1 Application range

This application is applied to the Humidity Sensor Type HCZ-J2

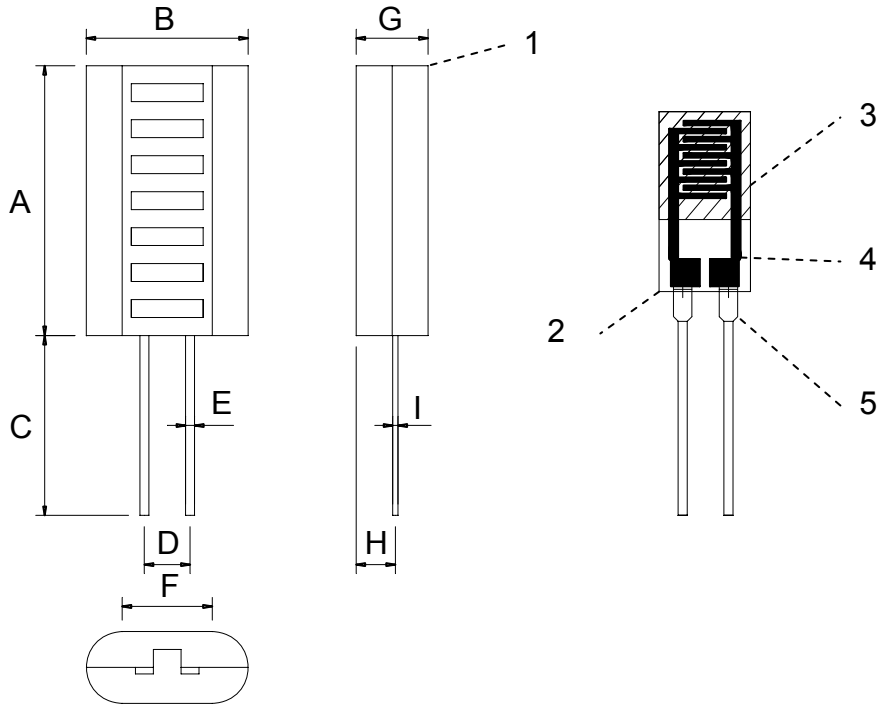
2 Model no.

HCZ - J2 A

- A: With(A) / without(B) housing package each pieces
- J2: Dip type humidity sensor, J : ±5%RH
- HCZ: Product type

3 Configuration & main parts

3.1 Configuration



Units : mm

Symbol	Specification	Symbol	Specification
A	15	F	5
B	9	G	4
C	12 ± 2	H	2
D	2.5	I	0.25
E	0.5		

3.2 Main parts

No.	Parts	Reference
1	Sensor case	ABS
2	Substrate	Alumina
3	Sensing material	Polymer
4	Electrode	Ag/Carbon
5	Lead frame	Copper

4 Electrical characteristics

4.1 General Characteristics

	Units	Min.	Typ.	Max.
Rated voltage	Vrms	-	1	-
Rated power	mA	-	-	0.2
Operating frequency range	kHz	0.5	1	2
Operating temperature range	℃	0	-	60
Operating humidity range	%RH	-	-	90
Impedance range at 60%RH and 25℃**	kΩ	15	-	38
Humidity accuracy	%RH	-5	-	+5
Hysteresis (40%RH~80%RH)	%RH	-	-	2
Temperature dependence(reference)	%RH/℃	-	0.6	-

** Measurement by LCR meter at 1KHz, 1 Vrms(sine wave)

4.2 Relative humidity - Impedance – 25℃, 1kHz, 1 Vrms(sine wave)

%RH	20	30	40	50	60	70	80	90
Normal value (kΩ)	4,200	1,000	230	66	23	9.6	4.4	2.1

4.3 Relative humidity - Impedance curve is shown in page 5

5 Mechanical characteristics

No.	Item	Description	Criteria*
5.1	Shock resistance	Drop down 3 times@75cm	No abnormal appearance & electrical properties
5.2	Vibration resistance	2 hours each in the directions of X-Y-Z, at the frequency of 10-55Hz, and amplitude of 1.5mm	No abnormal appearance & electrical properties
5.3	Resistance to soldering heat	The lead terminal shall be Immersed by 3 mm from the substrate for 3 seconds in solder bath of 260±5℃	No abnormal appearance & electrical properties
5.4	Strength of terminations	500g@10 seconds in the axial direction of lead terminal	Secured

6 Reliability

No.	Item	Description	Criteria*
6.1	Heat resistance	1000 hours@70℃	< ±5%RH
6.2	Cool resistance	1000 hours@-30℃	< ±5%RH
6.3	Humidity resistance	1000 hours@40℃, 90%RH	< ±5%RH
6.4	Humidity cycle	Repeat 500 cycles One cycle: 30 minutes@25℃, <30%RH 30 minutes@25℃, >90%RH	< ±5%RH
6.5	Temperature cycle	Repeat 100 cycles Each cycle: 30 minutes@-30℃ 30 minutes@85℃	< ±5%RH
6.6	Voltage resistance	3000 hours@1KHz, 1Vrms	< ±5%RH

* The criteria test that the sensors finish the description process after over night under normal temperature and humidity. The test condition is fixed at 25℃, 60%RH by LCR meter at 1KHz, 1 Vrms(sine wave)

7 Packaging

7.1 HCZ-J2A

7.1.1 245 pieces of sensor to be packed in a tray.

7.1.2 10,000 pieces packed in a shipping carton box (430*360*390mm).

7.1.3 In case of fractional package, the above bag and carton box may not be used.

7.2 HCZ-J2B

7.2.1 100 pieces of sensor to be packed in a bag.

7.2.2 10,000 pieces packed in a shipping carton box (430*360*390mm).

7.2.3 In case of fractional package, the above bag and carton box may not be used.

8 Caution remarks on operation

8.1 To avoid direct application of DC voltage on humidity sensor.

8.2 To protect sensor from dewfall and drenching.

8.3 To avoid any operation of humidity sensors in the following environmental ambient.

8.3.1 Salt

8.3.2 Inorganic gas – Sulfide dioxide, Chlorine, Ammonia etc.

8.3.3 Organic gas – Alcoholic, Glycols, Aldehydes etc.

8.4 Recommended storage condition

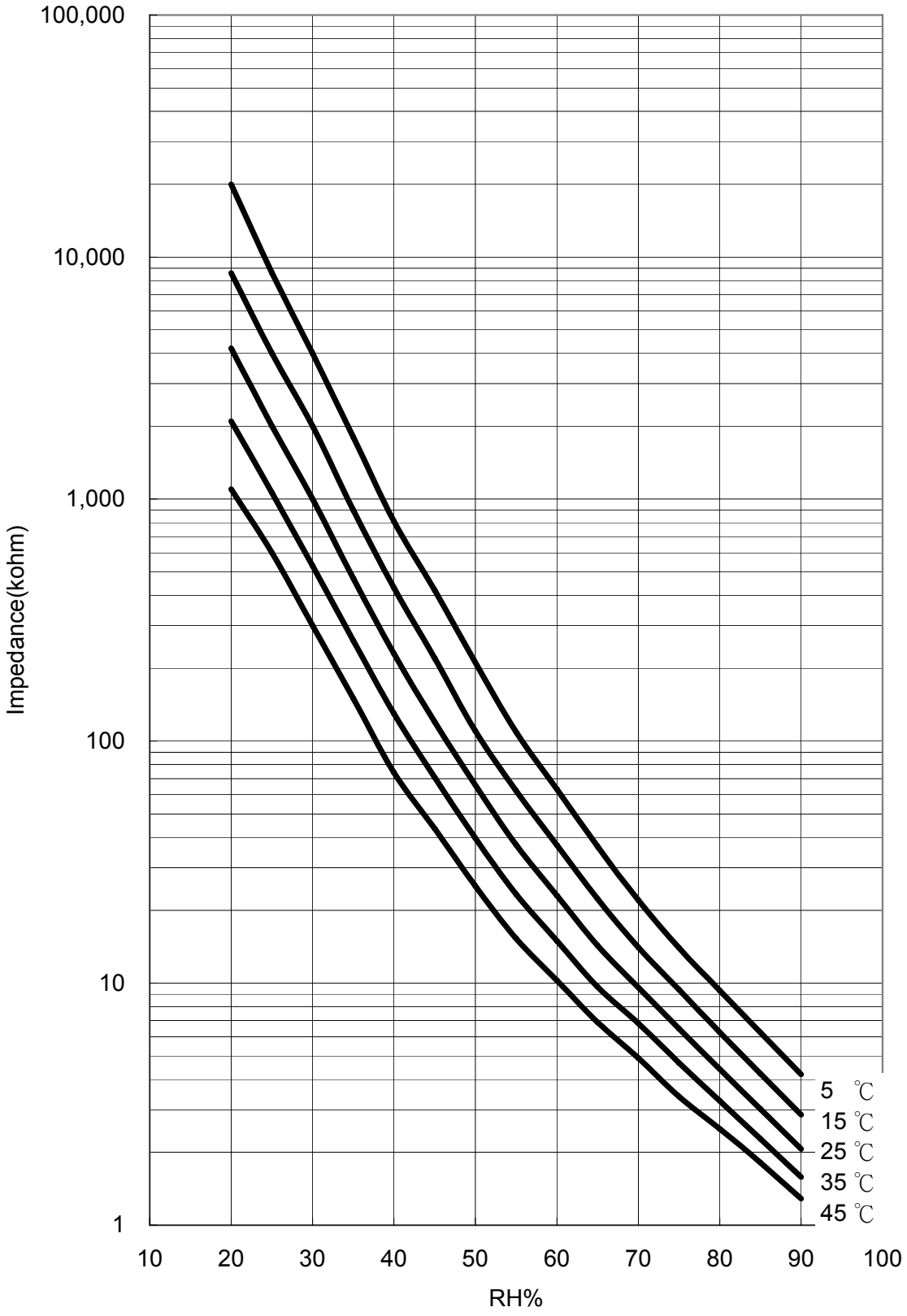
Temperature range 10~40℃

Humidity range 90%RH or less

8.5 Do not store humidity sensors long period of time in an over 60%RH ambient due to some occasion of degradation on sensor housing case.

REFERENCES

- Relative humidity - Impedance curve – measured at 1kHz, 1 Vrms(sine wave)



PRODUCT SPECIFICATIONS

HCZ-J2

Impedance -- %RH VS. Temperature

Unit:KΩ

RH%	5℃	10℃	15℃	20℃	25℃	30℃	35℃	40℃	45℃	50℃
20	20M	14M	8600	6000	4200	3000	2100	1500	1100	900
25	8600	6000	4000	2800	2000	1500	1060	800	600	450
30	4000	2800	2000	1400	1000	710	530	390	300	230
35	1800	1300	900	650	470	350	260	200	150	110
40	810	600	430	310	230	170	130	96	74	61
45	420	300	220	160	120	90	71	55	43	35
50	211	150	110	83	66	51	40	31	25	20
55	109	83	62	48	37	29	23	19	15	13
60	63	48	37	29	23	18	15	12	10.3	8.7
65	37	28	22	18	14	12	10	8.1	6.9	5.9
70	22	17	14	12	9.6	8.0	6.8	5.8	4.9	4.3
75	14	12	9.4	7.8	6.5	5.5	4.7	4.1	3.4	3.0
80	9.3	7.6	6.3	5.2	4.4	3.8	3.3	2.9	2.5	2.2
85	6.3	5.1	4.2	3.5	3.0	2.6	2.3	2.0	1.8	1.6
90	4.2	3.4	2.9	2.4	2.1	1.8	1.6	1.4	1.3	1.2

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