

Low-cost analog temperature sensors family

Part Number	Key Feature	Typ Accuracy (±°C)	Max Accuracy (±°C)	I_S Typ (µA)	Operating Temp Range (°C)	V_{DD} Range (V)	Package	1k Price (US$)
LMT84	Operates down to 1.5 V, –5.5 mV/°C	0.4	2.7	5.4	–50 to 150	1.5 to 5.5	5-SC70	0.195
LMT85	–8.2 mV/°C sensor gain	0.7	2.7	5.4	–50 to 150	1.8 to 5.5	5-SC70	0.195
LMT86	–10.9 mV/°C sensor gain	0.7	2.7	5.4	–50 to 150	2.2 to 5.5	5-SC70	0.195
LMT87	–13.6 mV/°C sensor gain	0.6	2.7	5.4	–50 to 150	2.7 to 5.5	5-SC70	0.195
LMT88	Low power consumption		5	4.5	–55 to 130	2.4 to 5.5	5-SC70	0.18
LMT89	Low power consumption		2.5	4.5	–55 to 130	2.4 to 5.5	5-SC70	0.19
LMT90	Positive tempco (PTC)		3	130	–40 to 125	4.5 to 10	3-SOT23	0.20

Analog Temperature Sensors

Analog Temperature Selection is Easy



Make selection easy with TI's Analog Temperature Sensor Selector online at ti.com/analogtempsensors

Simply slide the selection diamonds to choose a desired temperature range and accuracy. All devices in your results link to their respective product folders.

If you are not online, answers to the following questions and the quick reference chart found below can provide you with recommended temperature sensors for your application.

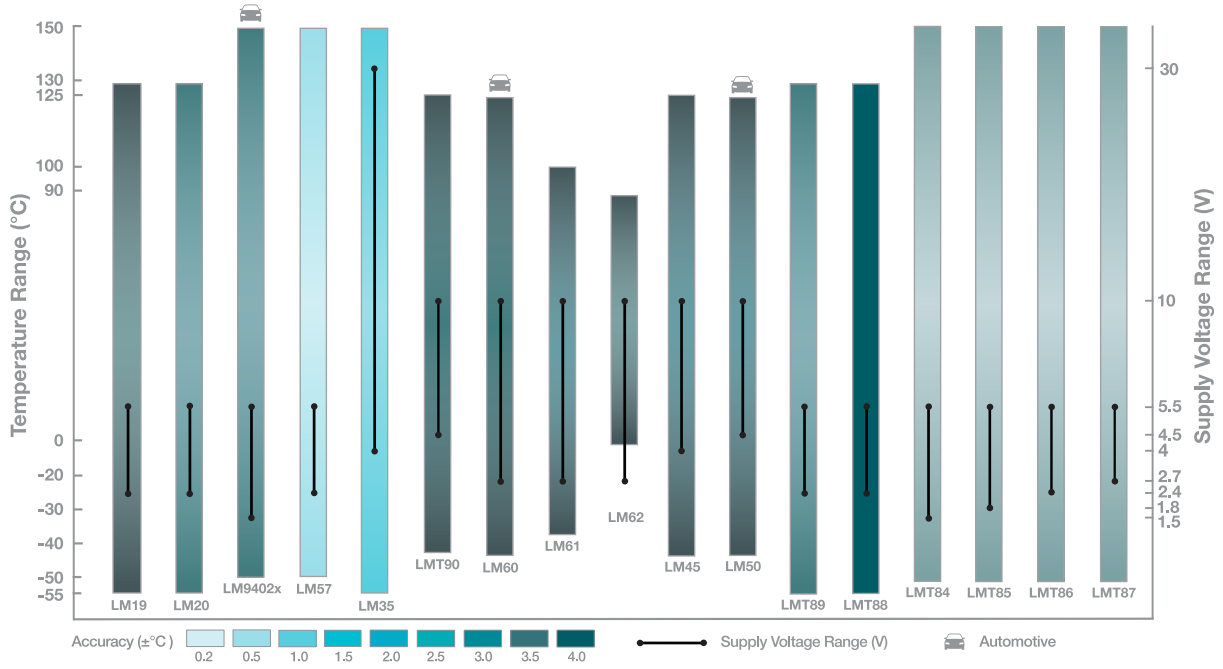
- Over what temperature range must the temperature sensor operate?
- What supply voltage is available?
- What accuracy over the desired temperature range is needed?

Example:

Your application requires a device that will operate over -25°C to 125°C with a 1.5 V supply and accuracy of better than ± 3°C between 85°C and 100°C.

1. Look at the temperature range on the left axis. Find the required operating temperature range. At this point, only the LM61 and LM62 are excluded.
2. Now look at the supply range on the right axis. Find the required operating voltage. This limits selections to the LM9402x family of products and the new LMT84.
3. Finally, compare the colors of these device bars with the legend and determine that these devices are appropriate solutions.

Refer to datasheets for more detailed information on each product.



For more information, visit **ti.com/analogtempsensors**

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