

# Surface Mount Thermistors

## ELECTRICAL SPECIFICATIONS

| TYPE | Resistance Range    | Resistance Tolerance | Beta Range | Beta Tolerance | Operating Temp. | Dissipation Constant | Thermal Time Constant | Maximum Power |
|------|---------------------|----------------------|------------|----------------|-----------------|----------------------|-----------------------|---------------|
| SM08 | 2-250 k $\Omega$    | 1,2,3,5,10%          | 3450-4500  | 3,2,1%         | -40°C – +125°C  | 2.00mW/°C            | 2.5 sec.              | 250 mW        |
| SM06 | 0.25-470 k $\Omega$ | 1,2,3,5,10%          | 2750-4500  | 3,2,1%         | -40°C – +125°C  | 1.50mW/°C            | 2.0 sec.              | 200 mW        |
| SM04 | 0.3-470 k $\Omega$  | 1,2,3,5,10%          | 2750-4500  | 3,2,1%         | -40°C – +125°C  | 1.10mW/°C            | 1.5 sec.              | 125 mW        |

## MECHANICAL SPECIFICATIONS

| TYPE | L (mm)          | L1 (mm)         | W (mm)          | T (mm)          |
|------|-----------------|-----------------|-----------------|-----------------|
| SM08 | 2.00 $\pm$ 0.2  | 1.20 $\pm$ 0.2  | 1.25 $\pm$ 0.2  | 0.55 $\pm$ 0.10 |
| SM06 | 1.60 $\pm$ 0.15 | 1.0 $\pm$ 0.15  | 0.80 $\pm$ 0.15 | 0.50 $\pm$ 0.10 |
| SM04 | 1.00 $\pm$ 0.05 | 0.50 $\pm$ 0.05 | 0.50 $\pm$ 0.05 | 0.35 $\pm$ 0.05 |

## PART NUMBERING SYSTEM



## APPLICATIONS

- Temperature Compensation Circuits
- Relay Coils
- LCD Controls
- Temperature Measurement

## FEATURES

- Nickel Barrier Termination
- Suitable for wave or reflow solder
- Packaging T/R STD QTY 100-5000
- Moisture Sensitivity Level: 2

## SOLDERING WAVE OR REFLOW

| TIME    | TEMP  |
|---------|-------|
| 10 sec. | 270°C |

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# Surface Mount Thermistors



## SM04

| Part Number | R (K $\Omega$ ) | Beta ( $^{\circ}$ K) | Dissipation Constant (mW/ $^{\circ}$ C) | Thermal Time Constant | Max Power |
|-------------|-----------------|----------------------|---|-----------------------|-----------|
| SM04301275  | 0.3             | 2750                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04501275  | 0.5             | 2750                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04102302  | 1               | 3000                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04202302  | 2               | 3000                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04502345  | 5               | 3450                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04103372  | 10              | 3700                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04103395  | 10              | 3950                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04103411  | 10              | 4111                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04253411  | 25              | 4111                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04503411  | 50              | 4111                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04104411  | 100             | 4111                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04253452  | 25              | 4500                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04503452  | 50              | 4500                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04104452  | 100             | 4500                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |
| SM04474452  | 470             | 4500                 | 1.10 mW/ $^{\circ}$ C                   | 1.5 sec               | 125 mW    |

## SM06

|            |      |      |                       |         |        |
|------------|------|------|-----------------------|---------|--------|
| SM06251275 | 0.25 | 2750 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06501302 | 0.5  | 3000 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06102345 | 1    | 3450 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06202345 | 2    | 3450 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06502345 | 5    | 3450 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06103345 | 10   | 3450 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06103372 | 10   | 3700 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06103395 | 10   | 3950 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06253395 | 25   | 3950 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06503395 | 50   | 3950 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06104411 | 100  | 4111 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06154411 | 150  | 4110 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06503452 | 50   | 4500 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06104452 | 100  | 4500 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |
| SM06474452 | 470  | 4500 | 1.50 mW/ $^{\circ}$ C | 2.0 sec | 200 mW |

## SM08

|            |     |      |                       |         |        |
|------------|-----|------|-----------------------|---------|--------|
| SM08202345 | 2   | 3450 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08502345 | 5   | 3450 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08103345 | 10  | 3450 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08502395 | 5   | 3950 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08103395 | 10  | 3950 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08253395 | 25  | 3950 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08503395 | 50  | 3950 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08103411 | 10  | 4111 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08253411 | 25  | 4111 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08503411 | 50  | 4111 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08104411 | 100 | 4111 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08503452 | 50  | 4500 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08104452 | 100 | 4500 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08154452 | 150 | 4500 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |
| SM08254452 | 250 | 4500 | 2.00 mW/ $^{\circ}$ C | 2.5 sec | 250 mW |

## ZERO POWER RESISTANCE CURVE

| Temp ( $^{\circ}$ C) | 1k $\Omega$ 2750K | 1k $\Omega$ 3000K | 1k $\Omega$ 3200K | 10k $\Omega$ 3450K | 10k $\Omega$ 3700K | 10k $\Omega$ 3900K | 10k $\Omega$ 4100K | 100k $\Omega$ 4300K | 100k $\Omega$ 4500K | 100k $\Omega$ 4700K |
|----------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
| -40                  | 11290             | 14270             | 17200             | 217300             | 274600             | 331000             | 399100             | 4812000             | 5802000             | 6995000             |
| -35                  | 9012              | 11130             | 13180             | 162800             | 201100             | 238200             | 282000             | 3339000             | 3954000             | 4682000             |
| -30                  | 7248              | 8761              | 10200             | 123300             | 149000             | 173400             | 201800             | 2349000             | 2734000             | 3182000             |
| -25                  | 5872              | 6953              | 7959              | 94240              | 111600             | 127700             | 146200             | 1674000             | 1916000             | 2193000             |
| -20                  | 4791              | 5561              | 6265              | 72720              | 84410              | 95100              | 107100             | 1207000             | 1360000             | 1532000             |
| -15                  | 3935              | 4481              | 4972              | 56620              | 64470              | 71530              | 79370              | 880600              | 977100              | 1084000             |
| -10                  | 3253              | 3636              | 3976              | 44450              | 49690              | 54330              | 59400              | 649400              | 710000              | 776300              |
| -5                   | 2705              | 2971              | 3202              | 35170              | 38630              | 41640              | 44890              | 483900              | 521600              | 562200              |
| 0                    | 2262              | 2443              | 2597              | 28040              | 30280              | 32200              | 34240              | 364000              | 387100              | 411600              |
| 5                    | 1902              | 2020              | 2120              | 22520              | 23920              | 25100              | 26340              | 276400              | 290100              | 304400              |
| 10                   | 1608              | 1681              | 1742              | 18210              | 19040              | 19730              | 20440              | 211800              | 219400              | 227400              |
| 15                   | 1366              | 1406              | 1440              | 14820              | 15260              | 15620              | 15990              | 163600              | 167500              | 171400              |
| 20                   | 1166              | 1183              | 1197              | 12140              | 12310              | 12450              | 12600              | 127400              | 128900              | 130400              |
| 25                   | 1000              | 1000              | 1000              | 10000              | 10000              | 10000              | 10000              | 100000              | 100000              | 100000              |
| 30                   | 861.3             | 849.5             | 840.1             | 8286               | 8172               | 8082               | 7993               | 79050               | 78180               | 77320               |
| 35                   | 745               | 725               | 709.4             | 6903               | 6718               | 6573               | 6432               | 62930               | 61580               | 60250               |
| 40                   | 647               | 621.5             | 601.8             | 5782               | 5554               | 5378               | 5208               | 50400               | 48840               | 47300               |
| 45                   | 564.1             | 535.1             | 513               | 4867               | 4617               | 4426               | 4243               | 40680               | 39000               | 37390               |
| 50                   | 493.6             | 462.6             | 439.2             | 4116               | 3858               | 3663               | 3477               | 33020               | 31350               | 29760               |
| 55                   | 433.5             | 401.5             | 377.7             | 3498               | 3240               | 3047               | 2866               | 26950               | 25350               | 23840               |
| 60                   | 382.1             | 349.9             | 326.1             | 2986               | 2734               | 2548               | 2375               | 22130               | 20620               | 19220               |
| 65                   | 337.9             | 306               | 282.6             | 2560               | 2318               | 2141               | 1978               | 18270               | 16880               | 15590               |
| 70                   | 299.8             | 268.6             | 246               | 2203               | 1974               | 1808               | 1656               | 15160               | 13880               | 12720               |
| 75                   | 266.8             | 236.5             | 214.8             | 1904               | 1688               | 1533               | 1392               | 12650               | 11480               | 10430               |
| 80                   | 238.2             | 209               | 188.3             | 1652               | 1450               | 1306               | 1177               | 10600               | 9548                | 8601                |
| 85                   | 213.3             | 185.3             | 165.6             | 1439               | 1251               | 1118               | 998.8              | 8927                | 7978                | 7130                |
| 90                   | 191.5             | 164.8             | 146.2             | 1258               | 1083               | 960.2              | 851.5              | 7552                | 6698                | 5940                |
| 95                   | 172.4             | 147               | 129.4             | 1103               | 940.9              | 828.2              | 729                | 6417                | 5649                | 4972                |
| 100                  | 155.7             | 131.5             | 115               | 971.3              | 820.6              | 717.1              | 626.7              | 5476                | 4785                | 4182                |
| 105                  | 140.9             | 118               | 102.4             | 857.7              | 718.3              | 623.2              | 540.8              | 4692                | 4072                | 3533                |
| 110                  | 127.9             | 106.2             | 91.52             | 759.8              | 630.9              | 543.6              | 468.5              | 4037                | 3479                | 2998                |
| 115                  | 116.4             | 95.82             | 82.02             | 675.3              | 555.9              | 475.9              | 407.3              | 3486                | 2984                | 2554                |
| 120                  | 106.1             | 86.68             | 73.71             | 601.9              | 491.5              | 418                | 355.4              | 3022                | 2570                | 2186                |
| 125                  | 97                | 78.61             | 66.42             | 538.1              | 435.9              | 368.3              | 311.2              | 2630                | 2222                | 1877                |