



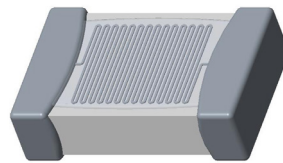
# P\_K\_.0805.2ST.\_ Platinum thin film RTD

## For the automatic assembling on PCBs

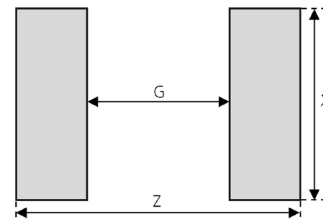
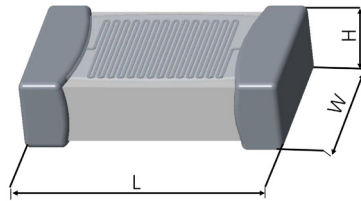
### Benefits & Characteristics

- Excellent long-term stability and thermal cycling
- Low self-heating
- Automatic assembly in large-volume applications

### Product image



### Illustration<sup>1)</sup>



### Dimensions

Dimensions in mm	<b>L</b>	<b>W</b>	<b>H</b>
	2.0 ± 0.15	1.25 ± 0.15	0.5 ± 0.1
Land pattern in mm	<b>Z</b>	<b>G</b>	<b>X</b>
	2.70	1.10	1.40

### Technical Data

#### Electrical Specifications

Temperature range	-50 °C to +150 °C (see general notes 1.1)	
Nominal resistance	100 Ω at 0 °C, 500 Ω at 0 °C, 1000 Ω at 0 °C	
Characteristic	IEC 60751	
Tolerance class (dependent on temperature range)		IST AG reference
	IEC 60751 F0.15	A
	IEC 60751 F0.3	B
	IEC 60751 F0.6	C
Temperature coefficient	3850 ppm/K	
Temperature dependence of resistivity	according to IEC 60751:	
	-50 °C to 0 °C $R(T) = R_0 \times (1 + AxT + BxT^2 + Cx[T-100] \times T^3)$	
	0 to +150 °C $R(T) = R_0 \times (1 + AxT + BxT^2)$	
	A = 3.9083 × 10 <sup>-3</sup> × °C <sup>-1</sup>	
	B = -5.775 × 10 <sup>-7</sup> × °C <sup>-2</sup>	
	C = -4.183 × 10 <sup>-12</sup> × °C <sup>-4</sup>	
	R <sub>0</sub> = resistance value in Ω at 0°C	
	T = temperature in accordance with ITS90	



## General Specifications

Pads (soldering connection)	Soft-Termination galvanic tin plated with nickel barrier layer		
Soldering (according to J-STD-002E) see general notes 1.3	1. Solderability: Test A and A1 2. Resistance to soldering heat: Test A and A1		
Measuring current (Self-heating has to be considered)	Pt 100 1 mA	Pt 500 0.5 mA	Pt 1000 0.3 mA
Long-term stability:	< 0.04 % at 1000 h at 130 °C		
Taping & Packaging	EIA-481 (for dimensions see general notes 1.2)		
Storage Property	12 months (original packaging and dry conditions)		
REACH + RoHs Compliance	Yes		
Special	Use in dry environment only		

## General notes

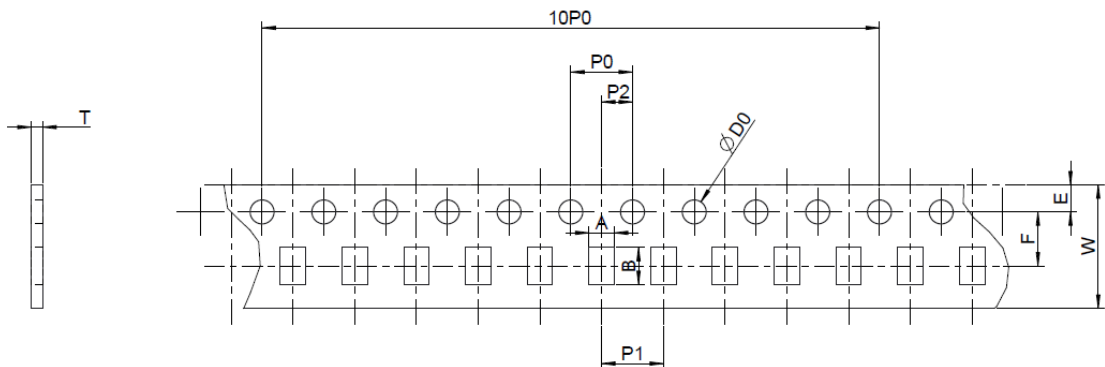
1.1 The thermal coefficient of expansion of the circuit board has to be considered

1.2. IEC60751 tolerances (F0.15, F0.3 and F0.6) are classified by one temperature measurement. Temperature coefficient of SMD sensor is random sample determined in the measuring bath while the sensors were face-up soldered on a PCB board.

Accuracy, self-heating and response time might vary depending on the mounting method (e.g. face-down soldering or wire bonding), and the measuring conditions.

Furthermore, thermal expansion coefficient of the PCB must be considered within the operation temperature range, since it influences the accuracy level.

1.3 Taping and Packaging:



Item	A	B	W	E	F	P0	P1	P2	D0	T	10P0
<b>Dimension</b>	1.65	2.4	8.0	1.75	3.5	4.0	4.0	2.0	1.55	0.75	40.0
<b>min. Tol.</b>	-0.05	-0.05	-0.1	-0.05	-0.05	-0.1	-0.1	-0.05	-0.05	-0.03	-0.1
<b>max. Tol.</b>	0.05	0.05	0.1	0.05	0.05	0.1	0.1	0.05	0.05	0.03	0.1

Dimensions in mm.

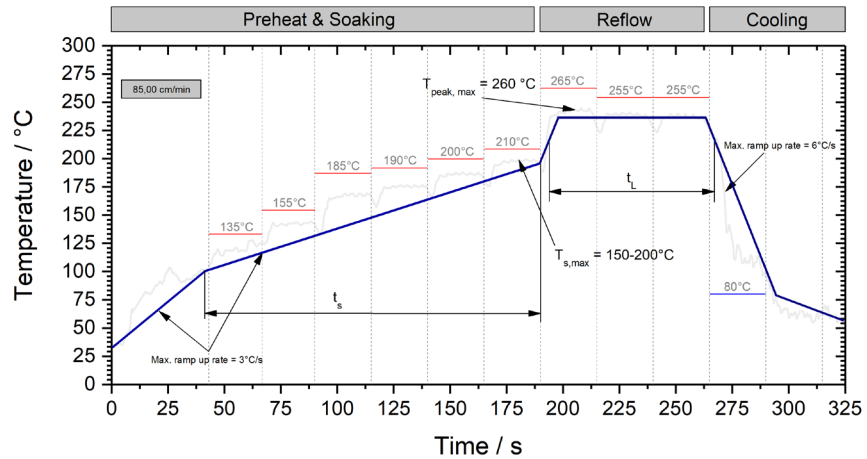
Packaging unit in tape and reel, special variants, small quantities or other packaging unit are available on request.



### 1.4 Soldering and Reflow profile

For soldering IST AG recommends lead-free solder paste (Material: SnAgCu 96.5/3.0/0.5) and a temperature characteristic (reflow profile) for reflow soldering according to JEDEC J-STD-002E. The solderability was tested with following assembly conditions:

PCB Material: FR4 (PCB Layer: 2)  
 PCB thickness: 1.6 mm  
 Dimensions: 72 x 32 mm  
 Solder Paste: KOKI „S3X58-M406“ (Pb-free assembly)



Profile parameter	Temperature range / °C	Heating rate / °C / s	Time / s
Ramp to preheat	RT to 150	1.9 - 3	
Preaheat /Soak	$T_{s,min} = 100, T_{s,max} = 200$	1.9 - 3	$t_{s,min} = 60, t_{s,max} = 160$
Ramp to Peak	180 - 255	0.6	
Reflow	$250 \pm 5, T_{peak,max} = 260$		60 to 120, $t_{peak,max} = 30$
Cooling	255 - RT	1.6 - 3	

### 1.5 Important notes:

- The solder or additional fluxes should be halogen-free, mild, and non-activated.
- After soldering, a thorough cleaning with pH-neutral defluxing material is recommended.
- The profile has a significant impact on the solder joint performance, i.e. solderability, wettability and strength.
- The soak profile and all other data serve as a guideline and cannot be regarded as binding statements or guaranteed values. They serve as a starting point for process development. Specifically, a high mix of components or large board sizes might require the development of a different soldering profile.
- Long-term stability in the application and chemical resistance need to be approved by the customer.
- The customer must test and approve the suitability of IST AG sensors in the customer's application.



## Order Information

Description	Tolerance class	Packaging type	Order number
Other tolerances, values of resistance are available on request			
<b>Nominal resistance: 100 Ω at 0 °C</b>			
P0K1.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped only (sensor side up), no reel	156779
P0K1.0805.2ST.A	IEC 60751 F0.15 (A)	packed in bags	150043
P0K1.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side up)	150034
P0K1.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side down)	150044
P0K1.0805.2ST.B	IEC 60751 F0.3 (B)	packed in bags	152441
P0K1.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side up)	150035
P0K1.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side down)	152446
P0K1.0805.2ST.C	IEC 60751 F0.6 (C)	packed in bags	152445
P0K1.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side up)	150036
P0K1.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side down)	102022
<b>Nominal resistance: 500 Ω at 0 °C</b>			
P0K5.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped only (sensor side up), no reel	156780
P0K5.0805.2ST.A	IEC 60751 F0.15 (A)	packed in bags	150045
P0K5.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side up)	150040
P0K5.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side down)	150048
P0K5.0805.2ST.B	IEC 60751 F0.3 (B)	packed in bags	150046
P0K5.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side up)	150041
P0K5.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side down)	150049
P0K5.0805.2ST.C	IEC 60751 F0.6 (C)	packed in bags	150047
P0K5.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side up)	150042
P0K5.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side down)	150050
<b>Nominal resistance: 1000 Ω at 0 °C</b>			
P1K0.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped only (sensor side up), no reel	156781
P1K0.0805.2ST.A	IEC 60751 F0.15 (A)	packed in bags	150028
P1K0.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side up)	150037
P1K0.0805.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side down)	150029
P1K0.0805.2ST.B	IEC 60751 F0.3 (B)	packed in bags	101865
P1K0.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side up)	150038
P1K0.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side down)	102023
P1K0.0805.2ST.B.S	IEC 60751 F0.3 (B)	taped only, sensor side up (not on reel)	150078
P1K0.0805.2ST.C	IEC 60751 F0.6 (C)	packed in bags	102020
P1K0.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side up)	150039
P1K0.0805.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side down)	102024



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