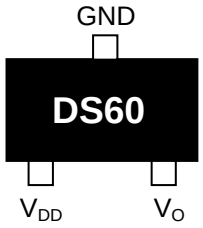
DS60
Analog Temperature Sensor

www.maxim-ic.com

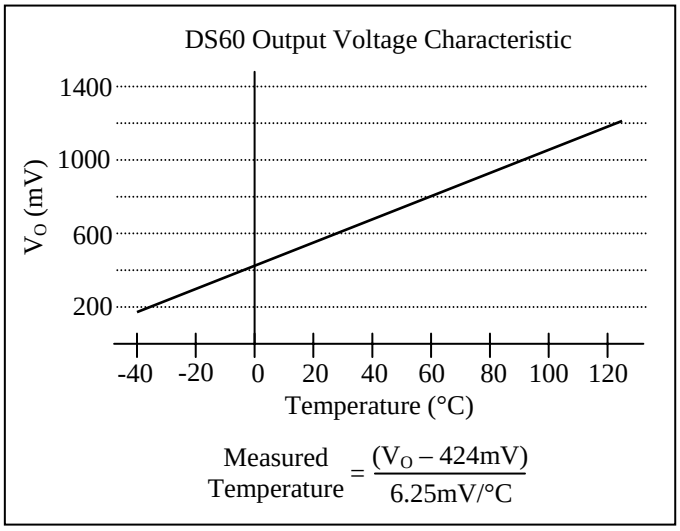
FEATURES

- Factory Calibrated for +6.25mV/°C Sensitivity with 424mV DC Offset at 0°C
- ±2.0°C Accuracy Over 0°C to +85°C Range
- Measurement Range of -40°C to +125°C
- Ultra-Low Supply Current (125µA max)
- Tiny SOT-23-3 Package
- Wide Power Supply Range (+2.7V ≤ V_{DD} ≤ +5.5V)
- Functionally-Compatible with LM60
- Applications Include Monitoring Battery Packs, Disk Drives, Printers, or any Space- or Power-Constrained Thermally Sensitive Systems.

PIN ASSIGNMENT



SOT-23-3
(DS60R)



Package mechanical drawings can be found at:
http://www.maxim-ic.com/TechSupport/DallasPackInfo.htm

PIN DESCRIPTION

V_{DD} - Power Supply Voltage
V_O - Sensor Output
GND - Ground

ORDERING INFORMATION

Ordering Number	Description
DS60R/T&R	SOT-23-3: 3,000 piece Tape & Reel
DS60R-U	SOT-23-3
DS60R+T&R	Lead-Free SOT-23-3: 3000 piece Tape & Reel
DS60R+U	Lead-Free SOT-23-3

DESCRIPTION

The DS60 analog temperature sensor measures its own temperature and provides these measurements to the user in the form of an output voltage (V_O) that is proportional to degrees centigrade. The output voltage characteristic is factory-calibrated for a typical sensitivity of +6.25mV/°C and a DC offset of +424mV at 0°C. Its operating temperature range is -40°C to +125°C, corresponding to an output voltage range of +174mV to +1205mV. The DS60 has ±2.0°C accuracy over a 0°C to +85°C temperature range and over the full +2.7V to +5.5V power supply range. Its accuracy is within ±3.0°C over the operating temperature range and full supply range. Because the output voltage is positive for the entire temperature range, there is no need for a negative power supply.

The DS60's tiny size, low-current operation, and wide supply range make it ideal for use in battery-powered applications. To further reduce power dissipation, the DS60 can be powered by any logic gate

output that is capable of sourcing 125µA, which allows the DS60 to be switched to a zero power standby state when the gate is forced to a logic 0.

ABSOLUTE MAXIMUM RATINGS*

Voltage on V_{DD}	GND -0.3V to +6.5V
Output Current	5.0mA
Operating Temperature Range	-40°C to +125°C
Storage Temperature Range	-55°C to +150°C
ESD Susceptibility (Human Body Model)	2kV
Soldering Temperature	215°C for 60s (Vapor Phase)
220°C for 15s (IR)	

* *These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.*

The Dallas Semiconductor DS60 is built to the highest quality standards and manufactured for long-term reliability. All Dallas Semiconductor devices are made using the same quality materials and manufacturing methods. However, the DS60 is not exposed to environmental stresses, such as burn-in, that some industrial applications require.

DC ELECTRICAL CHARACTERISTICS (-40°C to +125°C; 2.7V ≤ V_{DD} ≤ 5.5V)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS	NOTES
Supply Voltage	V_{DD}		2.7		5.5	V	1
Supply Current	I_{DD}			80	125	µA	2
Measurement Error	T_{ERR}	0°C ≤ T_A ≤ 85°C			±2	°C	2
		-40°C ≤ T_A ≤ 125°C			±3		
V_O DC Offset		T = 0°C		424		mV	1, 2
Sensor Gain	ΔV/ΔT		6.0	6.25	6.5	mV/°C	2
Nonlinearity					±0.8	°C	2, 3
Power Supply Regulation		2.7V ≤ V_{DD} ≤ 3.3V			±2.0	mV/V	
		3.0V ≤ V_{DD} ≤ 5.5V			±0.25	mV/V	
Sensor Drift				±0.25		°C	4
Output Impedance					800	Ω	

NOTES:

1) All voltages are referenced to ground unless otherwise specified.
2) Specified for V_O sourcing 1.0µA (max).
3) Nonlinearity is the maximum deviation from an ideal linear slope.
4) Typical drift following three consecutive passes through a vapor phase process.

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