**TelCom**
Semiconductor, Inc.

**PRELIMINARY INFORMATION**

EVALUATION
KIT
AVAILABLE

**TC625**

# 1-WIRE DIGITAL THERMOMETER

## FEATURES

- **Single Wire Interface to Host Microcontroller**
- **High Precision ................. ±1°C Accuracy (Typical)**
- **Wide Measurement Range .......... – 25°C to +100°C**
- **No External Components Required**
- **Complimentary (TC625C) or Open Drain Outputs (TC625N)**
- **Low Voltage Operation ........................ 2.7V to 5.5V**
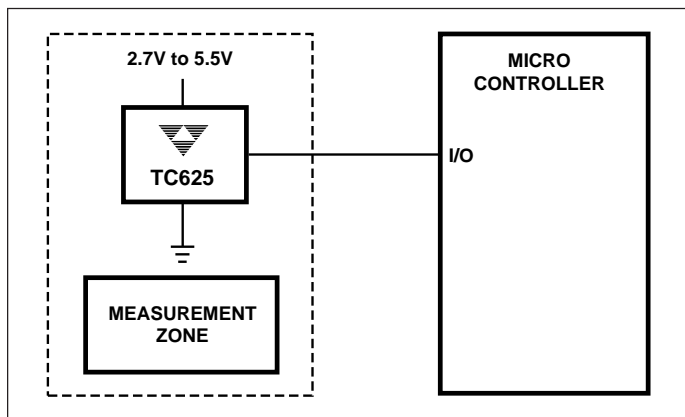- **Small Packages ......................... TO-92, SOT-23A-5**

## APPLICATIONS

- **Isolated Temperature Sensing**
- **Environmental Control Systems**
- **Process / Industrial Control Systems**
- **Power System Temperature Monitoring**
- **Process Control Systems**

## FUNCTIONAL BLOCK DIAGRAM
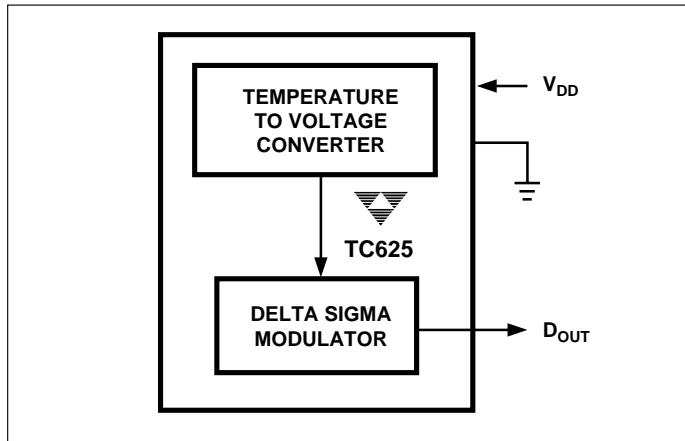


## TYPICAL APPLICATION



## GENERAL DESCRIPTION

The TC625 is a monolithic temperature sensor that generates a pulse train, the high and low times of which vary in direct proportion to the temperature of the device. This technique allows temperature to be accurately measured by the host microcontroller without an A/D converter, and with only a single I/O port pin. The overall accuracy is ±1.5°C typical over the rated measurement range of – 25°C to +100°C.

Unlike voltage output temperature sensors, the digital output of the TC625 offers superior immunity to system noise and does not require an A/D converter. Unlike two wire serial temperature sensors, the TC625 communicates over a single wire, and without serial protocol overhead.
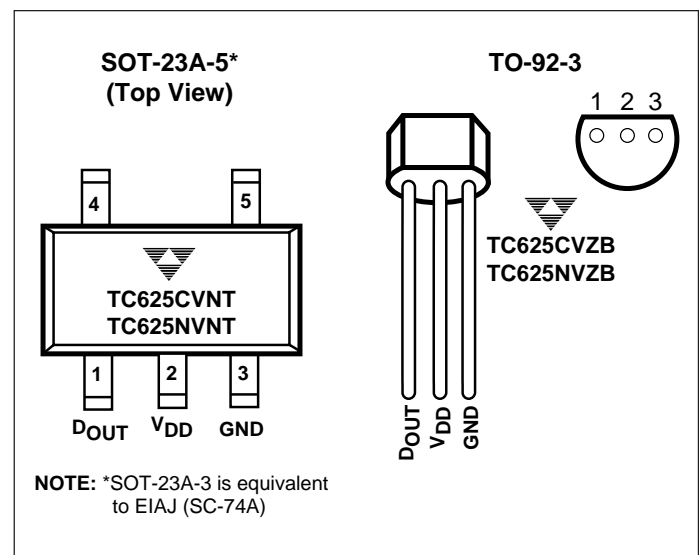
The TC625 operates from supply voltages as low as 2.7V. Open drain (TC625N) and complimentary (TC625C) output configurations are available. The TC625 is available in TO-92 and SOT-23A-5 packages.

## ORDERING INFORMATION

| Part No. | Package | Output Config. |
|---|---|---|
| TC625CVNT | SOT-23A-5* | Complimentary |
| TC625CVZB | TO-92-3 | Complimentary |
| TC625NVNT | SOT-23A-5* | Open Drain |
| TC625NVZB | TO-92-3 | Open Drain |
| *TC625EV* | *Evaluation Kit for the TC625 and TC12* | |

**NOTE:** *SOT-23A-5 is equivalent to EIAJ (SC-74A).

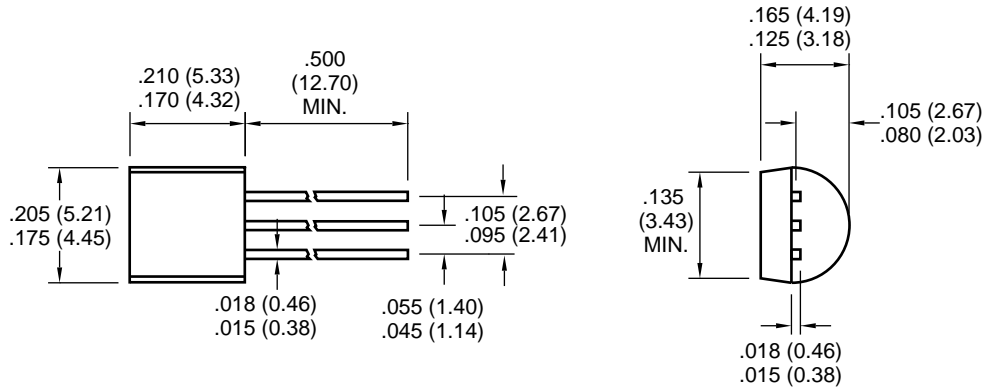## PIN CONFIGURATIONS



**NOTE:** *SOT-23A-3 is equivalent
to EIAJ (SC-74A)

# 1- WIRE DIGITAL THERMOMETER

## TC625

### PACKAGE DIMENSIONS

**SOT-23A-5***

0.75 (1.90)
REFERENCE

.122 (3.10)
.098 (2.50)

.071 (1.80)
.059 (1.50)

.020 (0.50)
.012 (0.30)

.037 (0.95)
REFERENCE

.122 (3.10)
.106 (2.70)

.057 (1.45)
.035 (0.90)

.006 (0.15)
.000 (0.00)

10° MAX.

.010 (0.25)
.004 (0.09)

.022 (0.55)
.008 (0.20)

**NOTE:** *SOT-23A-5 is equivalent to EIAJ (SC-74A).

**TO-92-3**

.210 (5.33)
.170 (4.32)

.500
(12.70)
MIN.

.205 (5.21)
.175 (4.45)

.105 (2.67)
.095 (2.41)

.018 (0.46)
.015 (0.38)

.055 (1.40)
.045 (1.14)

.165 (4.19)
.125 (3.18)

.105 (2.67)
.080 (2.03)

.135
(3.43)
MIN.

.018 (0.46)
.015 (0.38)
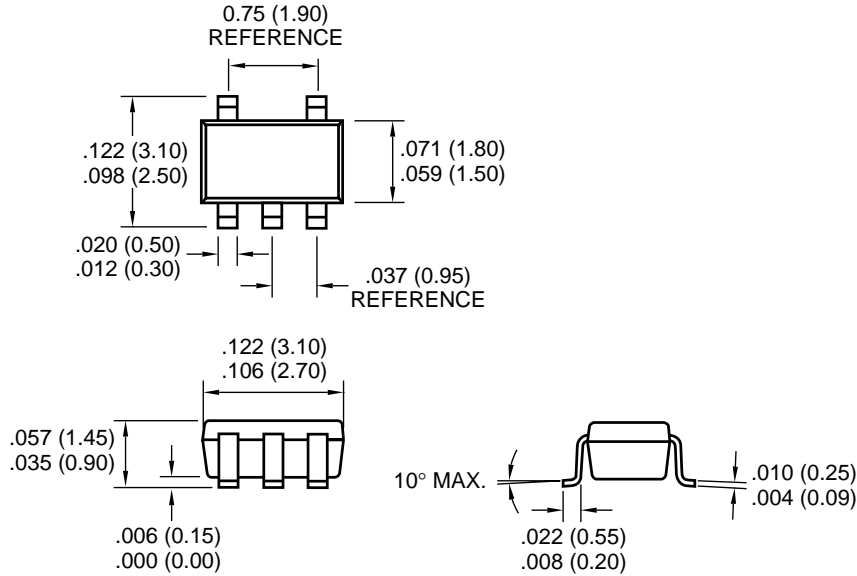
Dimensions: inches (mm)

### Sales Offices

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