

## Specification of Pt Thermal Sensor

### 1. Electrical Characteristics of SA10101553

- |                                 |  |
|---------------------------------|--|
| 1-1 Resistance value (at 0°C)   | : 100±0.12 ohm                                 |
| 1-2 Maximum applied current     | : 1mA  |
| 1-3 Insulation resistance       | : exceed 100M ohm at 500V DC<br>(@ room temp.) |
| 1-4 Thermal response time (90%) | : 30 sec. max. (in air, 1m/sec.)               |
| 1-5 Self heating                | : 5 mW/°C (in air, 1m, sec.)                   |
| 1-6 Operation temperature range | : -50°C to 500°C                               |

### 2. Outline Drawings

Please see attached figure.

### 3. Reliability Test

#### 3-1 High temperature test

Keep the Pt sensor in 500°C for 1000 hours

#### 3-2 Low temperature test

Keep the Pt sensor in -50°C for 1000 hours

#### 3-3 Humidity test

Keep the Pt sensor in 60°C and 90 to 95% RH for 1000 hours

#### 3-4 Thermal shock test

Keep the Pt sensor in 0°C ice water for at least 15 sec., then within 10 sec. directly put into 100°C hot water for at least 15 sec.. The above process should be proceeded for at least 10 cycles.

After each item test, valuation of item 1-1 should be within 0.12% and item 1-3 should exceed 100M ohm at 500VDC.

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TITLE: ENGINEERING SPEC. OF SA10101553		DOCUMENT NO.	SA10101553
			PAGE REV. A0

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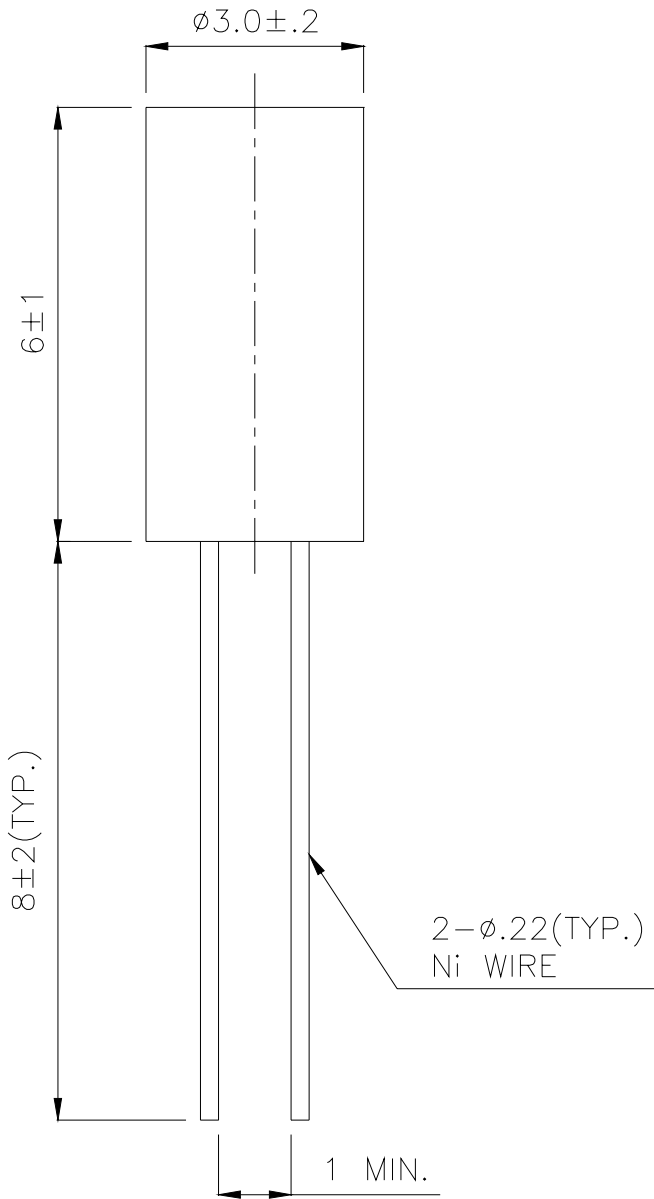
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UNLESS OTHERWISE SPECIFIED  
TOLERANCES ON :

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DOCUMENT NO.

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PAGE REV.  
A0

Temperature (°C)	Nominal Resistance(ohm)	Resistance Deviation(ohm)	Temperature Deviation(ohm)
-50	80.31	0.22	0.55
-25	90.19	0.17	0.43
0	100.00	0.12	0.30
25	109.73	0.16	0.43
50	119.40	0.21	0.55
75	128.99	0.26	0.68
100	138.51	0.30	0.80
125	147.95	0.35	0.93
150	157.33	0.39	1.05
175	166.63	0.44	1.18
200	175.86	0.48	1.30
225	185.01	0.52	1.43
250	194.10	0.56	1.55
275	203.11	0.60	1.68
300	212.05	0.64	1.80
325	220.92	0.68	1.93
350	229.72	0.72	2.05
375	238.44	0.76	2.18
400	247.09	0.79	2.30
425	255.67	0.83	2.43
450	264.18	0.86	2.55
475	272.61	0.90	2.68
500	280.98	0.93	2.80

(1) Relationship of temperature with resistance

When $t \geq 0^\circ\text{C}$	When $t < 0^\circ\text{C}$
$R_t = R_o (1 + At + Bt^2)$	$R_t = R_o [1 + At + Bt^2 + C(t-100)t^3]$
$A = 3.9083E-03$	$A = 3.9083E-03$
$B = -5.7750E-07$	$B = -5.7750E-07$
	$C = -4.1830E-12$
	$R_o = 1.000E+02$

(2) Temperature deviation

$$\pm(a + b |t|) ^\circ\text{C}$$

$$a = 0.300$$

$$b = 0.005$$

(3) Specification are subject to change without notice

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			PAGE REV. A0