

## Vishay BCcomponents

# **NTC Thermistors, Flex Foil Sensors**



## **DESIGN SUPPORT TOOLS** click logo to get started





 NTC curve computation: <u>www.vishay.com/thermistors/ntc-curve-list/</u>

QUICK REFERENCE DATA					
PARAMETER	VALUE	UNIT			
Resistance value at 25 °C	10K to 122K	Ω			
Tolerance on R <sub>25</sub> -value	± 1; ± 3	%			
B <sub>25/85</sub> -value	3435 to 3960	K			
Tolerance on B <sub>25/85</sub> -value	± 1	%			
Operating temperature range at zero power	-40 to +125	°C			
Thermal time constant by heating (1) (3)	2	s			
Thermal gradient (3)	< 0.02	K/K			
Minimum dielectric withstanding voltage (2)	500	V <sub>AC</sub>			
Minimum insulation resistance	10	МΩ			
Maximum dissipation at 25 °C	60	mW			
Weight (without connector)	0.06	g			

### Notes

- (1) Measured from 25 °C air to 125 °C heated plate, pressed on the surface
- (2) Withstanding voltage up to 4 kV<sub>AC</sub> between the NTC and the bottom stiffener
- (3) Thermal time constant and thermal gradient are dependent on the way of mounting

### **FEATURES**

- · Rapid response time on surface down to 2 s
- 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



RoHS

- Gold plated terminations
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### **APPLICATIONS**

- · Consumer appliances and white goods
- Power supply (heat-sinks)
- Battery, displays, LED
- Industrial applications, robotics
- Boilers
- EV and HV batteries

#### **DESCRIPTION**

- Miniature NTC thermistor body mounted on an insulated flex foil and topped with an insulating epoxy glob top
- For flat surface temperature sensing with low thermal mass and rapid response time

### **MOUNTING**

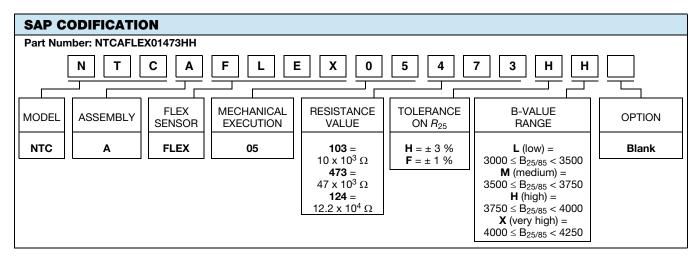
- The stiff flat sensing area can be pressed against a flat surface by means of insulating material (silicone foam), by spring force or by taping it with a double sided temperature resistant adhesive
- The sensor contacts can be connected to a PCB counter-connector or wire-to-wire connector or soldered to conductors, or crimped with FFC connectors and ZiF connectors
- A mating connector can be for example a 0.5 mm pitch 7 poles connector for FPC, with top contacts, accepting 4 mm FPC width, ZIF or non-ZIF versions. The poles (1 + 2) and (6 + 7) can be used for the electrical connection. For example in SMT versions: TE 1734839-7, Hirose FH34S-7S-0,5SH(50), Molex 054550-0771, Molex 052745-0797
- Consult Vishay for other screw sizes, lead length, insulation, connector crimping or other features

#### Note

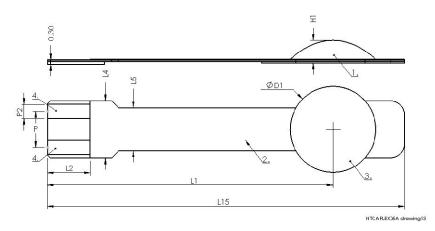
• FFC/FPC = Flexible Film Circuit/Flexible Printed Circuit

ELECTRICAL DATA AND ORDERING INFORMATION					
<b>R</b> <sub>25</sub> (Ω)	R <sub>25</sub> -TOL. (± %)	B <sub>25/85</sub> (K)	B <sub>25/85</sub> -TOL (± %)	DESCRIPTION	SAP MATERIAL AND ORDERING NUMBER
10 000	1	3435	1	NTC Flex05 10K 1 % 3435K 25 mm	NTCAFLEX05103FL
10 000	3	3960	1	NTC Flex05 10K 3 % 3960K 25 mm	NTCAFLEX05103HH
47 000	3	3960	1	NTC Flex05 47K 3 % 3960K 25 mm	NTCAFLEX05473HH
122 000	1	3590	1	NTC Flex05 122K 1 % 3590 K 25 mm	NTCAFLEX05124FM

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## **MECHANICAL DATA**



DIMENSIONS in millimeters								
L1	L15	L2	Ø D1	L4	L5	H1	Р	P2
20 ± 1	25 ± 1	3 ± 0.5	6 ± 0.5	4 ± 1	3 ± 1	1.40 ± 0.2	2.50	1

- 1. NTC on flex foil circuit, sensing area on the flat bottom side
- 2. Flex foil circuit
- 3. High quality modified epoxy glob top
- 4. Conductive tracks, gold plated

RELIABILITY TEST (following IEC 60068 test methods)				
TEST	PROCEDURE	REQUIREMENT		
Dry heat, steady state	125 °C; 1000 h	Δ <i>R</i> / <i>R</i> ≤ 3 %		
Damp heat, steady state	56 days at 40 °C 90 % to 95 % RH	Δ <i>R</i> / <i>R</i> ≤ 3 %		
Rapid change of temperature	-40 °C to +125 °C; 100 cycles	ΔR/R ≤ 3 %		



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