

TEMPERATURE SENSOR IC

FEATURES

- Linear Output Voltage 6 mV/°C Output
- 2.7 to 10.0 Volt Supply Range
- Miniature Package (SOT-25)
- Minimum External Parts Count
- Low Power Consumption

DESCRIPTION

The TK11042 is a temperature sensor IC with a linear output of 6 mV/°C over the range of -30 to +105 °C. It's wide operating voltage range of 2.7 to 10.0 volts makes it suitable for a number of applications requiring accurate temperature control, such as electronic thermostats for climate control, refrigerators, and industrial process controls.

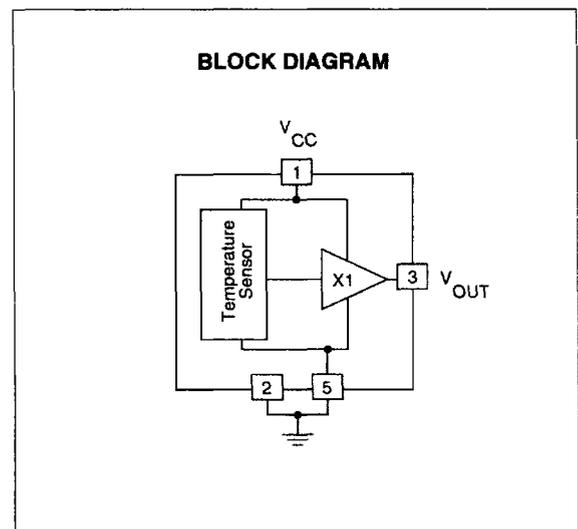
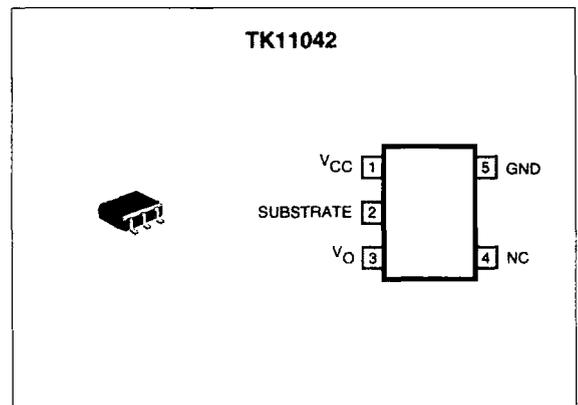
A typical application is to make a digital representation of temperature with an A/D converter, or to make a thermal detector with a comparator.

The TK11042 has a compensation pin for a 0.1 μF capacitor that insures stability over the IC's operating temperature range.

The TK11042 is available in a miniature SOT-25 surface mount package.

APPLICATIONS

- Home and Industrial Thermostats
- Automotive Climate Control
- Battery Charger Temperature Monitor
- Notebook Computer Temperature Monitor
- Electronic Thermometers
- Fish Finder Water Temperature
- Industrial Process Controllers
- Home Appliance Temperature Control



ORDERING INFORMATION

TK11042M



Tape/Reel Code

TAPE/REEL CODE
TL. Tape Left

ABSOLUTE MAXIMUM RATINGS

Supply Voltage 12 V
 Operating Voltage.....2.7 to 10.0 V
 Power Dissipation (Note 1) 150 mW
 Junction Temperature 150 °C

Storage Temperature Range -55 to +150 °C
 Operating Temperature Range -30 to +105 °C
 Lead Soldering Temp. (10 sec.) 240 °C

ELECTRICAL CHARACTERISTICS

Test Conditions: $T_A = 25\text{ °C}$, $V_{CC} = 3.0\text{ V}$, $I_{OUT} = 0\text{ }\mu\text{A}$, unless otherwise specified

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{OUT}	Output Voltage	$T_A = -30\text{ °C}$		1.463		V
		$T_A = 25\text{ °C}$	1.776	1.794	1.812	V
		$T_A = 85\text{ °C}$	2.131	2.155	2.179	V
T_C	Temperature Coefficient	$T_A = 25\text{ to }85\text{ °C}$	5.50	6.02	6.50	mV/°C
LineReg	Line Regulation	$V_{CC} = 3\text{ V to }10\text{ V}$	-12	2	+12	mV
LoadReg	Load Regulation	$I_{OUT} = 0\text{ }\mu\text{A to }100\text{ }\mu\text{A}$	0	2	12	mV
I_{CC}	Supply Current	$T_A = 25\text{ °C}$		110	180	μA
I_{OUT}	Output Current	$\Delta V_{OUT} \leq 15\text{ mV}$			400	μA

Note 1: Power dissipation is 150 mW when mounted as recommended. Derate at 1.2 mW/°C for $T_A > 25\text{ °C}$.

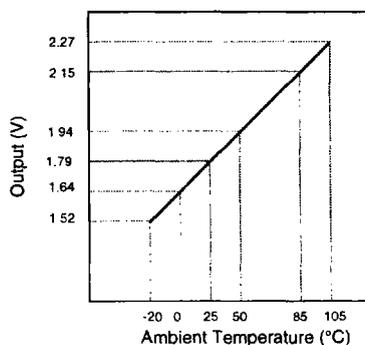
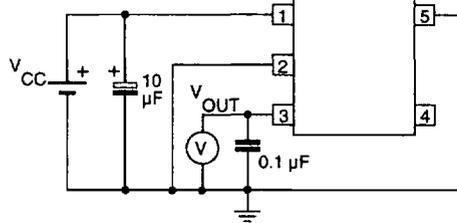


Figure 1. Output Characteristics

TEST CIRCUIT



Connect pin 2 to ground

TYPICAL PERFORMANCE CHARACTERISTICS

$V_{CC} = 3\text{ V}$, $T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified

