NTC Thermistors, Miniature Immersion Sensor

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 % (25 °C to water 85 °C)	1.5	s
Dissipation factor δ Mounted in still air In still water	 2.8 5.6	 mW/K
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
Climatic category (LCT/UCT/days)	25/105/56	-
Weight	2.1	g

Note
- Other R_{25} values and tolerances available upon request

FEATURES

- Fast time response for fluid immersion applications
- Reduced thermal gradient, due to the use of small tip dimensions and thin isulated wire
- Sensor for permanent contact with water or other liquids
- Compliant to RoHS Directive 2002/95/EC

RoHS COMPLIANT

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 stainless steel housing with brass collar for sealed mounting and twin PVC isulated 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 with liquid should stay below the brass collar (see Fig. 1 for mounting example)
- Not intended for corrosive or high acidic liquids

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25}-VALUE (kΩ)	R_{25}-TOL. (%)	$B_{25/85}$-VALUE (K)	$B_{25/85}$-TOL. (± %)	SAP MATERIAL NUMBER	DESCRIPTION	R/T TABLE
10	± 3	3984	0.5	NTCAIMME3C90373	NTC Immersion 10K 3 % 3984K 0.5 %	Table 1

Note
- Ordering information can be found on: www.vishay.com/doc?33036

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
- 3D solid models: www.vishay.com/doc?29106
- NTC curve computation: www.vishay.com/resistors-non-linear/ntc-curve-list/

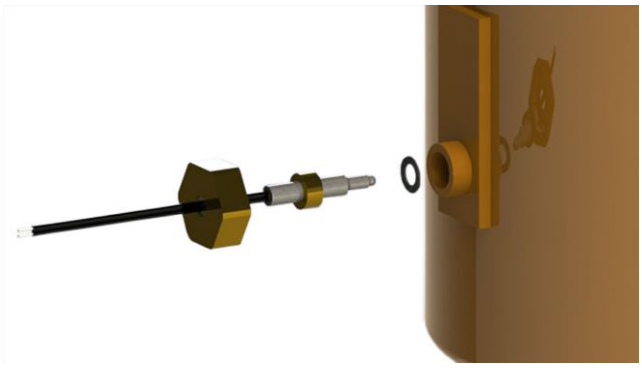

Fig. 1 - Mounting example with sealing ring and screw.

For technical questions, contact: nlr@vishay.com

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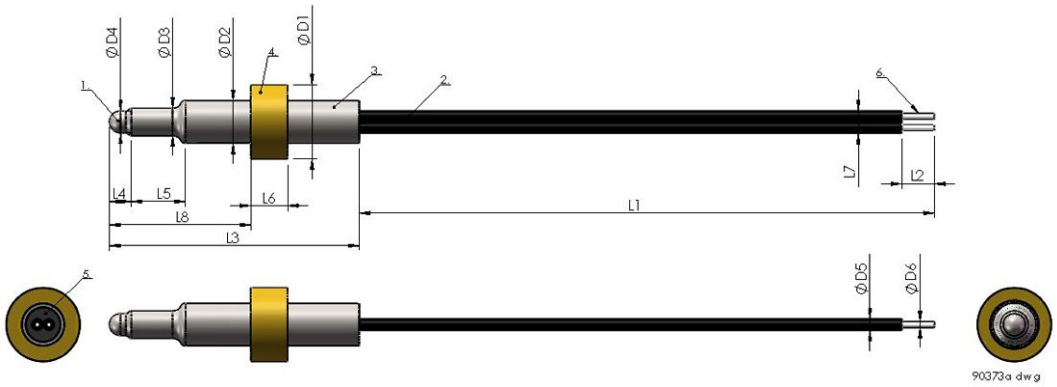
DIMENSIONS in millimeters



L1	L2	L3	L4	L5	L6	L7	L8	Ø D1	Ø D2	Ø D3	Ø D4	Ø D5	Ø D6
200 ± 20	4	23	2	5	3.4	2.05	13	6.8 + 0/- 0.1	3.9 ± 0.1	2.5	2	1	0.3

Notes

(1) Vishay Thermistor chip NTC, isulated
(2) PVC cable, single insulated 105 °C, 300 V rated, Awg #30 multi-stranded twin
(3) Stainless steel housing
(4) Brass collar
(5) Epoxy potting resin
(6) Pre-tinned end wire stripped

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

RESISTANCE TEMPERATURE CHARACTERISTICS

TEMP. (°C)	$R_{(T)}/R_{25}$	RESISTANCE (Ω)	$\Delta R/R$ (%)	α (%/K)	ΔT (K)	$R_{MIN.}$ (Ω)	$R_{MAX.}$ (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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