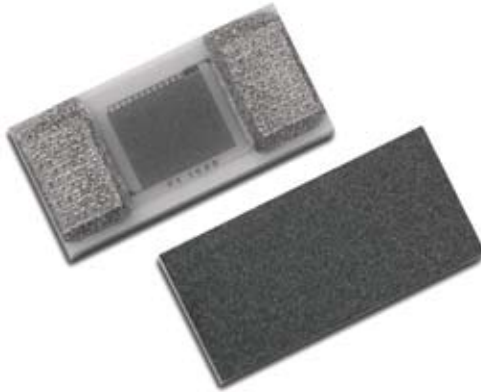


# FST Series

## Thin Film Temperature Sensor



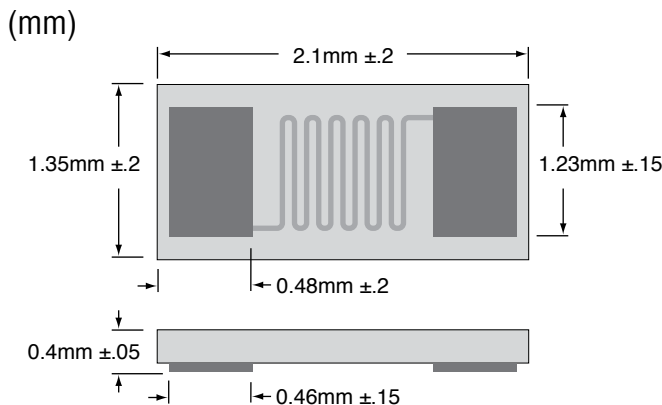
The FST series design positions the contact surfaces on the side with the active measuring layer. This design produces a sensor in position for face-down mounting. This mounting optimizes current trends in the 'adhesion instead of soldering' electronics sector. Using conductive adhesives provides reliable 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   |
|-------------------------------|--|
| <b>Tolerance</b>              | Class B (R0: $\pm 0.12\%$ ), Class 2B (R0: $\pm 0.24\%$ )  |
| <b>Temperature range</b>      | -50 °C to 170 °C   |
| <b>Temp. coefficient</b>      | TCR = 3850 ppm/K   |
| <b>Contact</b>                | AgPd metallising in thick-film technology  |
| <b>Long-term stability</b>    | R <sub>0</sub> drift $\leq 0.06\%$ after 1000 h at 170°C   |
| <b>Ambient conditions</b>     | Use unprotected only in dry environments   |
| <b>Insulation resistance</b>  | > 100 M $\Omega$ at 20°C; > 2 M $\Omega$ at 170°C (glass cover)  |
| <b>Measuring current</b>      | 100 $\Omega$ : 0.3 to 1.0 mA<br>500 $\Omega$ : 0.1 to 0.7 mA<br>1000 $\Omega$ : 0.1 to 0.3 mA<br>(self heating has to be considered)   |
| <b>Self heating</b>           | 0.8 K/mW at 0°C  |
| <b>Reaction time</b>          | Flowing water (v = 0.4 m/s): t <sub>0.5</sub> = 0.10 s, t <sub>0.9</sub> = 0.25 s<br>Air flow (v = 2 m/s): t <sub>0.5</sub> = 2.5 s, t <sub>0.9</sub> = 8.0 s  |
| <b>Processing information</b> | <ul style="list-style-type: none"> <li>• Reflow soldering or wave soldering, e.g. double wave soldering &lt; 8 s / 235°</li> <li>• Also can be mounted using SMD insertion machines with Ag conductive adhesive.</li> <li>• When mounting PCB circuits, the expansion relationship of the sensor and the substrate material must be taken into account.</li> </ul> |
| <b>Storage life</b>           | Stored in a nitrogen atmosphere, min. 9 months   |
| <b>Packaging</b>              | "Face-down" in blister reel, 1000 pcs / reel   |

# FST Series

## Thin Film Temperature Sensor

### NOMINAL RESISTANCE VALUES

#### 100Ω / x10 for 1000Ω

| Temp °C | Resistance<br>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<br>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  |

### ORDERING INFORMATION

**F S T 0 8 - 2 B - 1 0 0 R E**  
 Series                      Tolerance                      Resistance value                      RoHS Compliant

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