RH(T)1-WU
Humidity & Temp Sensor

Characteristics of Sensor

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Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
V_{DD}	Positive supply		4.75	5	5.25	V
V_{RH}	Output voltage	%RH = 55%		2.47		V
V_T[2]		T=25°C		2.10		V
I_{DD}	Operating Current			3		mA

Pin assignment

RH1-WU

RHT1-WU

Pin description RH1

Pin	Pin Name	Color	Pin Type	Description	Connector
1	VRH	Yellow	Output	Relative humidity output	TE-917688 (2.5 mm SIGNAL DBL-LOCK 4P PLUG HSG) Mating part: • PCB Mount Header: TE-917724 (2.5 mm SIGNAL DBL-LOCK 4P POST HEADER ASS'Y) • Wire-to-Wire: TE-316088 (2.5 mm SIGNAL DBL LOCK 4P POST CAP HSG.)
2	NC		Unconnected	Unconnected pin	
3	VDD	Red	Supply	Power voltage	
4	GND	Black	Supply	Ground supply voltage	

Pin description RHT1

Pin	Pin Name	Color	Pin Type	Description	Connector
1	VRH	Yellow	Output	Relative humidity output	TE-917688 (2.5 mm SIGNAL DBL-LOCK 4P PLUG HSG) Mating part: • PCB Mount Header: TE-917724 (2.5 mm SIGNAL DBL-LOCK 4P POST HEADER ASS'Y) • Wire-to-Wire: TE-316088 (2.5 mm SIGNAL DBL LOCK 4P POST CAP HSG.)
2	VT	Brown	Output	Temperature output	
3	VDD	Red	Supply	Power voltage	
4	GND	Black	Supply	Ground supply voltage	

Specifications

Relative humidity and temperature specifications						
Symbol	**Parameter**	**Condition**	**Min**	**Typ**	**Max**	**Unit**
Humidity						
H_{RANGE}	Relative humidity range		0		100	%RH
H_{ACC}	Relative humidity accuracy	T= 25°C; RH= 10% to 80%		±3		%RH
H_{REP}	Humidity repeatability	T= -40°C to 85°C		±0.1		%RH
H_{HYS}	Relative humidity hysteresis			±1		%RH
H_{RESP-S}	Relative humidity response sensitivity			26		mV/%RH
Temperature						
T_{RANGE}	Temperature range		-40		85	°C
T_{ACC}	Temperature accuracy	T= -40°C to 85°C		±0.3		°C
T_{REP}	Temperature repeatability	T= -40°C to 85°C		±0.1		°C
T_{HYS}	Temperature hysteresis			±0.5		°C
T_{RESP-S}	Temperature response sensitivity			26		mV/°C

Absolute maximum ratings

Absolute maximum ratings					
Symbol	**Parameter**	**Min**	**Max**	**Unit**	**Comments**
Electrical Parameters					
V_{DD}	Supply Voltage	-0.30	5.25	V	
I_{SCR}	Input Current (latch-up immunity)	-50	+50	mA	
Electrostatic Discharge					
ESD_{HBM}	Electrostatic Discharge HBM	±4000		V	JEDEC JS-001
ESD_{CDM}	Electrostatic Discharge CDM	±750		V	JEDEC JS-002
Operating and Storage Conditions					
MSL	Moisture Sensitivity Level	1			Maximum floor lifetime is unlimited
T_{STRG}[3]	Storage Temperature	-40	+85	°C	
T_{AMB}	Operating Ambient Temperature	-40	+85	°C	
$T_{LIFETIME}$	Sensor lifetime	10		Years	Under typical operating conditions

Relative humidity output lookup table
If V_{DD} = 5V

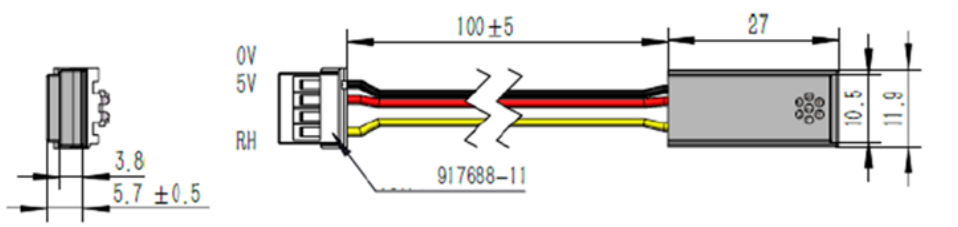
RH (%)	V_{RH} (mV)	RH (%)	V_{RH} (mV)	RH (%)	V_{RH} (mV)	RH (%)	V_{RH} (mV)	RH (%)	V_{RH} (mV)
1	1012	**21**	1552	**41**	2092	**61**	2632	**81**	3172
2	1039	**22**	1579	**42**	2119	**62**	2659	**82**	3199
3	1066	**23**	1606	**43**	2146	**63**	2686	**83**	3226
4	1093	**24**	1633	**44**	2173	**64**	2713	**84**	3253
5	1120	**25**	1660	**45**	2200	**65**	2740	**85**	3280
6	1147	**26**	1687	**46**	2227	**66**	2767	**86**	3307
7	1174	**27**	1714	**47**	2254	**67**	2794	**87**	3334
8	1201	**28**	1741	**48**	2281	**68**	2821	**88**	3361
9	1228	**29**	1768	**49**	2308	**69**	2848	**89**	3388
10	1255	**30**	1795	**50**	2335	**70**	2875	**90**	3415
11	1282	**31**	1822	**51**	2362	**71**	2902	**91**	3442
12	1309	**32**	1849	**52**	2389	**72**	2929	**92**	3469
13	1336	**33**	1876	**53**	2416	**73**	2956	**93**	3496
14	1363	**34**	1903	**54**	2443	**74**	2983	**94**	3523
15	1390	**35**	1930	**55**	2470	**75**	3010	**95**	3550
16	1417	**36**	1957	**56**	2497	**76**	3037	**96**	3577
17	1444	**37**	1984	**57**	2524	**77**	3064	**97**	3604
18	1471	**38**	2011	**58**	2551	**78**	3091	**98**	3631
19	1498	**39**	2038	**59**	2578	**79**	3118	**99**	3658
20	1525	**40**	2065	**60**	2605	**80**	3145	**100**	3685

Temperature output lookup table
If V_{DD} = 5V

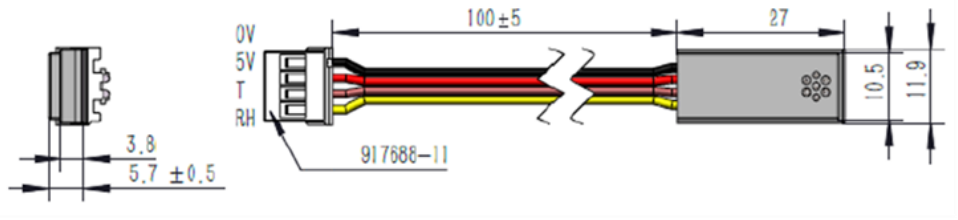
T (°C)	V_T (mV)	T (°C)	V_T (mV)	T (°C)	V_T (mV)	T (°C)	V_T (mV)	T (°C)	V_T (mV)
1	1551	**21**	2009	**41**	2466	**61**	2923	**81**	3380
2	1574	**22**	2031	**42**	2489	**62**	2946	**82**	3403
3	1597	**23**	2054	**43**	2511	**63**	2969	**83**	3426
4	1620	**24**	2077	**44**	2534	**64**	2991	**84**	3449
5	1643	**25**	2100	**45**	2557	**65**	3014	**85**	3471
6	1666	**26**	2123	**46**	2580	**66**	3037	**86**	3494
7	1689	**27**	2146	**47**	2603	**67**	3060	**87**	3517
8	1711	**28**	2169	**48**	2626	**68**	3083	**88**	3540
9	1734	**29**	2191	**49**	2649	**69**	3106	**89**	3563
10	1757	**30**	2214	**50**	2669	**70**	3129	**90**	3586
11	1780	**31**	2237	**51**	2694	**71**	3151	**91**	3609
12	1803	**32**	2260	**52**	2717	**72**	3174	**92**	3631
13	1826	**33**	2283	**53**	2740	**73**	3197	**93**	3654
14	1849	**34**	2306	**54**	2763	**74**	3220	**94**	3677
15	1871	**35**	2329	**55**	2786	**75**	3243	**95**	3700
16	1894	**36**	2351	**56**	2809	**76**	3266	**96**	3723
17	1917	**37**	2374	**57**	2831	**77**	3289	**97**	3746
18	1940	**38**	2397	**58**	2854	**78**	3311	**98**	3769
19	1963	**39**	2420	**59**	2877	**79**	3334	**99**	3791
20	1986	**40**	2443	**60**	2900	**80**	3357	**100**	3814

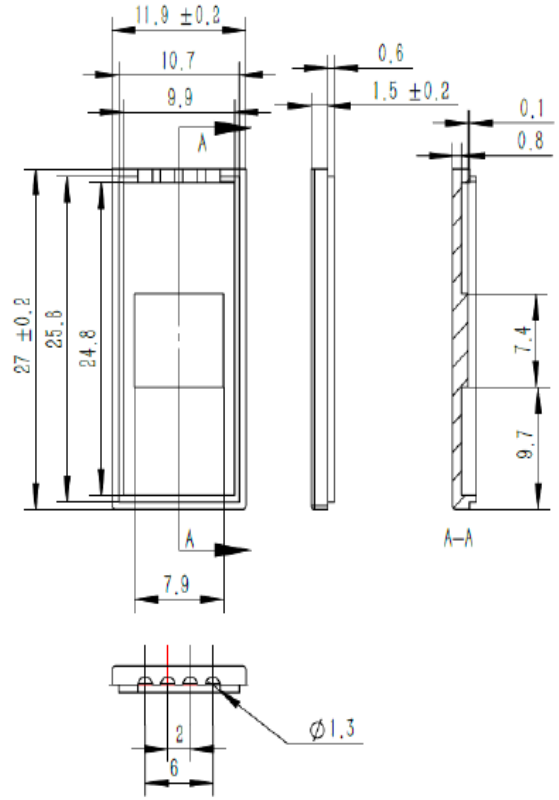
Mechanical dimension

RH1-WU



RHT1-WU





Relative humidity accuracy