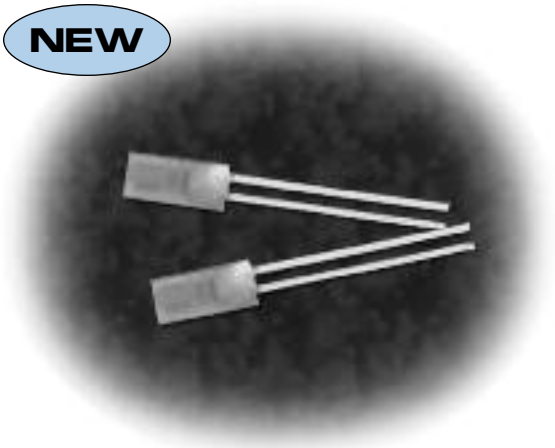
KOA SPEER ELECTRONICS, INC.

SDT310HCTP

small type platinum thin film thermal sensors (narrow)

EU RoHS COMPLIANT

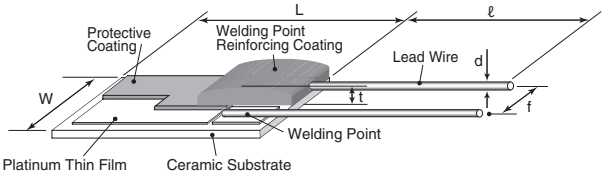
NEW



features

- Characteristics are in accordance with IEC 60751-2008
- Small package of 1.2mm x 3mm with 1kΩ resistance
- Products meet RoHS requirements. RoHS regulation is not intended for Pb-glass contained in glass.

dimensions and construction



Type	Dimensions inches (mm)					
	W	L	t	f	d (Nom.)	l
SDT310HCTP	.047±.004 (1.2±0.10)	.118±.004 (3.0±0.10)	.043 max. (1.1 max.)	.012±.004 (0.3±0.10)	.006±.002 (ø0.15±0.05)	$.315^{+.079}_{-.039}$ (8^{+2}_{-1})

ordering information

New Part #

SDT310	H	CT	P	100	A	3850
Type	Size Code	Operating Temperature	Terminal Surface Material	Nominal Resistance	Class	T.C.R. (x 10^{-6}/K)
	H: W=1.2mm	CT: -55°C~300°C	P: Pt clad wire	100: 100Ω	A: F0.15 B: F0.3	

applications and ratings

Part Designation	Nominal R. Value (Ω)	Class	Measuring Temperature Tolerance (°C)	R. Value Tolerance (%)	T.C.R. (x10^{-6}/K)**	Thermal Time Constant***	Self-heating Coefficient (°C/mW)****	Specified Current*****	Temperature Range (C°)
SDT310HCTP	100	F0.15	±(0.15+0.002 [t])*	±0.06	3850	2.8 seconds in stationary air	0.09	1mA Max.	-55 ~ +300
		F0.3	±(0.3+0.005 [t])*	±0.12					-55 ~ +400

* [t] is a measuring temperature indicated at ℃ that is not related to marking + · −.
** T.C.R. Mesuring Temperature : 0℃/+100℃.
*** 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.
**** Self-heating coefficient expressed in ℃/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.
***** 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.

environmental applications

Performance Characteristics

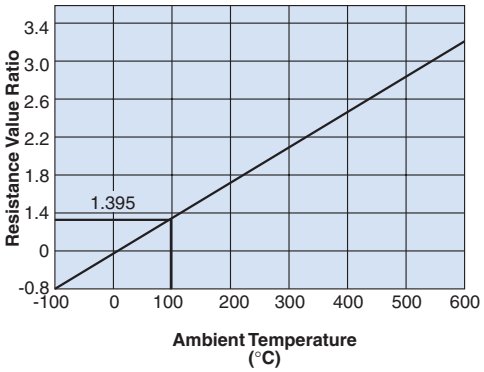
Parameter	Requirement Δ R (%)	Test Method
Resistance	Within specified tolerance	0°C
T.C.R.	Within specified T.C.R.	0°C/ +100°C
Insulation Resistance	100MΩ or more	d.c. 100V
Dielectric Withstanding Voltage	±0.06	a.c. 100V, 60 seconds - 70 seconds
Rapid Change of Temperature	±0.06	-55°C (30 minutes)/ +25°C (2 - 3 minutes)/ +300°C or 400°C (30 minutes)/ +25°C (2 - 3 minutes), 10 cycles
Moisture Resistance	±0.06	60°C ± 2°C, 90 - 95% RH, 1000 hours, 1mA, 1.5 hr ON, 0.5 hr OFF cycle
Normal Temperature Load Life	±0.06	20°C ± 10°C, 1000 hours, 1mA continuous turning on electricity
High Temperature Load Life	±0.06 (F0.15 at 300°C) ±0.12 (F0.3 at 400°C)	300°C or 400°C, 1000 hours, 1mA continuous turning on electricity
High Temperature Exposure	±0.06 (F0.15 at 300°C) ±0.12 (F0.3 at 400°C)	300°C or 400°C, 1000 hours
Low Temperature Exposure	±0.06	-55°C, 1000 hours

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

1/10/13

environmental applications (continued)

Temperature Characteristics



Approximate Expression for Resistance-Temperature Characteristics

-55°C~0°C :$R_T=R_0\{1+C_1T+C_2T^2+C_3(T-100)T^3\}$

0°C~+400°C :$R_T=R_0(1+C_1T+C_2T^2)$

R_T : Resistance value at T°C

R_0 : Resistance value at 0°C

T : Ambient temperature(°C)

Constants C_1, C_2, C_3:

$C_1=3.908\times10^{-3}\,°C^{-1}$

$C_2=-5.775\times10^{-7}\,°C^{-2}$

$C_3=-4.183\times10^{-12}\,°C^{-4}$

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

Temperature (°C)	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	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	156.20	156.58	156.95
150	157.33	157.70	158.07	158.45	158.82	159.19	159.56	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	171.43	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	210.98	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	229.02	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	236.00	236.35
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

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 140.40Ω.