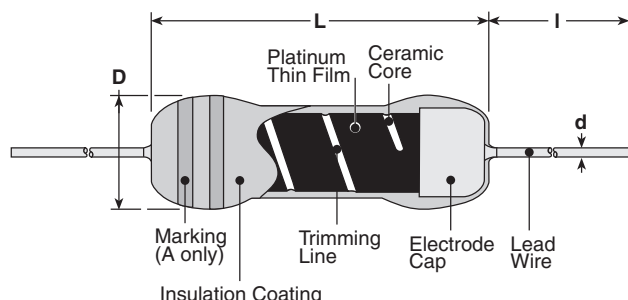


## features

- 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.)                | I                   |
| SDT101A | .157±.031<br>(4.0±0.8) | .063±.008<br>(1.6±0.2) | .016±.003<br>(0.4±0.08) | 1.18±.118<br>(30±3) |
| SDT101B | .157±.031<br>(4.0±0.8) | .059±.008<br>(1.5±0.2) | .016±.003<br>(0.4±0.08) | 1.18±.118<br>(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:<br>-55°C~+150°C<br>B:<br>-55°C~+300°C | X: 0°C<br>Y: 25°C*    | C: SnCu (A only)<br>N: Ni (B only) | Nil: Bulk<br>T26: 26mm taping (A only)<br>T52: 52mm taping (A only) | Nil: Bulk<br>A: AMMO (A only) | 10: 10Ω<br>100: 100Ω<br>500: 500Ω | D: ±0.5%<br>F: ±1%   | F: ±1%<br>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.

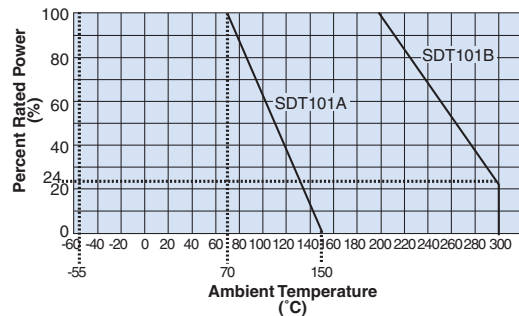
## applications and ratings

| 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%<br>F: ±1%   | 3500            | F: ±1%<br>G: ±2%          | +70°C                     | -55°C to +150°C             |
| SDT101B          |                      | 9 seconds              | 1.8mW/°C                      |                  |                      |                 |                           | +200°C                    | -55°C to +300°C             |

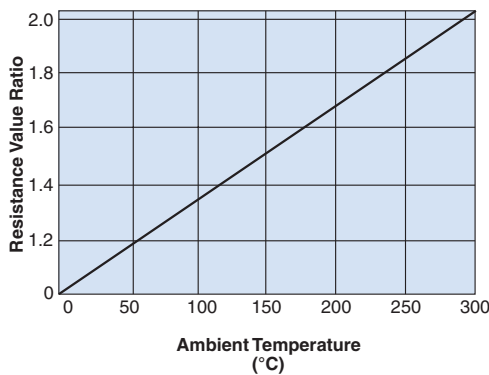
\* Thermal time constant and thermal dissipation constant are reference values, which are values of elements and vary with connecting or fixing methods. T.C.R. measuring temperature: 0°C/+100°C

### environmental applications

#### Derating Curve



#### Example of Temperature Characteristics of Resistance



#### 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                | 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 | 179.31 | 179.64 | 179.97 | 180.30 | 180.62 | 180.95 | 181.28 | 181.60 | 181.93 |
| 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 $\Delta R \pm(\%+0.05\Omega)$ |         | Test Method                                                                               |
|-------------------------------------|-------------------------------------------|---------|-------------------------------------------------------------------------------------------|
|                                     | Limit                                     | Typical |                                                                                           |
| 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                                             |

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

12/02/11