Innovative Sensor Technology
physical. chemical. biological.

P_K_.0603.2ST._

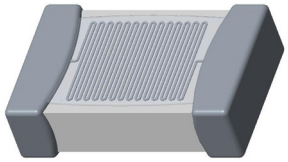
Platinum thin film RTD

For the automatic assembling on PCBs

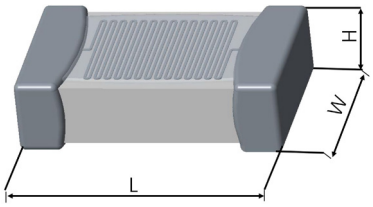
Benefits & Characteristics

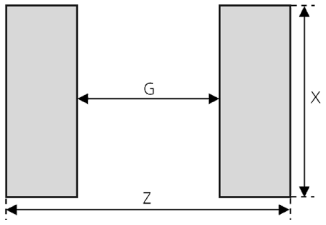
- Excellent long-term stability and thermal cycling
- Low self-heating
- Automatic assembly in large-volume applications

Product image



Illustration[1)]





Dimensions

Dimensions in mm	L	W	H
	1.6 ± 0.15	0.8 ± 0.15	0.5 ±0.1
Land pattern in mm	Z	G	X
	2.30	0.80	0.93

Technical Data

Electrical Specifications

Temperature range	-50 °C to +150 °C (see general notes 1.1)	
Nominal resistance	100 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 °C to +150 °C $R(T) = R_0 \times (1+AxT + BxT^2)$	
	$A = 3.9083 \times 10^{-3} \times °C^{-1}$ $B = -5.775 \times 10^{-7} \times °C^{-2}$ $C = -4.183 \times 10^{-12} \times °C^{-4}$ R_0= resistance value in Ω at 0°C T = temperature in accordance with ITS90	

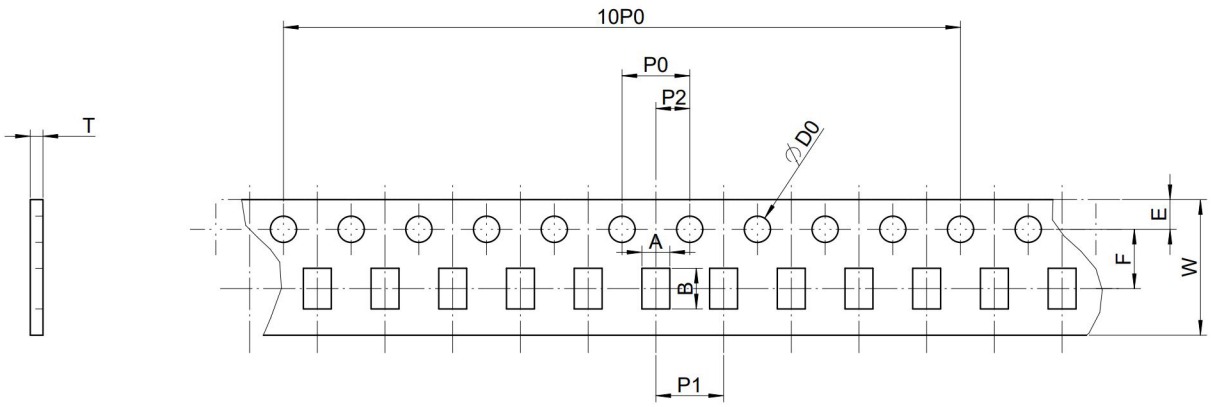
General Specifications

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	Pt 100	Pt 500	Pt 1000
(Self-heating has to be considered)	1 mA	0.5 mA	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 Taping and Packaging:



Item	A	B	W	E	F	P0	P1	P2	D0	T	10P0
Dimension	1.070	1.78	8.0	1.75	3.5	4.0	4.0	2.0	1.55	0.6	40.0
min. Tol.	-0.05	-0.05	-0.1	-0.05	-0.05	-0.1	-0.1	-0.05	-0.05	-0.03	-0.1
max. Tol.	0.05	0.05	0.1	0.05	0.05	0.1	0.1	0.05	0.05	0.03	0.1

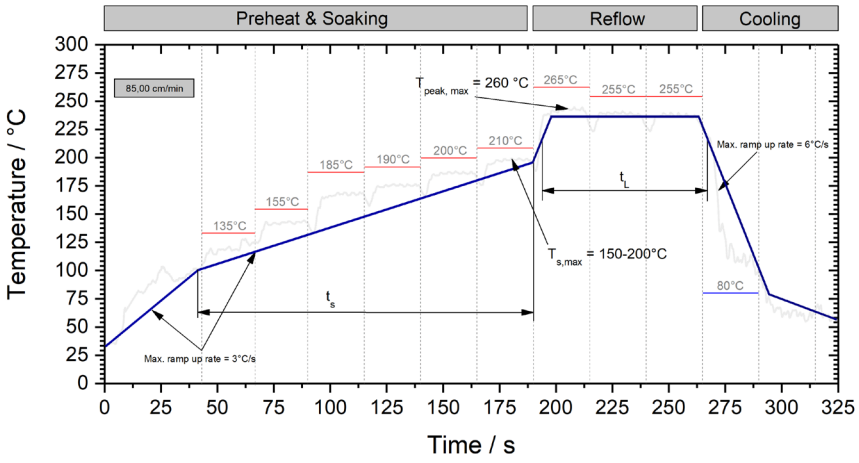
Dimensions in mm.

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

1.3 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 ± 5, $T_{peak,\ max}$ = 260		60 to 120, $t_{peak,\ max}$ = 30
Cooling	255 - RT	1.6 - 3	

1.4 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 is 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			
Nominal resistance: 100 Ω at 0 °C			
P0K1.0603.2ST.A	IEC 60751 F0.15 (A)	packed in bags	151139
P0K1.0603.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side up)	151140
P0K1.0603.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side down)	151141
P0K1.0603.2ST.B	IEC 60751 F0.3 (B)	packed in bags	151133
P0K1.0603.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side up)	151132
P0K1.0603.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side down)	151138
P0K1.0603.2ST.C	IEC 60751 F0.6 (C)	packed in bags	151127
P0K1.0603.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side up)	151126
P0K1.0603.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side down)	151130
Nominal resistance: 1000 Ω at 0 °C			
P1K0.0603.2ST.A	IEC 60751 F0.15 (A)	packed in bags	152524
P1K0.0603.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side up)	152525
P1K0.0603.2ST.A.S	IEC 60751 F0.15 (A)	taped on reel (sensor side down)	152527
P1K0.0603.2ST.B	IEC 60751 F0.3 (B)	packed in bags	152534
P1K0.0603.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side up)	152535
P1K0.0603.2ST.B.S	IEC 60751 F0.3 (B)	taped on reel (sensor side down)	152536
P1K0.0603.2ST.C	IEC 60751 F0.6 (C)	packed in bags	152537
P1K0.0603.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side up)	152538
P1K0.0603.2ST.C.S	IEC 60751 F0.6 (C)	taped on reel (sensor side down)	152539

RoHS

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