

FST Series

Thin Film Temperature Sensor



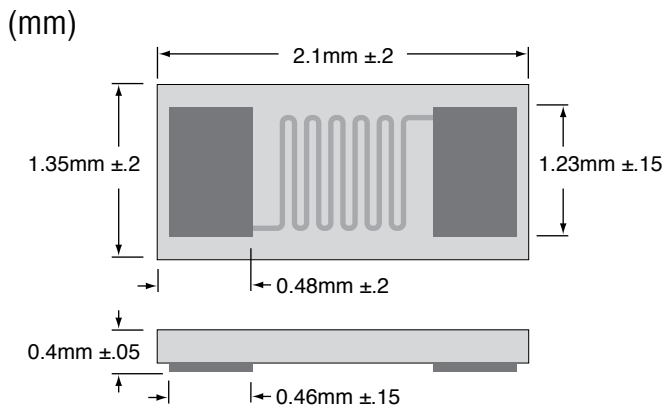
The FST series design positions the contact surfaces on the side with the active measuring layer. This design produces a sensor in position for face-down mounting. This mounting optimizes current trends in the 'adhesion instead of soldering' electronics sector. Using conductive adhesives provides reliable and cost-effective connection to the circuit board and is an alternative to the conventional reflow or wave soldering. The FST series is available in 2 tolerance classes, 0.12% and 0.24% per the DIN EN 60751 specification. Both tolerance classes are available in the three resistance levels of the FST series.

SERIES SPECIFICATIONS

Model	Nom. Resistance (ohms)	Tolerance Class
FST08-B-100E	100	B
FST08-2B-100E	100	2B
FST08-B-500E	500	B
FST08-2B-500E	500	2B
FST08-B-1K0E	1000	B
FST08-2B-1K0E	1000	2B

Other tolerances and values of resistance are available on request.
Resistance taken at 0°C

DIMENSIONS



CHARACTERISTICS

Specification	DIN EN 60751
Tolerance	Class B (R0: ± 0.12 %), Class 2B (R0: ± 0.24 %)
Temperature range	-50 °C to 170 °C
Temp. coefficient	TCR = 3850 ppm/K
Contact	AgPd metallising in thick-film technology
Long-term stability	R ₀ drift ≤ 0.06 % after 1000 h at 170°C
Ambient conditions	Use unprotected only in dry environments
Insulation resistance	> 100 MΩ at 20°C; > 2 MΩ at 170°C (glass cover)
Measuring current	100Ω: 0.3 to 1.0 mA 500Ω: 0.1 to 0.7 mA 1000Ω: 0.1 to 0.3 mA (self heating has to be considered)
Self heating	0.8 K/mW at 0°C
Reaction time	Flowing water (v = 0.4 m/s): t _{0.5} = 0.10 s, t _{0.9} = 0.25 s Air flow (v = 2 m/s): t _{0.5} = 2.5 s, t _{0.9} = 8.0 s
Processing information	<ul style="list-style-type: none"> • Reflow soldering or wave soldering, e.g. double wave soldering < 8 s / 235° • Also can be mounted using SMD insertion machines with Ag conductive adhesive. • When mounting PCB circuits, the expansion relationship of the sensor and the substrate material must be taken into account.
Storage life	Stored in a nitrogen atmosphere, min. 9 months
Packaging	"Face-down" in blister reel, 1000 pcs / reel

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NOMINAL RESISTANCE VALUES

100Ω / x10 for 1000Ω

Temp °C	Resistance Nominal	Class B		Class 2B	
		Minimum	Maximum	Minimum	Maximum
-55	78.32	78.09	78.55	77.86	78.78
-50	80.31	80.09	80.52	79.87	80.74
-45	82.29	82.08	82.50	81.87	82.71
-40	84.27	84.07	84.47	83.87	84.67
-35	86.25	86.06	86.44	85.87	86.62
-30	88.22	88.04	88.40	87.87	88.58
-25	90.19	90.02	90.36	89.86	90.53
-20	92.16	92.00	92.32	91.85	92.47
-15	94.12	93.98	94.27	93.83	94.42
-10	96.09	95.95	96.22	95.81	96.36
-5	98.04	97.92	98.17	97.79	98.30
0	100.00	99.88	100.12	99.77	100.23
5	101.95	101.83	102.08	101.70	102.21
10	103.90	103.77	104.04	103.63	104.18
15	105.85	105.70	106.00	105.56	106.14
20	107.79	107.64	107.95	107.48	108.10
25	109.73	109.57	109.90	109.40	110.06
30	111.67	111.50	111.85	111.32	112.02
35	113.61	113.42	113.79	113.24	113.98
40	115.54	115.35	115.73	115.15	115.93
45	117.47	117.27	117.67	117.07	117.88
50	119.40	119.19	119.61	118.97	119.82
55	121.32	121.10	121.54	120.88	121.76
60	123.24	123.01	123.47	122.78	123.70
65	125.16	124.92	125.40	124.68	125.64
70	127.08	126.83	127.32	126.58	127.57
75	128.99	128.73	129.25	128.47	129.50
80	130.90	130.63	131.16	130.36	131.43
85	132.80	132.53	133.08	132.25	133.36
90	134.71	134.42	134.99	134.14	135.28
95	136.61	136.31	136.90	136.02	137.20
100	138.51	138.20	138.81	137.90	139.11
105	140.40	140.09	140.71	139.78	141.03
110	142.29	141.97	142.61	141.65	142.94
115	144.18	143.85	144.51	143.52	144.84
120	146.07	145.73	146.41	145.39	146.75
125	147.95	147.60	148.30	147.25	148.65
130	149.83	149.47	150.19	149.12	150.55
135	151.71	151.34	152.08	150.98	152.44
140	153.58	153.21	153.96	152.83	154.33
145	155.46	155.07	155.84	154.69	156.22
150	157.33	156.93	157.72	156.54	158.11
155	159.19	158.79	159.59	158.39	159.99
160	161.05	160.64	161.46	160.24	161.87
165	162.91	162.50	163.33	162.08	163.75
170	164.77	164.35	165.20	163.92	165.63

500Ω

Temp °C	Resistance Nominal	Class B		Class 2B	
		Minimum	Maximum	Minimum	Maximum
-55	391.59	390.45	392.74	389.31	393.88
-50	401.53	400.44	402.62	399.35	403.72
-45	411.45	410.41	412.49	409.37	413.53
-40	421.35	420.36	422.34	419.37	423.33
-35	431.24	430.30	432.18	429.36	433.12
-30	441.11	440.22	442.00	439.33	442.88
-25	450.96	450.12	451.80	449.29	452.64
-20	460.80	460.01	461.59	459.23	462.37
-15	470.62	469.89	471.36	469.15	472.09
-10	480.43	479.74	481.12	479.06	481.80
-5	490.22	489.59	490.86	488.95	491.49
0	500.00	499.41	500.59	498.83	501.17
5	509.76	509.13	510.40	508.50	511.03
10	519.51	518.83	520.19	518.15	520.88
15	529.25	528.52	529.98	527.79	530.71
20	538.97	538.19	539.74	537.41	540.52
25	548.67	547.85	549.50	547.02	550.32
30	558.36	557.49	559.24	556.62	560.11
35	568.04	567.12	568.96	566.20	569.88
40	577.70	576.74	578.67	575.77	579.63
45	587.35	586.34	588.36	585.33	589.38
50	596.99	595.93	598.04	594.87	599.10
55	606.60	605.50	607.71	604.39	608.82
60	616.21	615.06	617.36	613.91	618.51
65	625.80	624.60	627.00	623.40	628.20
70	635.38	634.13	636.62	632.89	637.86
75	644.94	643.65	646.23	642.36	647.52
80	654.48	653.15	655.82	651.81	657.15
85	664.02	662.64	665.40	661.25	666.78
90	673.53	672.11	674.96	670.68	676.39
95	683.04	681.57	684.51	680.09	685.98
100	692.53	691.01	694.04	689.49	695.56
105	702.00	700.44	703.56	698.88	705.13
110	711.46	709.86	713.07	708.25	714.68
115	720.91	719.26	722.56	717.60	724.21
120	730.34	728.64	732.04	726.95	733.73
125	739.76	738.02	741.50	736.27	743.24
130	749.16	747.37	750.94	745.59	752.73
135	758.55	756.72	760.38	754.89	762.21
140	767.92	766.05	769.79	764.17	771.67
145	777.28	775.36	779.20	773.45	781.11
150	786.63	784.66	788.59	782.70	790.55
155	795.96	793.95	797.96	791.95	799.96
160	805.27	803.22	807.32	801.18	809.37
165	814.57	812.48	816.66	810.39	818.76
170	823.86	821.73	825.99	819.59	828.13

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