Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

T9600

The Fully Calibrated Humidity and Temperature Module

Features

- Ready to install package

- Simultaneous relative humidity and temperature outputs

- Precision accuracy ±2% RH, ±0.6°C

- Resolution 0.4% RH

- Factory calibrated, ready to use

- Supply voltage: 3.0V to 5.5V

- Low current: 0.5mA@5V, 25°C

- Conformal coated PCB for corrosion protection

- Included filter to protect humidity element

- RoHS CE compliant

T9600—The Fully Calibrated Humidity and Temperature Sensor

The T9600 series humidity sensor by GE offers a new standard in the field of accurate relative humidity measurement. Based on a capacitive polymer sensing technology, this device offers signal conditioning and temperature compensation for a single SoC (Systemon-Chip) solution. The device is very simple to use, fully tested and calibrated for accuracy on delivery—no further calibration is needed. T9600 can be incorporated into an OEM solution to meet customer specifications. The measurement is accurate to ±2% from 20% to 80% RH and ±3% across the entire humidity range. Long term stability is excellent. The temperature accuracy is ±1°C from 0°C to +70°C. Dual outputs provide humidity and temperature as 0V to 1V, or available with digital output (the ZACwire one-wire interface).

## Accurate, Repeatable Humidity and Temperature Measurement

T9600 provides either analog or digital interfaces in a single package. The package is highly resistant to chemical vapors and other contaminants. T9600 sensors are precalibrated and offer high interchangeability. They also fully recover from condensing environments and may be used across a wide range of both temperature and relative humidity ranges.

T9600 relative humidity sensors change capacitance in direct proportion to ambient relative humidity. An internal solid-state band gap provides temperature measurement. This integral design reduces overall cost and complexity and improves reliability.
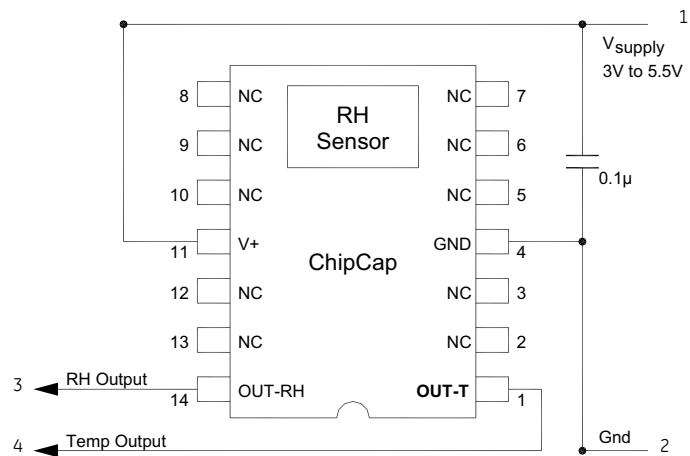
Small Package for OEM Assembly

T9600 contains the entire signal conditioning circuitry on a single silicon die. The sensor and circuitry are integrated into a small footprint package, ready for OEM integration.

Digital Interface
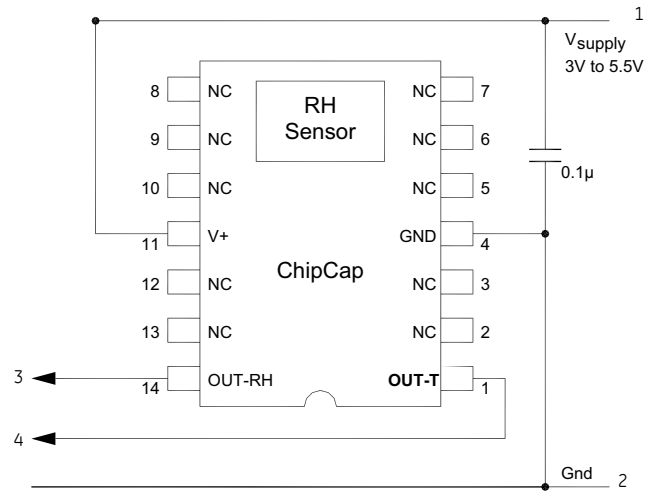
Analog Interface

Linear mode:
%RH = Vout * 100
Tc = Vout * 200 -50

T9600 Specifications

Relative Humidity

RH Sensor
Planar Capacitive Polymer

RH Range
0 to 100% RH

RH Accuracy @ 25°C
±2% from 20% to 80%
±3% from 0% to 20% and 80% to 100%

RH Resolution
0.4% RH

Temperature

Temperature Sensor
Integral band gap PTAT

Operating Temperature
-20°C to 80°C

Storage Temperature
-40°C to 80°C

Temperature Accuracy
±0.6°C at 25°C

Temperature Resolution
0.2°C

Power Supply

Voltage Supply
3 to 5.5 VDC

Current Consumption
500 microamps @ 5 VDC, 25°C

Reverse Polarity Protection
12.5 VDC — continuous with 100µA current
15 VDC — 60 seconds

Outputs

RH Voltage Output
(Linear, 0-1V, 0 - 100% RH)
$V_{out} = 0.01(RH)$

Temperature Voltage Output
(Linear, 0-1V, -50 to 150°C)
$V_{out} = (0.005T \ °C) + 0.25$

RH Digital Output
Manchester 8-bit encoded

Temperature Digital Output
Manchester 10-bit encoded

Warranty
1 year

Note: Manchester coding (also known as Phase Encoding, or PE) is a line code in which the encoding of each data bit has at least one transition and occupies the same time. It therefore has no DC component, and is self-clocking,

Environmental

Operating Temperature Range
-20°C to 80°C

Operating RH Range
0 to 100 % RH, non-condensing

Packaging

ESD
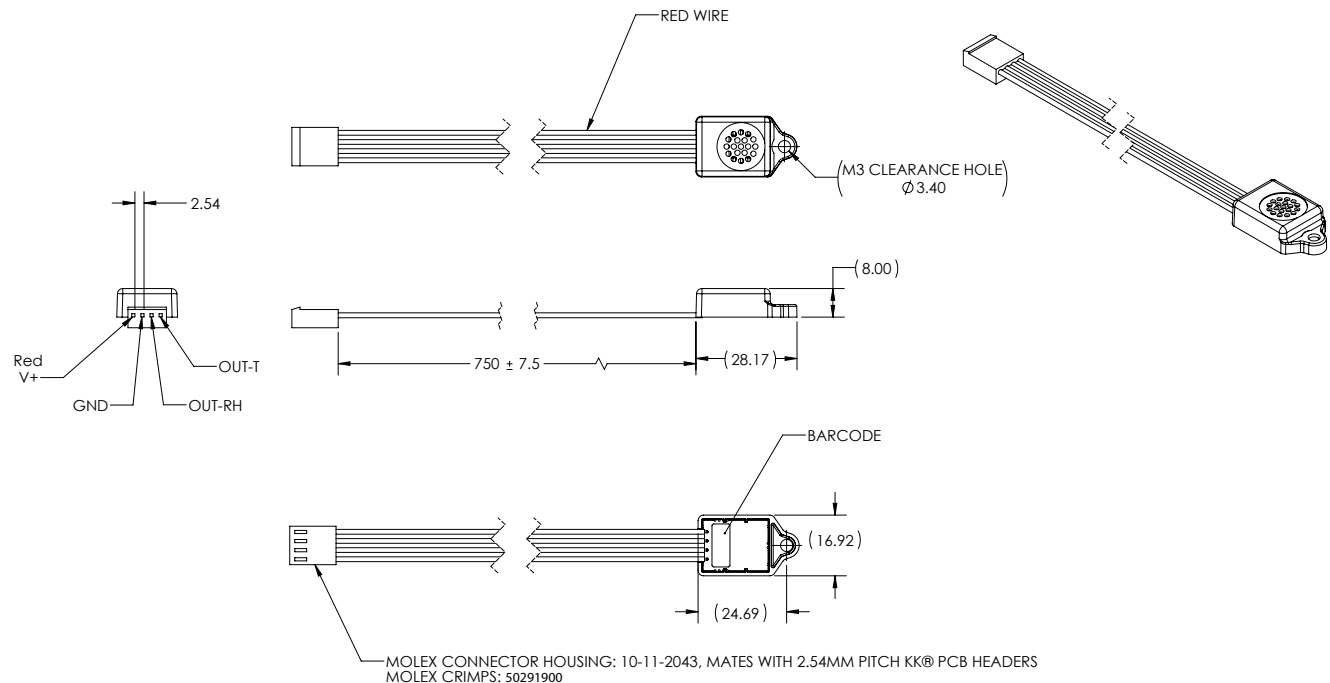Handle according to IPC-A-610C Standard

Flammability Rating
UL 94V-0 for enclosure and connector material
UL 1581 VW-1 for cable

Pin Connection
1   V+
2   GND
3   OUT - RH
4   OUT - T

Ordering Information

Model	Part Description
T9600-L	ChipCap RH and Temperature Sensor, 0-1VDC Linear Output
T9600-D	ChipCap RH and Temperature Sensor, Digital Output

Absolute Maximum Ratings					
Symbol	Parameter	Min.	Max.	Units	Notes
Vdd	DC Supply Voltage	-0.3	6	V	
Vio	Voltage at all Analog and Digital I/O pins	-0.3	Vdd + 0.3	V	
Ta	Ambient Temperature (operation)	-40	80	°C	
Tstrg	Storage Temperature	-40	80	°C	

Recommended Operation Conditions						
Symbol	Parameter	Min.	Typ.	Max.	Units	Notes
Vdd	Analog DC Supply	3	5	5.5	V	
Idd	Supply Current		550		µA	25°C
Vss	Analog Ground		0.0		V	
To	Ambient Temperature	-20	27	80	°C	
Cvdd	Included Capacitance between Vdd and Vss	100	220	470	nF	
C_{LD}	Digital Output Load (only capacitive, no resistive)			100	pF	
C_{LA}	Analog Output Load Capaictance			5	nF	
R_{LA}	Analog Output Load Resistance	5			KΩ	

RED WIRE

M3 CLEARANCE HOLE Ø 3.40

2.54

Red V+
GND
OUT-RH
OUT-T

(8.00)

750 ± 7.5

(28.17)

BARCODE

(16.92)

(24.69)

MOLEX CONNECTOR HOUSING: 10-11-2043, MATES WITH 2.54MM PITCH KK® PCB HEADERS
MOLEX CRIMPS: 50291900

Measurements in metric

www.ge-mcs.com

920-579A