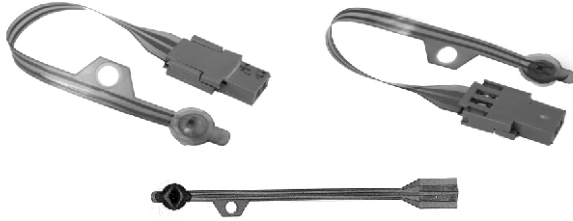


## NTC Thermistors, Flex Foil Sensors



QUICK REFERENCE DATA	
PARAMETER	VALUE
Resistance value at 25 °C	47 kΩ
Tolerance on $R_{25}$ value	± 3 %
$B_{25/85}$ value	3960K
Tolerance on $B_{25/85}$ value	± 1 %
Operating temperature range at zero power	- 40 °C to 125 °C
Climatic category (IEC 60539)	40/125/56
Thermal time constant on heating <sup>(1)</sup>	2 s
Minimum dielectric withstanding voltage	500 V <sub>AC</sub>
Minimum insulation resistance	10 MΩ
Maximum dissipation at 25 °C	60 mW
Weight (without connector)	0.13 g
Weight (with connector)	0.53 g

**Note**

- Measured from 25 °C air to 125 °C heated plate, pressed on the surface

**DESIGNER'S OPTIONS**

- The sensor can be delivered with a FFC/FPC connector
- The connector termination can be tin or gold plated
- Other dimensions and various shapes of the flex circuit are available on request
- A 3D solid model is available on request

**Note**

- FFC/FPC = Flexible Film Circuit/Flexible Printed Circuit

ELECTRICAL DATA AND ORDERING INFORMATION						
$R_{25}$ VALUE (kΩ)	$R_{25}$ TOL. (%)	$B_{25/85}$ VALUE (K)	$B_{25/85}$ TOL. (%)	SAP MATERIAL NO.	DESCRIPTION	R/T TABLE
47	3	3960	1	NTCAFLEX01473HH	NTC Flex 47K 3 %	Table 1
47	3	3960	1	NTCAFLEX01473HHC	NTC Flex 47K 3 % Connector	Table 1

**FEATURES**

- Rapid response time
- Suitable for narrow space applications
- High flexibility of the foil
- Insulated and humidity resistant
- A strain relief hole is included in the flex design to avoid traction to the sensor head
- e3 - Sn
- Compliant to RoHS directive 2002/95/EC



RoHS COMPLIANT

**APPLICATIONS**

- Consumer appliances and white goods
- Power supply (aluminum fins)
- Battery, displays
- Industrial applications
- Boilers

**DESCRIPTION**

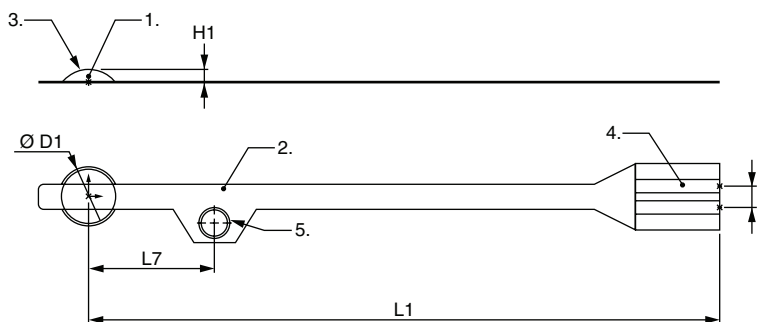
- Miniature NTC temperature sensor on flex foil, insulated used for temperature sensing and control
- Surface temperature sensor with low thermal mass and rapid response time on surface

**MOUNTING**

- The sensor head can be pressed on the surface with means of insulating material (silicone foam) or spring
- The sensor head can also be glued with a double-face temperature resistant adhesive
- The sensor end can be connected to PCB counter-connector or wire-to-wire connector or soldered to conductors, or crimped with FFC connectors
- The strain relief hole can allow a screw mounting, or be included within a melted plastic pin
- Remark: The response time and thermal gradient are dependant of the application and of the way of mounting the sensor in place

SAP CODIFICATION																
Part Number: NTCAFLEX01473HH																
	N	T	C	A	F	L	E	X	0	1	4	7	3	H	H	
MODEL	ASSEMBLY	FLEX SENSOR	MECHANICAL EXECUTION	RESISTANCE VALUE	TOLERANCE ON $R_{25}$	B-VALUE RANGE		CONNECTOR OPTION								
NTC	A	FLEX	01	473 = $47 \times 10^3 \Omega$	H = $\pm 3\%$	L (low) = $3000 \leq B_{25/85} < 3500$ M (medium) = $3500 \leq B_{25/85} < 3750$ H (high) = $3750 \leq B_{25/85} < 4000$ X (very high) = $4000 \leq B_{25/85} < 4250$		Blank = No connector C = With connector tin plated								

## MECHANICAL DATA



DIMENSIONS in millimeters			
L1	L7	Ø D1	H1
75 ± 1	15 ± 1	7 ± 0.5	1.55 ± 0.2

1. NTC SMD soldered on flex foil circuit
2. Flex foil circuit
3. High quality modified epoxy glob top
4. Conductive tracks
5. Hole for strain relief

## REFERENCE

Connector 2 positions, 2.54 mm (0.1").

The connector mates with industry standard headers or wire-to-wire connectors.

**R/T TABLE 1**

$R_{25}$ VALUE (k $\Omega$ )	$R_{25}$ TOL. (%)	$B_{25/85}$ VALUE (K)	$B_{25/85}$ TOL. (%)	SAP MATERIAL NO.
47	3	3960	1	NTCAFLEX01473HH
47	3	3960	1	NTCAFLEX01473HHC

TEMP. (°C)	$R(T)/R_{25}$	RESISTANCE ( $\Omega$ )	$\Delta R/R$ (%)	$\alpha$ (%/K)	$\Delta T$ (K)	$R_{min.}$ ( $\Omega$ )	$R_{max.}$ ( $\Omega$ )
-40	34.97	1 643 693	10.80	- 6.85	1.58	1 466 123	1 821 262
-35	25.00	1 174 859	10.04	- 6.59	1.52	1 056 912	1 292 806
-30	18.09	850 461	9.31	- 6.34	1.47	771 290	929 633
-25	13.26	623 018	8.61	- 6.11	1.41	569 370	676 666
-20	9.82	461 557	7.94	- 5.89	1.35	424 898	498 216
-15	7.35	345 583	7.30	- 5.69	1.28	320 350	370 816
-10	5.56	261 354	6.69	- 5.49	1.22	243 877	278 831
-5	4.25	199 536	6.10	- 5.31	1.15	187 370	211 702
0	3.27	153 714	5.53	- 5.13	1.08	145 213	162 215
5	2.54	119 427	4.99	- 4.97	1.00	113 473	125 381
10	1.99	93 541	4.46	- 4.81	0.93	89 369	97 714
15	1.57	73 832	3.96	- 4.66	0.85	70 911	76 752
20	1.25	58 703	3.47	- 4.52	0.77	56 666	60 739
25	1.00	47 000	3.00	- 4.38	0.69	45 590	48 410
30	0.81	37 881	3.23	- 4.25	0.76	36 659	39 103
35	0.65	30 726	3.45	- 4.13	0.84	29 667	31 784
40	0.53	25 073	3.66	- 4.01	0.91	24 156	25 990
45	0.44	20 579	3.86	- 3.89	0.99	19 784	21 374
50	0.36	16 984	4.06	- 3.79	1.07	16 294	17 674
55	0.30	14 092	4.26	- 3.68	1.16	13 492	14 692
60	0.25	11 751	4.44	- 3.58	1.24	11 229	12 274
65	0.21	9848	4.63	- 3.49	1.33	9392	10 303
70	0.18	8291	4.80	- 3.40	1.41	7893	8689
75	0.15	7011	4.97	- 3.31	1.50	6663	7360
80	0.13	5955	5.14	- 3.22	1.59	5649	6261
85	0.11	5079	5.30	- 3.14	1.69	4809	5348
90	0.09	4349	5.62	- 3.07	1.83	4104	4593
95	0.08	3738	5.93	- 2.99	1.98	3516	3960
100	0.07	3225	6.23	- 2.92	2.14	3024	3426
105	0.06	2792	6.53	- 2.85	2.29	2610	2974
110	0.05	2425	6.82	- 2.78	2.45	2260	2591
115	0.04	2114	7.10	- 2.72	2.61	1964	2264
120	0.04	1848	7.37	- 2.65	2.78	1712	1985
125	0.03	1621	7.64	- 2.59	2.95	1497	1745



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