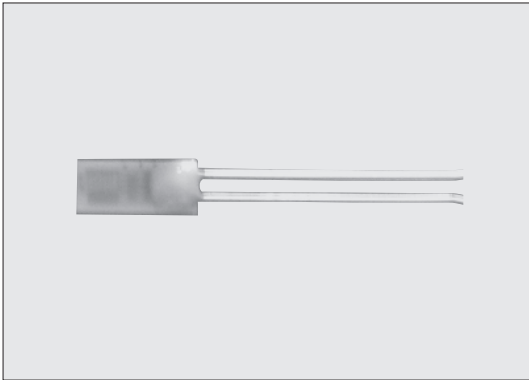
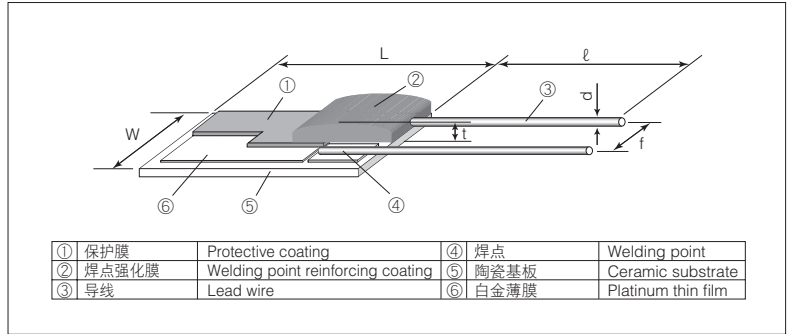


SDT310HCTP 小型白金薄膜温度传感器 (细长型)

Small type Platinum Thin Film Thermal Sensors (Narrow)



■ 结构图 Construction



■ 特点 Features

- 各种特性相当于IEC 60751⁻²⁰⁰⁸标准。
- 是1.2mm×3mm的小型组件，有电阻值100Ω的实力。
- 符合欧盟RoHS。玻璃中所含铅玻璃，不包含在欧盟RoHS指令中。
- Characteristics are equivalent to IEC 60751⁻²⁰⁰⁸.
- The small package (1.2mm×3mm) with a real ability of 100Ω resistance.
- Products meet RoHS requirements. RoHS regulation is not intended for Pb-glass contained in glass.

■ 用途 Applications

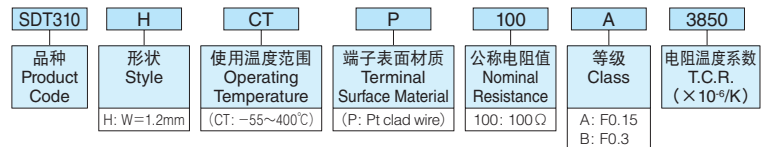
- 热电偶温度调节器的冷端补偿、测温探头。
- 通信设备收发电路的温度补偿、修正。
- Cold Point compensation for thermocouple temperature controllers and temperature detection probe.
- Temperature compensation and revision for RF circuit of telecommunication equipment.

■ 外形尺寸 Dimensions

型号 Type	尺寸 Dimensions (mm)						Weight(g) (1000pcs)
	W	L	t	f (Nominal)	d	φ	
SDT310HCTP	1.2±0.1	3.0±0.1	1.1max.	0.5	φ0.15±0.05	8±0.1	13.3

■ 品名构成 Type Designation

实例 Example



■ 参考标准 Reference Standards

IEC 60751⁻²⁰⁰⁸
JIS C 1604⁻¹⁹⁹⁷

■ 额定值 Ratings

公称电阻值 Nominal R. Value (Ω)	允许偏差 Toleranc		温度精度 Measuring Temperature Tolerance (°C)	阻值允许偏差 R. Value Tolerance (%)	电阻温度系数*2 T.C.R. (×10 ⁻⁶ /K)	热时间常数*3 Thermal Time constant (s)	自身发热系数*4 Self-heating coefficient (°C/mW)	规定电流*5 Specified Current	温度范围 Temperature Range (°C)
	IEC 60751 ⁻²⁰⁰⁸	JIS C 1604 ⁻¹⁹⁹⁷							
100	F0.15	Class A	±(0.15+0.002 t)*1	±0.059	3850	2.8 in stationary air	0.09	1mA Max.	-55~+300 -55~+400
	F0.3	Class B							

※1 |t| 表示与+·-符号无关的用温度℃表示的测量温度。

※2 T.C.R.测定温度0℃/+100℃

※3 热时间常数是在静止空气中测定的值，是参考值。也是元件单体的值，因连接方法和固定方法而变化。

※4 自身发热系数(°C/mW)为温度：0℃、在油浴中(流速>0.2m/s)的测量值。也是元件单体的值，因连接方法和固定方法而变化。

※5 规定电流是在可以忽略自身发热的情况下进行可靠性试验时使用的电流值。推荐的测量电流为100Ω时1mA。

※1 |t| is a measuring temperature indicated at °C that is not related to marking +·-.

※2 T.C.R. Mesuring Temperature:0℃/+100℃.

※3 Thermal time constant is value measured in stationary air and is typical value, which is value of element and vary with connecting or fixing methods.

※4 Self-heating coefficient expressed in °C/mW is values measured at temperature:0℃ in flowing oil with a velocity >0.2m/s, which is value of elements and vary with connecting or fixing methods.

※5 Specified current is a current value that is used at reliability test under the condition of self heat-generation that can be disregarded. Recommended measuring currents 1mA for 100Ω.

■ 使用注意事项 Precautions for Use

- SDT310HCTP由于使用耐热性导线，因此难以进行锡焊。请使用电焊方式来连接导线。
- 使用电流为规定电流时，应计算因自身发热而引起的温度上升，并确认误差。
- 采用注塑成型加工或者在金属保护管内填充树脂后使用SDT310HCTP时，根据所使用的树脂，电阻值可能会发生细微变化。
- It is difficult to solder SDT310HCTP because of using heat-resistant leads. Make use of welding to connect the leads wire.
- When an operating current is specified current, calculate a rise in temperature by self-heating to confirm an error.
- If SDT310HCTP is used by being molded or placed in a metal protection tube filled with resin, the resistance value may occasionally vary slightly depending on the resin used.

性能 Performance

试验项目 Test Items	标准值 Performance Requirements ΔR± (%)		试验方法 Test Methods
	保证值 Limit	代表值 Typical	
电阻值 Resistance	在规定的允许偏差内 Within specified tolerance		0°C
电阻温度系数 T.C.R.	在规定值以内 Within specified T.C.R.		0°C/+100°C
绝缘电阻 Insulation resistance	100MΩ以上 100MΩ or more		d.c.100V
耐电压 Dielectric withstanding voltage	0.06	-0.003	a.c.100V 60s~70s
温度突变 Rapid change of temperature	0.06 (F0.15 at 300°C) 0.12 (F0.3 at 400°C)	-0.002 0.013	-55°C (30min) /+25°C (2~3min) /+300 or 400°C (30min) / +25°C (2~3min) 10 cycles
耐湿负荷 Moisture resistance	0.06	-0.002	60°C±2°C、90%~95%RH、1000h、1mA 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
高温负荷 High temperature load life	0.06 (F0.15 at 300°C) 0.12 (F0.3 at 400°C)	-0.016 -0.022	300 or 400°C、1000h 1mA连续通电 1mA Continuous turning on electricity
高温放置 High temperature exposure	0.06 (F0.15 at 300°C) 0.12 (F0.3 at 400°C)	0.004 0.014	300 or 400°C、1000h
低温放置 Low temperature exposure	0.06	0.010	-55°C、1000h

电阻-温度特性 (JIS C1604-1997) 摘录

Pt₁₀₀ Resistance-Temperature Characteristic (JIS C1604-1997)
100Ω at 0°C

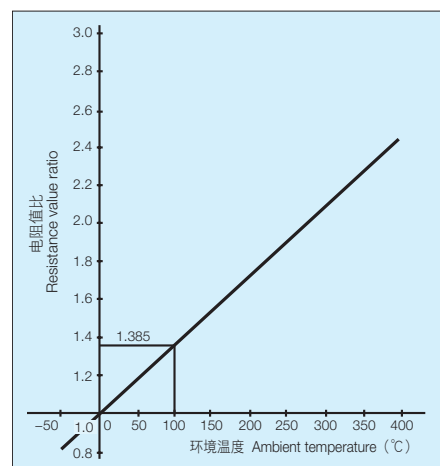
温度(°C) Temperature	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-50	80.31	79.91	79.51	79.11	78.72	78.32	-	-	-	-
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.50	81.10	80.70
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.80	89.40	89.01	88.62
-10	96.09	95.69	95.30	94.91	94.52	94.12	93.73	93.34	92.95	92.55
0	100.00	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48
0	0	1	2	3	4	5	6	7	8	9
0	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51
10	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.40
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.90	111.29
30	111.67	112.06	112.45	112.83	113.22	113.61	114.00	114.38	114.77	115.15
40	115.54	115.93	116.31	116.70	117.08	117.47	117.86	118.24	118.63	119.01
50	119.40	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52
80	130.90	131.28	131.66	132.04	132.42	132.80	133.18	133.57	133.95	134.33
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13
100	138.51	138.88	139.26	139.64	140.02	140.40	140.78	141.16	141.54	141.91
110	142.29	142.67	143.05	143.43	143.80	144.18	144.56	144.94	145.31	145.69
120	146.07	146.44	146.82	147.20	147.57	147.95	148.33	148.70	149.08	149.46
130	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.21	156.58	156.95
150	157.33	157.70	158.08	158.45	158.82	159.20	159.57	159.94	160.31	160.68
160	161.05	161.43	161.80	162.17	162.54	162.91	163.29	163.66	164.03	164.40
170	164.77	165.14	165.51	165.89	166.26	166.63	167.00	167.37	167.74	168.11
180	168.48	168.85	169.22	169.59	169.96	170.33	170.70	171.07	171.44	171.80
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49
200	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16
210	179.53	179.89	180.26	180.63	180.99	181.36	181.72	182.09	182.46	182.82
220	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47
230	186.84	187.20	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.11
240	190.47	190.84	191.20	191.56	191.92	192.29	192.65	193.01	193.37	193.74
250	194.10	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35
260	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95
270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55
280	204.90	205.26	205.62	205.98	206.34	206.70	207.05	207.41	207.77	208.13
290	208.48	208.84	209.20	209.56	209.91	210.27	210.63	210.99	211.34	211.70
300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.90	215.25
310	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.80
320	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33
330	222.68	223.04	223.39	223.74	224.09	224.45	224.80	225.15	225.50	225.85
340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.01	229.37
350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87
360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236.01	236.36
370	236.70	237.05	237.40	237.74	238.09	238.44	238.79	239.13	239.48	239.83
380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.60	242.95	243.29
390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.40	246.75
400	247.09	247.44	247.78	248.13	248.47	248.81	249.16	249.50	249.85	250.19

注意：
横轴温度+纵轴温度是所要求的温度。求105°C的电阻值时，把纵轴100°C和横轴5°C相交栏的数字读出，即140.40。

Note:
Desired temperature values are obtained by adding temperatures in the vertical and horizontal axes. When calculating a resistance value of 105°C, read the value in the column where 100°C in the vertical axis and 5°C in the horizontal axis cross. The value will be 140.40.

电阻温度特性

Temperature Characteristics



电阻温度特性近似式

Approximate Expression for Resistance-Temperature Characteristics

$$-55^{\circ}\text{C} \sim 0^{\circ}\text{C} : R_T = R_0 \{ 1 + C_1 T + C_2 T^2 + C_3 (T - 100) T^3 \}$$

$$0^{\circ}\text{C} \sim +400^{\circ}\text{C} : R_T = R_0 (1 + C_1 T + C_2 T^2)$$

R_T : T°C时的电阻值 R_T : Resistance value at T°C

R_0 : 0°C时的电阻值 R_0 : Resistance value at 0°C

T : 环境温度(°C) T : Ambient temperature(°C)

C_1, C_2, C_3 : 常数 Constants C_1, C_2, C_3 : $C_1 = 3.9083 \times 10^{-3} \text{ } ^{\circ}\text{C}^{-1}$
 $C_2 = -5.775 \times 10^{-7} \text{ } ^{\circ}\text{C}^{-2}$
 $C_3 = -4.183 \times 10^{-12} \text{ } ^{\circ}\text{C}^{-4}$