HSM-20G HUMIDITY SENSOR MODULE

The module of HSM-20G is essential for those applications where the relative humidity can be converted to standard voltage output.

1. Applications

- ☼ **Humidifiers & dehumidifiers**

- ☼ **Air-conditioner**

- ☼ **Humidity data loggers**

- ☼ **Automotive climate control**

- ☼ **Other applications**

2.Specifications

Characteristics		HSM-20G
Input voltage range		**DC 5.0±0.2V**
Output voltage range		**DC 1.0—3.0 V**
Measurement Accuracy		**±5% RH**
Operating Current (Maximum)		**2mA**
Storage RH Range		**0 to 99% RH**
Operating RH Range		**20 to 95% (100% RH intermittent)**
Transient Condensation		**< 3%RH**
Temperature Range	**Storage**	**-20℃ to 70℃**
	Operating	**0℃ to 50℃**
Hysteresis (RH @ 25℃)		**MAX 2%RH**
Long Term Stability(typical drift per year)		**±1.5%**
Linearity		**Linearity**
Time Response(63% step change)		**1 min**
Dimensions(L*W)		**34mm*22mm**

3.Reliability Test

No	Item	Method	Requirment
1	Impact test	To drop module 3times at random on to a hard wooden plate from 1meter above high	No breakge, nor racks Should be electrically normal
2	Vibration test	Vibration test in X-Y-Z axis for 30min .under 10 – 55Hz frequency,1.5mm (10-55-10Hz)	Within ± 5%RH
3	Heat Resistance	To leave module in an ambient of 55℃ and 30%RH max. for 48hours.	Within ± 5%RH
4	Cool Resistance	To leave module in an ambient of-10℃ and 30%RH max. for 48hours.	Within ± 5%RH
5	Humidity Resistance	To leave in an ambient of 40℃ and 95%RH for 48hours.	Within ± 5%RH
6	Temperature cycle test	5cycles.1cycle stands for leaving module under -10℃ for next 1hour. Then ,leave it another 1hours ,and lower temp. to-10℃ for next 1hour.	Within ± 5%RH

Remark :

－ **All standard figures are based on humidity variation under 60%RH (at 25 ℃)**

－ **Upon completion of all test, module will be left over under nominal environment**

－ **And humidity for 24hours.**

4.Typical Response of HSM-20G at 25 ℃
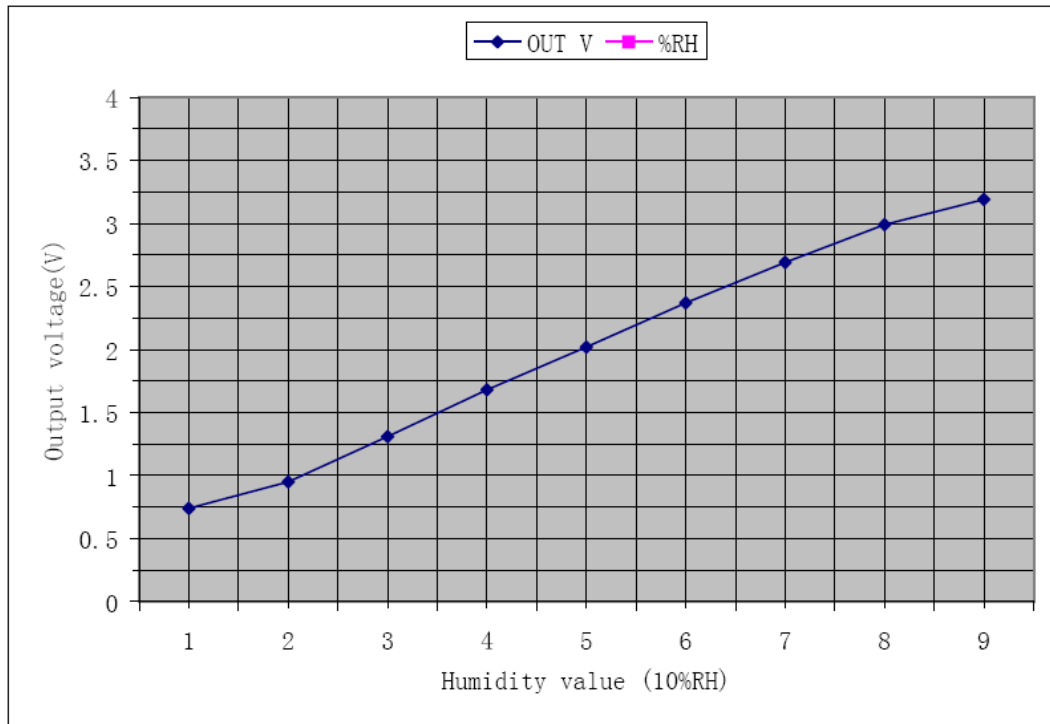
STANDARD CHARACTERISTICS

%RH	10	20	30	40	50	60	70	80	90
OutpotV	0.74	0.95	1.31	1.68	2.02	2.37	2.69	2.99	3.19

5. 0 Temperature Output Signal　（HSM——20G）

R(25℃) = 47kΩ ± 1%, B(25/85) = 4150 ± 1%

Temperature(℃)	0	10	20	25	30	40	50	60
Resistance(kΩ)	163.81	97.10	59.42	47.00	37.43	24.19	16.01	10.83

•Temperature Dependence (Reference)

± 5% RH(V in=5V DC, 40~80%RH,　Temp Range 10~40℃ (based on 25℃)

•Voltage Dependence (Reference)

± 5% RH(V in=5V DC, 40~80%RH,　Voltage Range 4.75~5.25V (based on 5V DC)
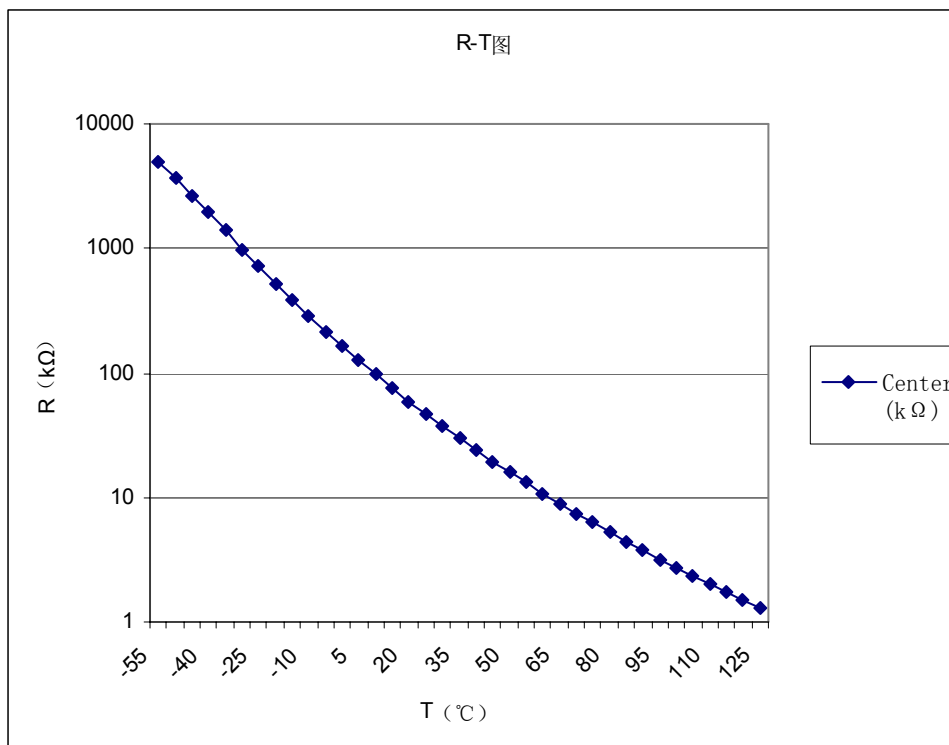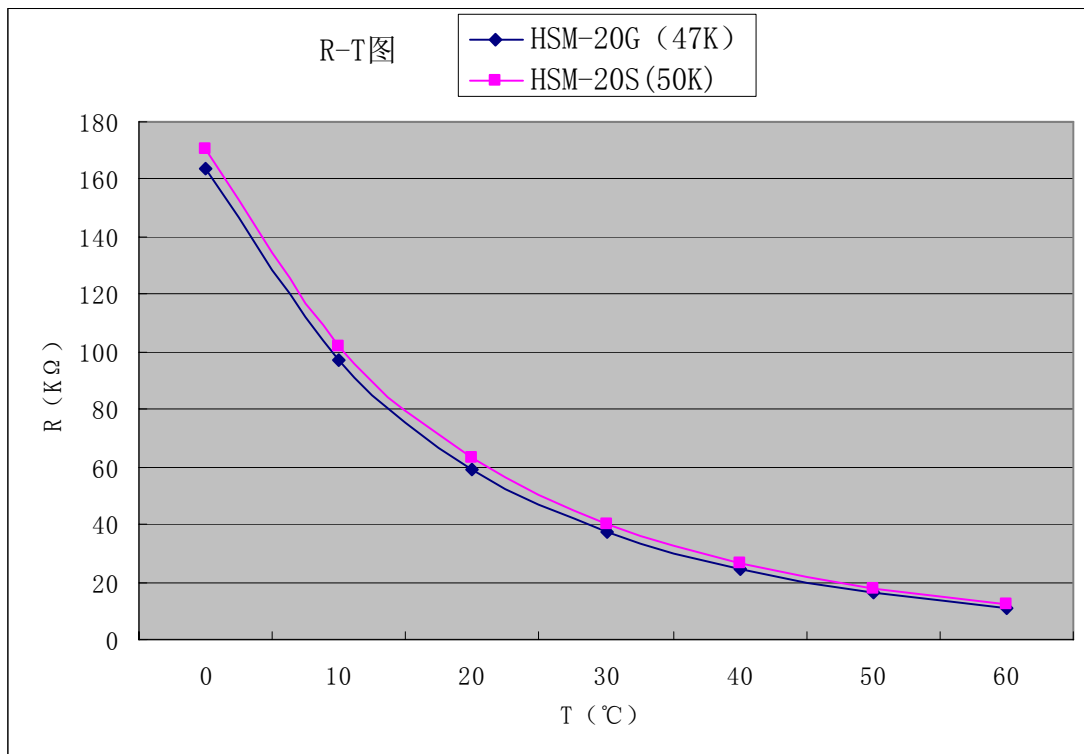
5.1 Temperature Output Signal （HSM——20G）

R(25℃) = 47kΩ ± 1%, B(25/85) = 4150 ± 1%

Temperature(℃)	0	10	20	25	30	40	50	60
Resistance(kΩ)	163.81	97.10	59.42	47.00	37.43	24.19	16.01	10.83

5. 2 Temperature Output Signal （HSM-20S）

R(25℃) = 50kΩ ± 1%, B(25/85) = 4000 ± 1%

Temperature(℃)	0	10	20	25	30	40	50	60
Resistance(kΩ)	170.70	101.78	62.86	50.00	40.08	26.30	17.71	12.21

6.Dimensions(For Reference only)
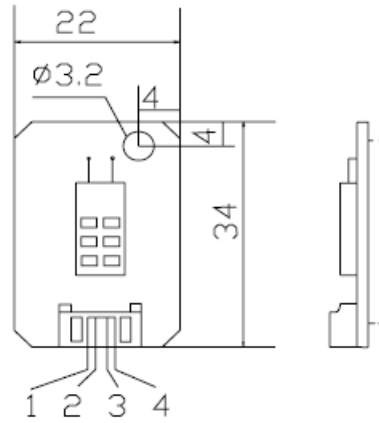
Pin	Function
1	Temperature Output
2	GND
3	Humidity Output
4	Vcc (+5.0V)

7. Recommended Circuit