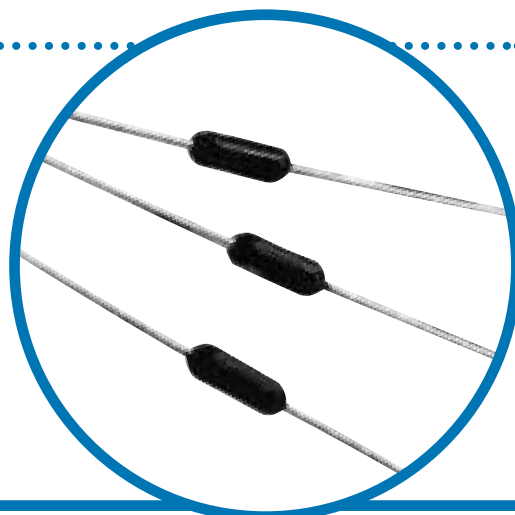


Nickel Film Temperature Sensor

TD4 Series

- Good long term stability
- Rugged construction
- Extremely economic solution



Electrical Data

TD4		Actual			
Temperature range	°C	-55 to 155			
Resistance Range	ohms	20R to 1K			
Alpha	R ₂₅ = 100 ohms	6000			
	R ₂₅ = 1000 ohms	5850			
Standard value	ohms	100			
Tolerance	@25°C	±°C	1.0	2.0	4.0
	Tolerance Codes		D	F	G
Interchangeability	@25°C	±°C	1.0	2.0	4.0
	@100		2.6	3.8	6.1
Self Heating (in air)	mW/°C	0.12			
Recommended measuring current	mA	1			
Time constant (time to reach 50% of 10°C, in stirred water)	secs	0.4			
Insulation resistance	ohms	>1G			

Note: Product can be calibrated at the factory, at extra cost

Resistance vs Temperature

Resistance ohms	Temperature °C	Resistance ohms	Temperature °C
66.6	-50	118.1	60
70.6	-40	123.6	70
74.8	-30	129.2	80
79.1	-20	135.0	90
83.5	-10	140.9	100
88.0	0	146.9	110
92.7	10	153.0	120
97.5	20	159.3	130
100	25	165.7	140
102.5	30	172.2	150
107.6	40		
112.8	50		

Resistance v temperature for 100Ω sensor

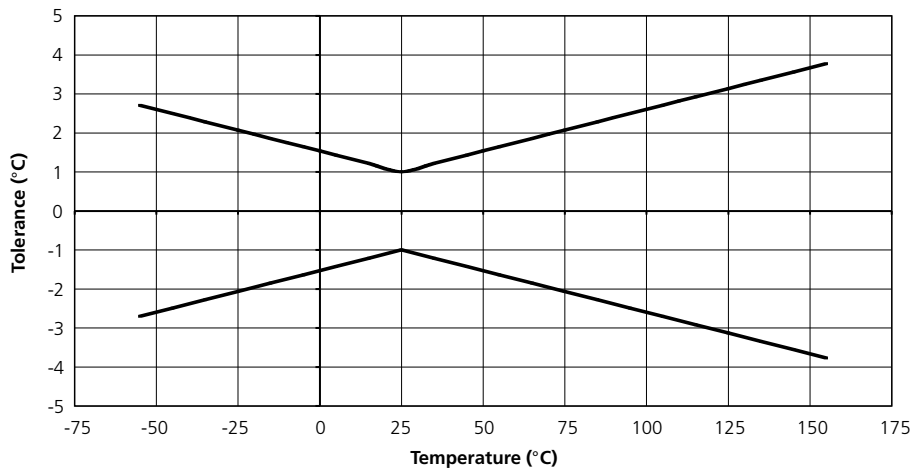
Definitions

R	=	$R_0 (1 + At + Bt^2)$
a	=	$\frac{10000 (R_0 - R_{100})}{R_0 \text{ (ppm/°C)}}$
R ₀	:	Resistance at 0°C
R ₁₀₀	:	Resistance at 100°C
t	:	Temperature
Constants:		
A	=	0.005247
B	=	0.00000753
R ₀	=	88.0

General Note

TT electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT electronics' own data and is considered accurate at time of going to print.

TD4 tolerance vs temperature



Performance Data for R0 = 100ohms

			Actual Performance
Long term stability (1000hrs @ 155°C)	Resistance @ 25°C	%	0.18
	Equivalent to	°C	0.4
Thermal shock (10 cycles -55°C to 155°C)	Resistance @ 25°C	%	0.02
	Equivalent to	°C	0.04

Physical Data

Dimensions (mm) & Weight (g)								
	L max	D max	f min	d nom	PCB mounting centre	Min Bend Radius	Wt. nom	
TD4	7.2	2.5	30	0.6	10.2	0.6	0.24	

Construction

A nickel film is deposited onto a high quality ceramic rod.

Nickel-plated steel caps are force fitted to the rod and termination wires are welded to the caps.

A laser is used to adjust the resistance value of the sensor by cutting a helix into the film. The body is protected with a high purity organic coating.

Terminations

Material Solder-coated copper wire

Strength The terminations meet the requirements of IEC 68.2.21

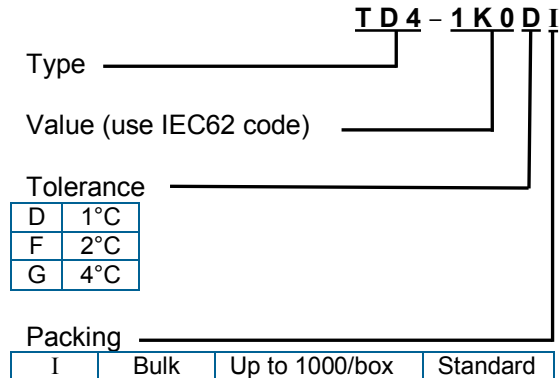
Solderability The terminations meet the requirements of IEC 115-1 Clause 4.17.3.2

Marking

TD4: Type reference, resistance and tolerance code.

Ordering Procedure

Example: TD4 at 1 kilohm and 1°C tolerance bulk packed in a box of up to 1000 pieces –



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