Vishay BCcomponents

NTC Thermistors, Miniature Immersion Sensor



ADDITIONAL RESOURCES





QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C	10K	Ω
Tolerance on R ₂₅ -value	± 3	%
B _{25/85} -value	3984	K
Tolerance on B _{25/85} -value	± 0.5	%
Operating temperature range at zero dissipation	-25 to +105	°C
Response time t 63.2 % of ΔT (air 25 °C to water 85 °C)	1.5	S
Dissipation factor δ		
Mounted in still air	2.8	mW/K
In still water	5.6	
Maximum power dissipation at 55 °C	100	mW
Min. dielectric withstanding voltage between terminals and capsule (10 s)	500	V _{AC}
Insulation resistance at 500 V _{DC}	> 100M	Ω
Thermal gradient	< 0.02	K/K
Weight	2.1	g

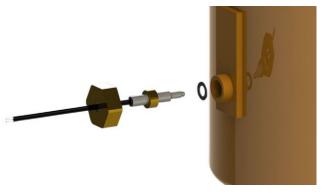
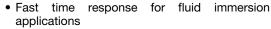


Fig. 1 - Mounting example with sealing ring and screw

FEATURES





 Reduced thermal gradient, due to the use of small tip dimensions and thin insulated wire



Sensor for permanent contact with water or other liquids

RoHS

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

Immersion sensor used for temperature measurement, sensing and control in:

- · Water boilers
- · Heating systems
- Chiller systems
- Water and used water systems
- · Water and oil tanks
- · Consumer appliances, coffee machines
- Industrial appliances
- · Solar heating systems

DESCRIPTION

Miniature insulated chip NTC thermistor mounted in a SS304 housing with or without brass collar for sealed mounting and twin PVC insulated AWG#30 lead wire connection.

MOUNTING

- The sensor can be mounted by means of a sealing O-ring and screw
- The end wire can be soldered, or crimped to a connector
- Optional connector for Wire-to-Wire or Wire-to-Board connections
- The contact area with the liquid is preferably min 10 mm down from the tip and max to the brass collar location (see Fig. 1 for mounting example)
- Not intended for corrosive or high acidic liquids
- The epoxy lead-wire side can not be in permanent contact with liquids, or water

PACKAGING

Available in plastic bags of 250 pieces.

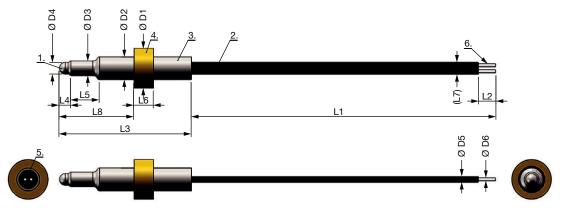
DESIGN-IN SUPPORT

- Other resistance curves and tolerances are available on request
- Consult Vishay for other lead length or connector options
- For complete RT curve computation, visit: www.vishay.com/thermistors/ntc-curve-list/
- · Available in high grade stainless steel SS316

ELECTRI	ELECTRICAL DATA AND ORDERING INFORMATION								
R ₂₅ (Ω)	R ₂₅ -TOL. (%)	B _{25/85} (K)	B _{25/85} -TOL. (± %)	DESCRIPTION	SAP MATERIAL AND ORDERING NUMBER				
10 000	± 3	3984	0.5	NTC Immersion 10K 3 % 3984K 0.5 %	NTCAIMME3C90373				
10 000	± 3	3984	0.5	NTC 10K 3 % 3984K 0.5 % no ring	NTCAIMME3C90686				

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DIMENSIONS in millimeters



L1	L2	L3	L4	L5	L6	L7	L8	Ø D1	Ø D2	Ø D3	Ø D4	Ø D5	Ø D6
200 ± 20	4 ± 1	23 ± 0.5	2 ± 0.5	5 ± 0.5	3.4 ± 0.2	2.05	13 ± 0.5	6.8 ± 0.1	3.9 ± 0.1	2.5 ± 0.2	2 ± 0.2	1	0.3

Notes

- 1. Vishay Thermistor chip NTC, epoxy insulated 2. PVC cable, single insulated 105 °C, 300 V rated, AWG#30 multi-stranded twin
- 3. Stainless steel (SS304) housing
- 4. Brass collar (not present on the NTCAIMME3C90686 type)
- 5. Epoxy potting resin
- 6. Pre-tinned end wire stripped

For complete Curve Computation, visit: www.vishay.com/thermistors/ntc-curve-list/

TEMP.	D /D	RESISTANCE	∆R/R	α	ΔT	R _{MIN.}	R _{MAX.}
(°C)	$R_{(T)}/R_{25}$	(Ω)	(%)	(%/K)	(K)	(Ω)	(Ω)
-25	12.990	129 900	4.39	-5.99	0.73	124 202	135 598
-20	9.676	96 761	4.22	-5.79	0.73	92 675	100 848
-15	7.276	72 765	4.07	-5.61	0.73	69 806	75 723
-10	5.522	55 218	3.92	-5.43	0.72	53 056	57 380
-5	4.227	42 268	3.77	-5.26	0.72	40 674	43 861
0	3.262	32 624	3.63	-5.10	0.71	31 440	33 808
5	2.538	25 381	3.49	-4.94	0.71	24 494	26 268
10	1.990	19 897	3.36	-4.80	0.70	19 227	20 566
15	1.571	15 711	3.24	-4.65	0.70	15 202	16 220
20	1.249	12 493	3.12	-4.52	0.69	12 103	12 882
25	1.000	10 000	3.00	-4.39	0.68	9700.0	10 300
30	0.8056	8056.0	3.11	-4.26	0.73	7805.1	8306.8
35	0.6530	6529.7	3.22	-4.14	0.78	6319.3	6740.2
40	0.5324	5323.9	3.33	-4.03	0.83	5146.6	5501.1
45	0.4365	4365.3	3.43	-3.92	0.88	4215.4	4515.1
50	0.3599	3598.7	3.53	-3.81	0.93	3471.6	3725.8
55	0.2982	2982.3	3.63	-3.71	0.98	2874.0	3090.5
60	0.2484	2483.8	3.72	-3.61	1.03	2391.3	2576.3
65	0.2079	2078.7	3.81	-3.51	1.09	1999.4	2157.9
70	0.1748	1747.7	3.90	-3.42	1.14	1679.5	1815.9
75	0.1476	1475.9	3.99	-3.34	1.20	1417.1	1534.8
80	0.1252	1251.8	4.07	-3.25	1.25	1200.8	1302.8
85	0.1066	1066.1	4.15	-3.17	1.31	1021.8	1110.4
90	0.09116	911.59	4.23	-3.09	1.37	873.01	950.16
95	0.07825	782.46	4.31	-3.02	1.43	748.75	816.17
100	0.06741	674.11	4.38	-2.94	1.49	644.56	703.66
105	0.05828	582.84	4.46	-2.87	1.55	556.87	608.82



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