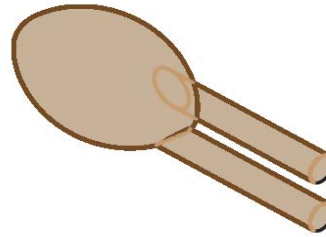




Graphic
enlarged
for
detail

TCS620

20 kΩ NTC Bead Head Thermistor



TCS620 NTC THERMISTOR

GENERAL DESCRIPTION:

These ±1% thermistors are conformally coated, two-lead thermistors for applications where embedding the thermistor is required. The coating is baked on phenolic for durability and long term stability. They have solid nickel wires with Teflon® insulation to provide isolation when assembled in metal housings.

FEATURES:

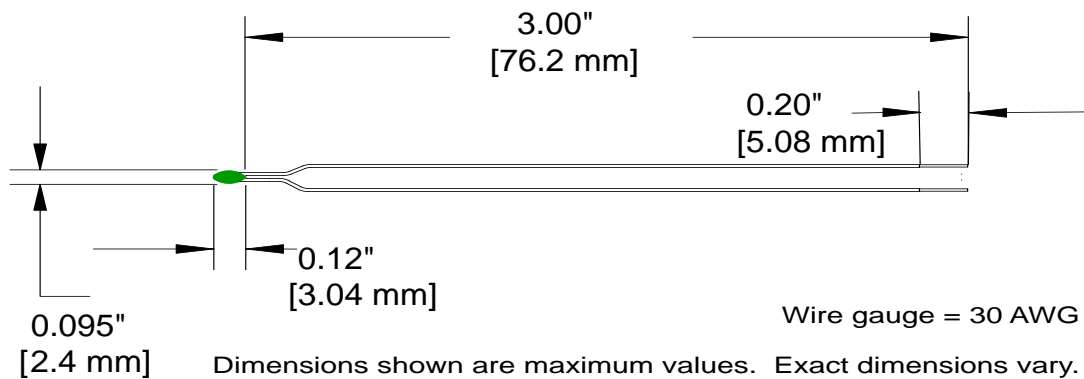
- Low Cost
- Small Size -- Conformally Coated
- Wide Resistance Range
- Available in 5 Different R-T Curves
- 1% Tolerance
- 3" Long Solid Nickel Wire Leads
- Teflon® Insulation Provides Isolation from Metal Housing
- RoHS Compliant (by exemption)

Thermal Resistance or Dissipation Constant is 2-3 mW/°C.

Thermal Time Constant is 6-14 seconds.

Thermistor Selection Guide			
MODEL	R @ 25°C	10 μA RANGE	100 μA RANGE
TCS605	5 kΩ	-55 to -2°C	-20 to +33°C
TCS610	10 kΩ	-45 to +13°C	-8 to +50°C
TCS10K5	10 kΩ	-45 to +13°C	-8 to +50°C
TCS620	20 kΩ	-35 to +28°C	+6 to +69°C
TCS650	50 kΩ	-18 to +49°C	+25 to +92°C
TCS651	100 kΩ	-6 to +67°C	+41 to +114°C

Figure 1
Dimensions



RESISTANCE VERSUS TEMPERATURE RESPONSE

TCS620 20 kΩ THERMISTOR @ 25°C

10 μA TEMPERATURE RANGE: -35 to +28°C

100 μA TEMPERATURE RANGE: +6 to +69°C

TEMP (°C)	R _T (Ω)	VOLT (V) (10 μA)	VOLT (V) (100 μA)	TEMP (°C)	R _T (Ω)	VOLT (V) (10 μA)	VOLT (V) (100 μA)	TEMP (°C)	R _T (Ω)	VOLT (V) (10 μA)	VOLT (V) (100 μA)
-35	486200	4.862		0	65320	0.653		35	13062		1.306
-34	456000	4.560		1	62080	0.620		36	12534		1.253
-33	427800	4.278		2	59020	0.590		37	12030		1.203
-32	401600	4.016		3	56120	0.561		38	11548		1.154
-31	377200	3.772		4	53380	0.533		39	11090		1.109
-30	354400	3.544		5	50800	0.508		40	10652		1.065
-29	333000	3.330		6	48360	0.483	4.836	41	10232		1.023
-28	313200	3.132		7	46040	0.460	4.604	42	9832		0.983
-27	294600	2.946		8	43840	0.438	4.384	43	9450		0.945
-26	277200	2.772		9	41780	0.417	4.178	44	9086		0.908
-25	261000	2.610		10	39800	0.398	3.980	45	8736		0.873
-24	245800	2.458		11	37940	0.379	3.794	46	8402		0.840
-23	231600	2.316		12	36180	0.361	3.618	47	8082		0.808
-22	218400	2.184		13	34520	0.345	3.452	48	7776		0.777
-21	206000	2.060		14	32940	0.329	3.294	49	7484		0.748
-20	194260	1.942		15	31420	0.314	3.142	50	7204		0.720
-19	183320	1.833		16	30000	0.300	3.000	51	6936		0.693
-18	173080	1.730		17	28640	0.286	2.864	52	6680		0.668
-17	163460	1.634		18	27360	0.273	2.736	53	6434		0.643
-16	154440	1.544		19	26140	0.261	2.614	54	6198		0.619
-15	145960	1.459		20	24980	0.249	2.498	55	5974		0.597
-14	138000	1.380		21	23880	0.238	2.388	56	5756		0.575
-13	130520	1.305		22	22840	0.228	2.284	57	5550		0.555
-12	123500	1.235		23	21840	0.218	2.184	58	5350		0.535
-11	116900	1.169		24	20900	0.209	2.090	59	5160		0.516
-10	110680	1.106		25	20000	0.200	2.000	60	4978		0.497
-9	104840	1.048		26	19144	0.191	1.914	61	4802		0.480
-8	99340	0.993		27	18330	0.183	1.833	62	4634		0.463
-7	94160	0.941		28	17554	0.175	1.755	63	4472		0.447
-6	89280	0.892		29	16816		1.681	64	4316		0.431
-5	84680	0.846		30	16112		1.611	65	4168		0.416
-4	80340	0.803		31	15442		1.544	66	4024		0.402
-3	76240	0.762		32	14804		1.480	67	3888		0.388
-2	72400	0.724		33	14196		1.419	68	3756		0.375
-1	68760	0.687		34	13616		1.361	69	3628		0.362

You can approximate the response of a thermistor with the Steinhart-Hart Equation. The A, B, and C values listed below apply to the following equation. The coefficients are optimized for the ranges covered by the reference currents.

$$\frac{1}{T} = A + B \times \ln R + C \times (\ln R)^3,$$

where R is in ohms and T is in Kelvin.

Steinhart-Hart Coefficients

10 μA RANGE		100 μA RANGE	
A	9.7142E-04	A	9.6542E-04
B	2.3268E-04	B	2.3356E-04
C	8.0591E-08	C	7.7781E-08

CERTIFICATION:

Wavelength Electronics (Wavelength) certifies that this product met it's published specifications at the time of shipment. Wavelength further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by that organization's calibration facilities, and to the calibration facilities of other International Standards Organization members.

WARRANTY:

This Wavelength product is warranted against defects in materials and workmanship for a period of one (1) year from date of shipment. During the warranty period, Wavelength will, at its option, either repair or replace products which prove to be defective.

WARRANTY SERVICE:

For warranty service or repair, this product must be returned to the factory. An RMA is required for products returned to Wavelength for warranty service. The Buyer shall prepay shipping charges to Wavelength and Wavelength shall pay shipping charges to return the product to the Buyer upon determination of defective materials or workmanship. However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to Wavelength from another country.

LIMITATIONS OF WARRANTY:

The warranty shall not apply to defects resulting from improper use or misuse of the product or operation outside published specifications.

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EXCLUSIVE REMEDIES:

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REVISION HISTORY		
REVISION	DATE	NOTES
REV. A	16-Jun-08	Added technical detail per customer request
REV. B	25-Sep-09	Updated to reflect RoHS compliance
REV. C	4-Feb-11	Updated dimensions in Figure 1
REV. D	30-Aug-13	Added wire gauge and extended warranty