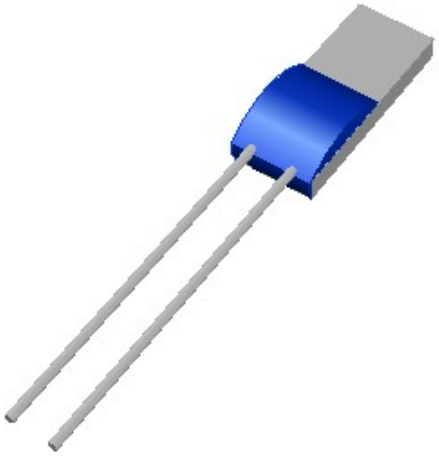
SI10210508, The Platinum Resistance temperature sensor (PT-RTD)

Features / Applications :



- Features:
  - Low drift
  - Long service life
  - Wide temperature range
  - Wide range of resistance values
  - Temperature linear control
  - High precision
  - Fast response time

- Appliances:
  - Home Appliances: Oven
  - Industrial Equipment: Temperature controller
  - Electronics: Over-Temperature protection

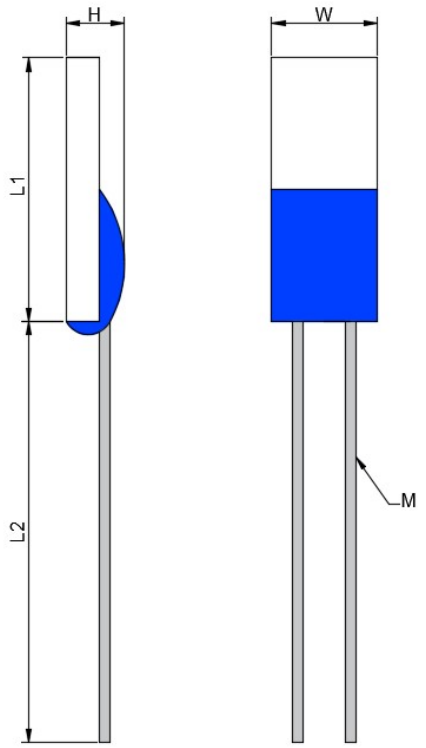
Electrical Specifications :

Characteristics	Feature
Resistance value at 0℃	1000±2.4 ohm
Tolerance	Class C : ±0.24%
Temperature coefficient of resistance (TCR)	3850ppm/℃
Operation temperature range	-50℃~ +750℃
Maximum applied current	1 mA
Thermal response time (90%)	15 seconds max. (In air of 1 m/sec.)
Self-heating	4mW/℃ (In air of 1 m/sec.)

Outline Drawing :

Unit: mm

Dimension



W	2.0±0.2
H	1.1±0.2(TYP.)
L1	5.0±0.2
L2	8±2
M	PT wire ϕ0.2 (TYP.)

Type Designation :

SI	102	1	0	XXX
(1)	(2)	(3)	(4)	(5)

Where

(1) Series No: SI= Applicable temperature range 750℃

(2) Resistance Value: 102=10X10²=1000 ohm

(3) TCR/Class: 1 = 3850/C

(4) Package type : 0 = Glass coated

(5) Serial No

Temperature and resistance relationship:

■ The temperature and resistance relationships used in this standard are as follows:

When T < 0℃ :

$Rt = R0 [1 + aT + bT^2 + cT^3 (T – 100)]$

When T ≧ 0℃ :

$Rt=R0 (1+ aT + bT^2)$

Where

Rt: resistance at a certain temperature T

R0: resistance at 0℃

a, b, c : coefficient (refer to the following table)

Coefficient for TCR=3850 PPM/℃ (IEC 751 Standard)

Temperature	a	b	c
T < 0℃	3.90830E-03	-5.77500E-07	-4.18300E-12
T ≧ 0℃	3.90830E-03	-5.77500E-07	0

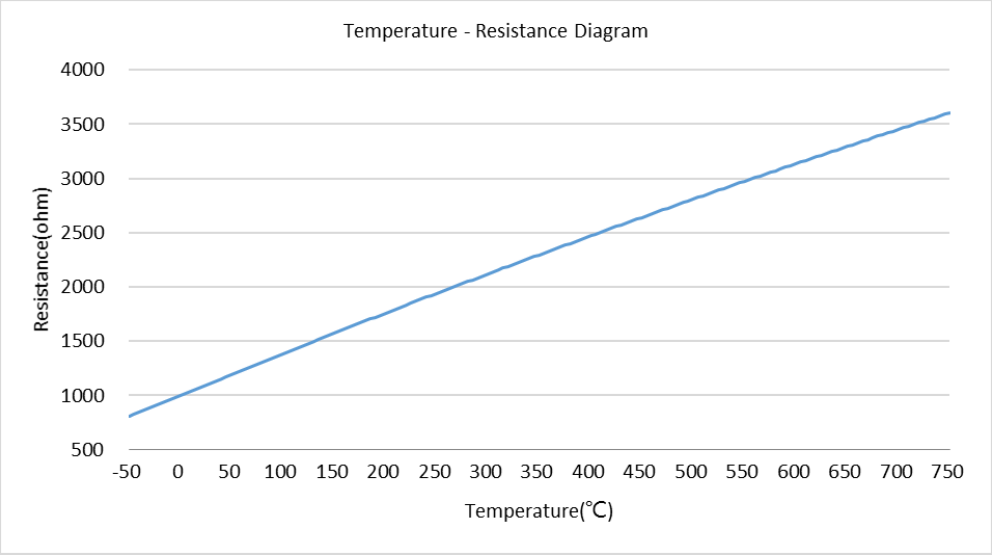
■ Temperature deviation

±(a+b |t|)℃

a= 0.6

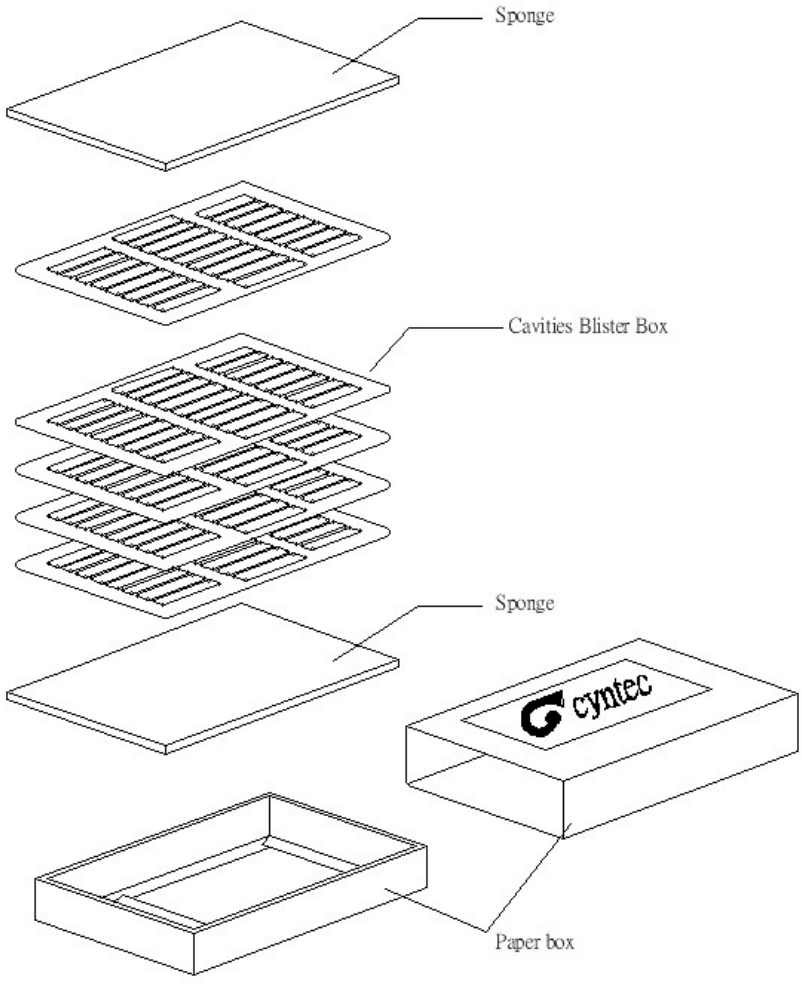
b= 0.007

■ Temperature – Resistance Diagram



Packaging :

Box dimension	Quantity per box
97x62x22mm	100pcs



Order Information :

Part Number	Dimension (mm)		Nominal Resistance at 0°C	Operating Temperature Range
	Sensor Body	Wire Length		
SI10210508	2.0 x 5.0	8	1000±2.4Ω	-50℃~ +750℃

Resistance tolerance and Temperature Deviation table of PT 1000 Class C:

Temperature (℃)	Resistance (Ω)	Temperature deviation (±℃)	Resistance tolerance (±Ω)	Temperature (℃)	Resistance (Ω)	Temperature deviation (±℃)	Resistance tolerance (±Ω)
-50	803.06	0.95	3.77	130	1498.32	1.51	5.67
-45	822.90	0.92	3.63	135	1517.10	1.55	5.80
-40	842.71	0.88	3.48	140	1535.84	1.58	5.92
-35	862.48	0.85	3.34	145	1554.56	1.62	6.04
-30	882.22	0.81	3.20	150	1573.25	1.65	6.16
-25	901.92	0.78	3.05	155	1591.91	1.69	6.28
-20	921.60	0.74	2.91	160	1610.54	1.72	6.40
-15	941.24	0.71	2.77	165	1629.15	1.76	6.52
-10	960.86	0.67	2.63	170	1647.72	1.79	6.64
-5	980.44	0.64	2.49	175	1666.27	1.83	6.76
0	1000.00	0.60	2.34	180	1684.78	1.86	6.88
5	1019.53	0.64	2.48	185	1703.27	1.90	7.00
10	1039.03	0.67	2.61	190	1721.73	1.93	7.12
15	1058.49	0.71	2.74	195	1740.16	1.97	7.24
20	1077.94	0.74	2.88	200	1758.56	2.00	7.35
25	1097.35	0.78	3.01	205	1776.93	2.04	7.47
30	1116.73	0.81	3.14	210	1795.28	2.07	7.59
35	1136.08	0.85	3.27	215	1813.59	2.11	7.70
40	1155.41	0.88	3.40	220	1831.88	2.14	7.82
45	1174.70	0.92	3.53	225	1850.13	2.18	7.94
50	1193.97	0.95	3.66	230	1868.36	2.21	8.05
55	1213.21	0.99	3.79	235	1886.56	2.25	8.16
60	1232.42	1.02	3.92	240	1904.73	2.28	8.28
65	1251.60	1.06	4.04	245	1922.87	2.32	8.39
70	1270.75	1.09	4.17	250	1940.98	2.35	8.51
75	1289.87	1.13	4.30	255	1959.06	2.39	8.62
80	1308.97	1.16	4.43	260	1977.12	2.42	8.73
85	1328.03	1.20	4.55	265	1995.14	2.46	8.84
90	1347.07	1.23	4.68	270	2013.14	2.49	8.96
95	1366.08	1.27	4.81	275	2031.11	2.53	9.07
100	1385.06	1.30	4.93	280	2049.05	2.56	9.18
105	1404.00	1.34	5.06	285	2066.96	2.60	9.29
110	1422.93	1.37	5.18	290	2084.84	2.63	9.40
115	1441.82	1.41	5.30	295	2102.69	2.67	9.51
120	1460.68	1.44	5.43	300	2120.52	2.70	9.62
125	1479.51	1.48	5.55	305	2138.31	2.74	9.73

Temperature (℃)	Resistance (Ω)	Temperature deviation (±℃)	Resistance tolerance (±Ω)	Temperature (℃)	Resistance (Ω)	Temperature deviation (±℃)	Resistance tolerance (±Ω)
310	2156.08	2.77	9.83	505	2826.41	4.14	13.75
315	2173.81	2.81	9.94	510	2843.03	4.17	13.84
320	2191.52	2.84	10.05	515	2859.61	4.21	13.93
325	2209.20	2.88	10.16	520	2876.16	4.24	14.02
330	2226.85	2.91	10.26	525	2892.68	4.28	14.12
335	2244.47	2.95	10.37	530	2909.18	4.31	14.21
340	2262.06	2.98	10.48	535	2925.65	4.35	14.30
345	2279.63	3.02	10.58	540	2942.08	4.38	14.39
350	2297.16	3.05	10.69	545	2958.49	4.42	14.48
355	2314.67	3.09	10.79	550	2974.87	4.45	14.57
360	2332.14	3.12	10.90	555	2991.22	4.49	14.65
365	2349.59	3.16	11.00	560	3007.54	4.52	14.74
370	2367.01	3.19	11.10	565	3023.84	4.56	14.83
375	2384.40	3.23	11.21	570	3040.10	4.59	14.92
380	2401.76	3.26	11.31	575	3056.34	4.63	15.00
385	2419.10	3.30	11.41	580	3072.54	4.66	15.09
390	2436.40	3.33	11.51	585	3088.72	4.70	15.18
395	2453.67	3.37	11.62	590	3104.87	4.73	15.26
400	2470.92	3.40	11.72	595	3120.99	4.77	15.35
405	2488.14	3.44	11.82	600	3137.08	4.80	15.43
410	2505.33	3.47	11.92	605	3153.14	4.84	15.52
415	2522.48	3.51	12.02	610	3169.18	4.87	15.60
420	2539.62	3.54	12.12	615	3185.18	4.91	15.69
425	2556.72	3.58	12.22	620	3201.16	4.94	15.77
430	2573.79	3.61	12.32	625	3217.10	4.98	15.85
435	2590.83	3.65	12.41	630	3233.02	5.01	15.94
440	2607.85	3.68	12.51	635	3248.91	5.05	16.02
445	2624.83	3.72	12.61	640	3264.77	5.08	16.10
450	2641.79	3.75	12.71	645	3280.60	5.12	16.18
455	2658.72	3.79	12.80	650	3296.40	5.15	16.26
460	2675.62	3.82	12.90	655	3312.17	5.19	16.34
465	2692.49	3.86	13.00	660	3327.92	5.22	16.42
470	2709.33	3.89	13.09	665	3343.63	5.26	16.50
475	2726.14	3.93	13.19	670	3359.32	5.29	16.58
480	2742.93	3.96	13.28	675	3374.98	5.33	16.66
485	2759.68	4.00	13.38	680	3390.61	5.36	16.74
490	2776.41	4.03	13.47	685	3406.21	5.40	16.82
495	2793.11	4.07	13.56	690	3421.78	5.43	16.89
500	2809.78	4.10	13.66	695	3437.32	5.47	16.97

Temperature (℃)	Resistance (Ω)	Temperature deviation (±℃)	Resistance tolerance (±Ω)
700	3452.84	5.50	17.05
705	3468.32	5.54	17.13
710	3483.78	5.57	17.20
715	3499.20	5.61	17.28
720	3514.60	5.64	17.35
725	3529.97	5.68	17.43
730	3545.31	5.71	17.50
735	3560.62	5.75	17.58
740	3575.90	5.78	17.65
745	3591.16	5.82	17.72
750	3606.38	5.85	17.80