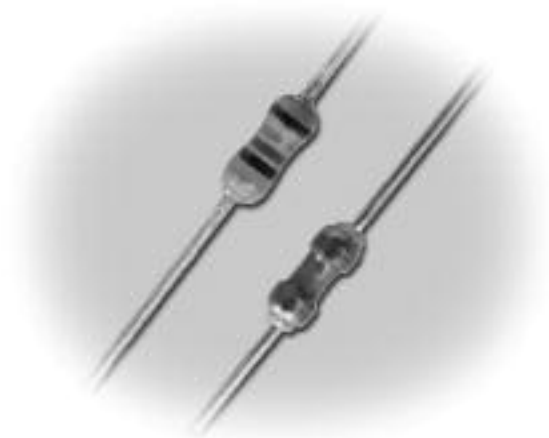
KOA SPEER ELECTRONICS, INC.

SDT101

platinum thin film thermal sensors

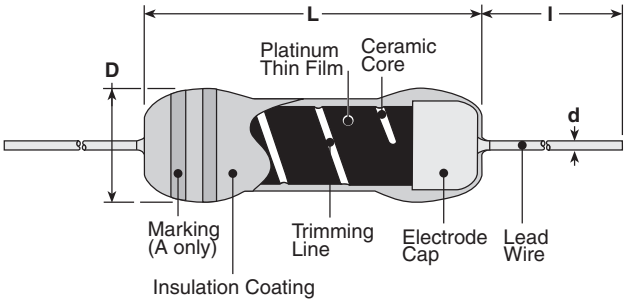
EU RoHS COMPLIANT



features

- Stable characteristics even in use for a long time with an excellent environment resistance
- Coating color: Ivory coating for SDT101A
  Transparent brown for SDT101B
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

dimensions and construction



Type	Dimensions inches (mm)			
	L	D	d (Nom.)	l
SDT101A	.157±.031 (4.0±0.8)	.063±.008 (1.6±0.2)	.016±.003 (0.4±0.08)	1.18±.118 (30±3)
SDT101B	.157±.031 (4.0±0.8)	.059±.008 (1.5±0.2)	.016±.003 (0.4±0.08)	1.18±.118 (30±3)

ordering information

New Part #

SDT101	A	X	C	T26	A	100	D	F
Type	Temperature Range	Reference Temperature	Terminal Surface Material	Taping	Packaging	Nominal Resistance	Resistance Tolerance	T.C.R. Tolerance
	A: -55°C~+150°C B: -55°C~+300°C	X: 0°C Y: 25°C*	C: SnCu (A only) N: Ni (B only)	Nil: Bulk T26: 26mm taping (A only) T52: 52mm taping (A only)	Nil: Bulk A: AMMO (A only)	10: 10Ω 100: 100Ω 500: 500Ω	D: ±0.5% F: ±1%	F: ±1% G: ±2%

* Products of resistances measures at 25°C are also available. (But T.C.R.s will be measured at 0°C/100°C.) Consult the factory.

applications and ratings

Part Designation	Power Rating @ 70°C*	Thermal Time Constant*	Thermal Dissipation Constant*	Resistance Range	Resistance Tolerance	T.C.R. (ppm/°C)	T.C.R. Tolerance (ppm/°C)	Rated Ambient Temperature	Operating Temperature Range
SDT101A	0.125W	6 seconds	2.8mW/°C	10Ω, 100Ω, 500Ω	D: ±0.5% F: ±1%	3500	F: ±1% G: ±2%	+70°C	-55°C to +150°C
SDT101B		9 seconds	1.8mW/°C					+200°C	-55°C to +300°C

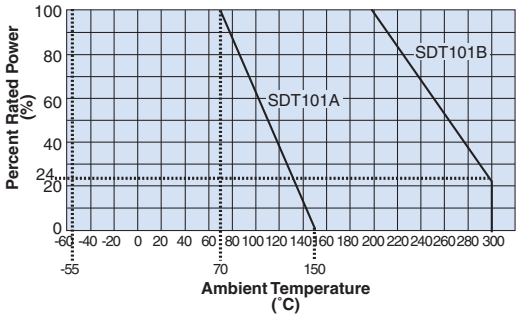
* Thermal time constant and thermal dissipation constant are reference values, which are values of elements and vary with connecting or fixing methods. T.C.R. measuring temperature: 0°C/+100°C

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

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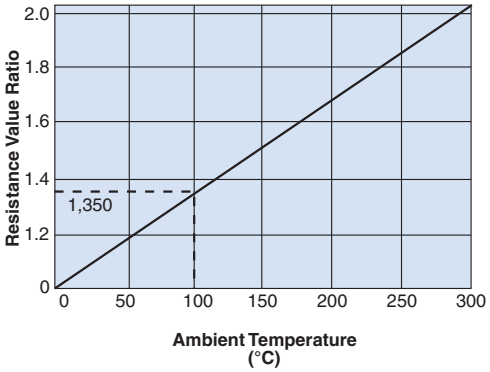
environmental applications

Derating Curve



For sensors operated at an ambient temperature or above, a power rating shall be derated in accordance with the above derating curve.

Example of Temperature Characteristics of Resistance



Approximate Expression for Resistance-Temperature Characteristics

R_T: Resistance value at T°C
R_0: Resistance value at 0°C
T: Ambient temperature (°C)
Constants C_1, C_2:
C_1=0.356297x10^{-2} C_2=0.617945x10^{-6}

Resistance - Temperature Characteristic (Typical Value)

Temperature (°C)	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-50	82.04	81.67	81.31	80.94	80.58	80.22	—	—	—	—
-40	85.66	85.29	84.93	84.57	84.21	83.85	83.49	83.12	82.76	82.40
-30	89.26	88.90	88.54	88.18	87.82	87.46	87.10	86.74	86.38	86.02
-20	92.85	92.49	92.13	91.78	91.42	91.06	90.70	90.34	89.98	89.62
-10	96.43	96.07	95.72	95.36	95.00	94.64	94.29	93.93	93.57	93.21
0	100.00	99.64	99.29	98.93	98.57	98.22	97.86	97.50	97.15	96.79
	0	1	2	3	4	5	6	7	8	9
0	100.00	100.36	100.71	101.07	101.42	101.78	102.13	102.49	102.85	103.20
10	103.56	103.91	104.26	104.62	104.97	105.33	105.68	106.04	106.39	106.74
20	107.10	107.45	107.81	108.16	108.51	108.87	109.22	109.57	109.92	110.28
30	110.63	110.98	111.33	111.69	112.04	112.39	112.74	113.09	113.44	113.80
40	114.15	114.50	114.85	115.20	115.55	115.90	116.25	116.60	116.95	117.30
50	117.65	118.00	118.35	118.70	119.05	119.40	119.75	120.10	120.45	120.80
60	121.15	121.50	121.84	122.19	122.54	122.89	123.24	123.59	123.93	124.28
70	124.63	124.98	125.32	125.67	126.02	126.37	126.71	127.06	127.41	127.75
80	128.10	128.44	128.79	129.14	129.48	129.83	130.17	130.52	130.86	131.21
90	131.56	131.90	132.25	132.59	132.93	133.28	133.62	133.97	134.31	134.66
100	135.00	135.34	135.69	136.03	136.37	136.72	137.06	137.40	137.75	138.09
110	138.43	138.77	139.12	139.46	139.80	140.14	140.49	140.83	141.17	141.51
120	141.85	142.19	142.53	142.88	143.22	143.56	143.90	144.24	144.58	144.92
130	145.26	145.60	145.94	146.28	146.62	146.96	147.30	147.64	147.98	148.32
140	148.65	148.99	149.33	149.67	150.01	150.35	150.69	151.02	151.36	151.70
150	152.04	152.38	152.71	153.05	153.39	153.72	154.06	154.40	154.74	155.07
160	155.41	155.74	156.08	156.42	156.75	157.09	157.43	157.76	158.10	158.43
170	158.77	159.10	159.44	159.77	160.11	160.44	160.78	161.11	161.44	161.78
180	162.11	162.45	162.78	163.11	163.45	163.78	164.11	164.45	164.78	165.11
190	165.45	165.78	166.11	166.44	166.78	167.11	167.44	167.77	168.10	168.44
200	168.77	169.10	169.43	169.76	170.09	170.42	170.76	171.09	171.42	171.75
210	172.08	172.41	172.74	173.07	173.40	173.73	174.06	174.39	174.72	175.04
220	175.37	175.70	176.03	176.36	176.69	177.02	177.35	177.67	178.00	178.33
230	178.99	178.99	179.31	179.64	179.97	180.30	180.62	180.95	181.28	181.60
240	181.93	182.26	182.58	182.91	183.24	183.56	183.89	184.21	184.54	184.87
250	185.19	185.52	185.84	186.17	186.49	186.82	187.14	187.47	187.79	188.11
260	188.44	188.76	189.09	189.41	189.73	190.06	190.38	190.70	191.03	191.35
270	191.67	192.00	192.32	192.64	192.96	193.29	193.61	193.93	194.25	194.57
280	194.90	195.22	195.54	195.86	196.18	196.50	196.82	197.14	197.47	197.79
290	198.11	198.43	198.75	199.07	199.39	199.71	200.03	200.35	200.67	200.99
300	201.31	—	—	—	—	—	—	—	—	—

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 136.72Ω. The value for 500Ω at 0°C will be the value obtained by multiplying the resistance value in this table by 5. Similarly, the value for 10Ω at 0°C will be the value obtained by dividing the resistance value by 10.

Performance Characteristics

Parameter	Requirement Δ R ±(%+0.05Ω) Limit	Typical	Test Method
Resistance	Within specified tolerance	—	0°C
T.C.R.	Within specified T.C.R.	—	0°C/ +100°C
Overload (Short Time)	±0.5%	±0.2%	Rated voltage x 2.5 for 5 seconds
Resistance to Solder Heat (SDT101A)	±0.3%	±0.1%	350°C, 1 second
Rapid Change of Temperature	±0.5%	±0.2%	-55°C (30 minutes)/ +25°C (10 minutes)/ +150°C (30 minutes)/ +25°C (10 minutes), 5 cycles
Moisture Resistance	±1%	±0.3%	80°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±1%	±0.2%	70°C ± 3°C (SDT101A), 200°C ± 3°C (SDT101B), 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1%	±0.7%	+150°C (SDT101A), +300°C (SDT101B), 1000 hours
Shelf Life	±0.3%	±0.1%	Left for 1 year on shelf in natural condition

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