

Surface Mount, NTC Thermistors



FEATURES

- High sensitivity
- High accuracy over a wide temperature range
- Suitable for wave or reflow soldering
- NiSn terminations
- Fully glass coated

APPLICATIONS

- Temperature compensation, sensing and protection in, for example:
 - Battery chargers
 - Consumer equipment
 - Office equipment

QUICK REFERENCE DATA

| PARAMETER | VALUE |
|------------------------------|---------------------|
| Resistance value at 25 °C | 2.2 kΩ to 100 kΩ |
| Tolerance on R25-value | ±2%; ±3%; ±5%; ±10% |
| Tolerance on B25/85-value | see Table below |
| Maximum dissipation at 25 °C | 125 mW |
| Thermal time constant τ | ≈8 s |
| Operating temperature range | -40 to +150 °C |
| R/T values | see Tables |
| Climatic category | 40/125/56 |
| Mass | ≈0.0045 g |

DESCRIPTION

Size 0603 chip thermistors with a negative temperature coefficient. The device has no marking.

PACKAGING

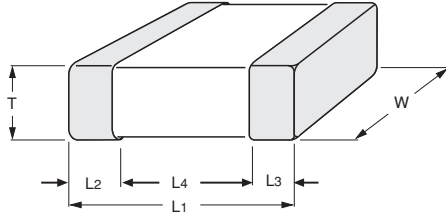
Available in 8 mm punched paper tape on reel package of 4000 units.

ELECTRICAL DATA AND ORDERING INFORMATION

| R ₂₅ (kΩ) | B _{25/85} -VALUE (K) | TOLERANCE ON B _{25/85} (%) | CATALOG NUMBER 2322 615 3.... | | | |
|-------------------------|----------------------------------|---|----------------------------------|--------------------------------|--------------------------------|---------------------------------|
| | | | ±2% TOL. ON R ₂₅ | ±3% TOL. ON R ₂₅ | ±5% TOL. ON R ₂₅ | ±10% TOL. ON R ₂₅ |
| 2.2 | 3520 | ±1 | 34222 | 36222 | 33222 | 32222 |
| 2.7 | 3600 | ±1 | 34272 | 36272 | 33272 | 32272 |
| 4.7 | 3830 | ±1 | 34472 | 36472 | 33472 | 32472 |
| 10 | 3610 | ±1 | 34103 | 36103 | 33103 | 32103 |
| 15 | 3600 | ±1 | 34153 | 36153 | 33153 | 32153 |
| 22 | 3730 | ±1 | 34223 | 36223 | 33223 | 32223 |
| 33 | 3860 | ±1 | 34333 | 36333 | 33333 | 32333 |
| 47 | 3960 | ±1 | 34473 | 36473 | 33473 | 32473 |
| 68 | 3985 | ±1 | 34683 | 36683 | 33683 | 32683 |
| 100 | 4100 | ±1 | 34104 | 36104 | 33104 | 32104 |



DIMENSIONS in millimeters



| L ₁ | W | T | L ₂ and L ₃ MIN. | L ₄ MIN. |
|----------------|-----------|-----------|--|---------------------|
| 1.6 ±0.15 | 0.8 ±0.15 | 0.8 ±0.15 | 0.2 | 0.4 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R ₂₅ AT 2.2 KΩ | | | |
|---|-------------------------------|----------|-----------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.222 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 53502.61 | -6.11 | 7.58 |
| -35 | 39637.33 | -5.89 | 6.83 |
| -30 | 29679.76 | -5.68 | 6.13 |
| -25 | 22450.97 | -5.48 | 5.45 |
| -20 | 17148.62 | -5.29 | 4.80 |
| -15 | 13220.63 | -5.11 | 4.18 |
| -10 | 10283.06 | -4.94 | 3.58 |
| -5 | 8066.16 | -4.77 | 3.01 |
| 0 | 6378.54 | -4.62 | 2.46 |
| 5 | 5083.09 | -4.47 | 1.93 |
| 10 | 4080.75 | -4.32 | 1.42 |
| 15 | 3299.24 | -4.18 | 0.93 |
| 20 | 2685.45 | -4.05 | 0.46 |
| 25 | 2200.00 | -3.93 | 0.00 |
| 30 | 1813.46 | -3.80 | 0.22 |
| 35 | 1503.70 | -3.69 | 0.43 |
| 40 | 1253.93 | -3.58 | 0.64 |
| 45 | 1051.33 | -3.47 | 0.84 |
| 50 | 886.05 | -3.37 | 1.03 |
| 55 | 750.49 | -3.27 | 1.22 |
| 60 | 638.72 | -3.18 | 1.40 |
| 65 | 546.09 | -3.09 | 1.58 |
| 70 | 468.95 | -3.00 | 1.75 |
| 75 | 404.41 | -2.92 | 1.92 |
| 80 | 350.18 | -2.84 | 2.08 |
| 85 | 304.40 | -2.76 | 2.23 |
| 90 | 265.61 | -2.69 | 2.54 |
| 95 | 232.60 | -2.62 | 2.85 |
| 100 | 204.39 | -2.55 | 3.14 |
| 105 | 180.22 | -2.49 | 3.43 |
| 110 | 159.41 | -2.42 | 3.71 |
| 115 | 141.44 | -2.36 | 3.98 |
| 120 | 125.88 | -2.30 | 4.24 |
| 125 | 112.35 | -2.25 | 4.50 |
| 130 | 100.55 | -2.19 | 4.76 |
| 135 | 90.24 | -2.14 | 5.00 |
| 140 | 81.19 | -2.09 | 5.25 |
| 145 | 73.23 | -2.04 | 5.48 |
| 150 | 66.22 | -1.99 | 5.71 |



| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R₂₅ AT 2.7 KΩ | | | |
|---|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.272 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 70762.57 | -6.26 | 7.58 |
| -35 | 52048.04 | -6.03 | 6.83 |
| -30 | 38704.41 | -5.82 | 6.13 |
| -25 | 29084.12 | -5.61 | 5.45 |
| -20 | 22074.19 | -5.42 | 4.80 |
| -15 | 16914.12 | -5.23 | 4.18 |
| -10 | 13078.64 | -5.06 | 3.58 |
| -5 | 10201.06 | -4.89 | 3.01 |
| 0 | 8022.83 | -4.72 | 2.46 |
| 5 | 6359.87 | -4.57 | 1.93 |
| 10 | 5079.88 | -4.42 | 1.42 |
| 15 | 4086.95 | -4.28 | 0.93 |
| 20 | 3310.90 | -4.14 | 0.46 |
| 25 | 2700.00 | -4.02 | 0.00 |
| 30 | 2215.79 | -3.89 | 0.22 |
| 35 | 1829.45 | -3.77 | 0.43 |
| 40 | 1519.26 | -3.66 | 0.64 |
| 45 | 1268.68 | -3.55 | 0.84 |
| 50 | 1065.09 | -3.45 | 1.03 |
| 55 | 898.74 | -3.35 | 1.22 |
| 60 | 762.09 | -3.25 | 1.40 |
| 65 | 649.26 | -3.16 | 1.58 |
| 70 | 555.63 | -3.07 | 1.75 |
| 75 | 477.56 | -2.99 | 1.92 |
| 80 | 412.18 | -2.90 | 2.08 |
| 85 | 357.17 | -2.83 | 2.23 |
| 90 | 310.69 | -2.75 | 2.54 |
| 95 | 271.26 | -2.68 | 2.85 |
| 100 | 237.68 | -2.61 | 3.14 |
| 105 | 208.97 | -2.54 | 3.43 |
| 110 | 184.33 | -2.48 | 3.71 |
| 115 | 163.12 | -2.41 | 3.98 |
| 120 | 144.79 | -2.35 | 4.24 |
| 125 | 128.90 | -2.30 | 4.50 |
| 130 | 115.08 | -2.24 | 4.76 |
| 135 | 103.02 | -2.19 | 5.00 |
| 140 | 92.47 | -2.13 | 5.25 |
| 145 | 83.22 | -2.08 | 5.48 |
| 150 | 75.07 | -2.04 | 5.71 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R₂₅ AT 4.7 KΩ | | | |
|---|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.472 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 152831.92 | -6.66 | 7.58 |
| -35 | 110192.48 | -6.43 | 6.83 |
| -30 | 80369.15 | -6.20 | 6.13 |
| -25 | 59267.29 | -5.98 | 5.45 |
| -20 | 44169.70 | -5.78 | 4.80 |
| -15 | 33252.16 | -5.58 | 4.18 |
| -10 | 25276.18 | -5.39 | 3.58 |
| -5 | 19391.74 | -5.21 | 3.01 |
| 0 | 15009.33 | -5.04 | 2.46 |



| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.472 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 5 | 11715.98 | -4.87 | 1.93 |
| 10 | 9219.53 | -4.71 | 1.42 |
| 15 | 7311.41 | -4.56 | 0.93 |
| 20 | 5841.30 | -4.42 | 0.46 |
| 25 | 4700.00 | -4.28 | 0.00 |
| 30 | 3807.45 | -4.15 | 0.22 |
| 35 | 3104.52 | -4.02 | 0.43 |
| 40 | 2547.18 | -3.90 | 0.64 |
| 45 | 2102.41 | -3.78 | 0.84 |
| 50 | 1745.26 | -3.67 | 1.03 |
| 55 | 1456.75 | -3.56 | 1.22 |
| 60 | 1222.36 | -3.46 | 1.40 |
| 65 | 1030.87 | -3.36 | 1.58 |
| 70 | 873.61 | -3.26 | 1.75 |
| 75 | 743.79 | -3.17 | 1.92 |
| 80 | 636.11 | -3.08 | 2.08 |
| 85 | 546.36 | -3.00 | 2.23 |
| 90 | 471.22 | -2.92 | 2.54 |
| 95 | 408.03 | -2.84 | 2.85 |
| 100 | 354.67 | -2.77 | 3.14 |
| 105 | 309.43 | -2.69 | 3.43 |
| 110 | 270.91 | -2.62 | 3.71 |
| 115 | 238.01 | -2.56 | 3.98 |
| 120 | 209.79 | -2.49 | 4.24 |
| 125 | 185.50 | -2.43 | 4.50 |
| 130 | 164.53 | -2.37 | 4.76 |
| 135 | 146.36 | -2.31 | 5.00 |
| 140 | 130.57 | -2.26 | 5.25 |
| 145 | 116.80 | -2.20 | 5.48 |
| 150 | 104.76 | -2.15 | 5.71 |

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R₂₅ AT 10 KΩ

| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.103 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 243448.30 | -6.06 | 7.58 |
| -35 | 180771.94 | -5.85 | 6.83 |
| -30 | 135622.82 | -5.65 | 6.13 |
| -25 | 102751.48 | -5.46 | 5.45 |
| -20 | 78575.54 | -5.28 | 4.80 |
| -15 | 60622.56 | -5.10 | 4.18 |
| -10 | 47167.68 | -4.94 | 3.58 |
| -5 | 36995.19 | -4.78 | 3.01 |
| 0 | 29239.78 | -4.63 | 2.46 |
| 5 | 23279.76 | -4.49 | 1.93 |
| 10 | 18664.43 | -4.35 | 1.42 |
| 15 | 15064.25 | -4.22 | 0.93 |
| 20 | 12236.28 | -4.10 | 0.46 |
| 25 | 10000.00 | -3.98 | 0.00 |
| 30 | 8220.27 | -3.86 | 0.22 |
| 35 | 6795.17 | -3.75 | 0.43 |
| 40 | 5647.32 | -3.65 | 0.64 |
| 45 | 4717.53 | -3.55 | 0.84 |
| 50 | 3960.30 | -3.45 | 1.03 |

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Vishay BCcomponents

Surface Mount, NTC Thermistors



| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.103 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 55 | 3340.37 | -3.36 | 1.22 |
| 60 | 2830.32 | -3.27 | 1.40 |
| 65 | 2408.64 | -3.18 | 1.58 |
| 70 | 2058.41 | -3.10 | 1.75 |
| 75 | 1766.22 | -3.02 | 1.92 |
| 80 | 1521.40 | -2.95 | 2.08 |
| 85 | 1315.43 | -2.87 | 2.23 |
| 90 | 1141.44 | -2.80 | 2.54 |
| 95 | 993.91 | -2.73 | 2.85 |
| 100 | 868.35 | -2.67 | 3.14 |
| 105 | 761.11 | -2.61 | 3.43 |
| 110 | 669.19 | -2.54 | 3.71 |
| 115 | 590.14 | -2.48 | 3.98 |
| 120 | 521.94 | -2.43 | 4.24 |
| 125 | 462.92 | -2.37 | 4.50 |
| 130 | 411.68 | -2.32 | 4.76 |
| 135 | 367.08 | -2.27 | 5.00 |
| 140 | 328.14 | -2.22 | 5.25 |
| 145 | 294.05 | -2.17 | 5.48 |
| 150 | 264.12 | -2.12 | 5.71 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R ₂₅ AT 15 KΩ | | | |
|--|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.153 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 362484.49 | -6.07 | 7.58 |
| -35 | 269088.54 | -5.85 | 6.83 |
| -30 | 201887.78 | -5.64 | 6.13 |
| -25 | 152996.55 | -5.45 | 5.45 |
| -20 | 117051.45 | -5.26 | 4.80 |
| -15 | 90360.69 | -5.09 | 4.18 |
| -10 | 70354.10 | -4.92 | 3.58 |
| -5 | 55223.01 | -4.76 | 3.01 |
| 0 | 43681.57 | -4.61 | 2.46 |
| 5 | 34806.62 | -4.47 | 1.93 |
| 10 | 27929.29 | -4.33 | 1.42 |
| 15 | 22560.62 | -4.20 | 0.93 |
| 20 | 18340.15 | -4.08 | 0.46 |
| 25 | 15000.00 | -3.96 | 0.00 |
| 30 | 12339.55 | -3.85 | 0.22 |
| 35 | 10207.46 | -3.74 | 0.43 |
| 40 | 8488.74 | -3.64 | 0.64 |
| 45 | 7095.43 | -3.54 | 0.84 |
| 50 | 5959.80 | -3.44 | 1.03 |
| 55 | 5029.40 | -3.35 | 1.22 |
| 60 | 4263.35 | -3.26 | 1.40 |
| 65 | 3629.59 | -3.18 | 1.58 |
| 70 | 3102.87 | -3.10 | 1.75 |
| 75 | 2663.17 | -3.02 | 1.92 |
| 80 | 2294.55 | -2.94 | 2.08 |
| 85 | 1984.26 | -2.87 | 2.23 |
| 90 | 1722.03 | -2.80 | 2.54 |
| 95 | 1499.58 | -2.73 | 2.85 |
| 100 | 1310.17 | -2.67 | 3.14 |



| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.153 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 105 | 1148.34 | -2.61 | 3.43 |
| 110 | 1009.58 | -2.55 | 3.71 |
| 115 | 890.23 | -2.49 | 3.98 |
| 120 | 787.23 | -2.43 | 4.24 |
| 125 | 698.07 | -2.38 | 4.50 |
| 130 | 620.67 | -2.32 | 4.76 |
| 135 | 553.27 | -2.27 | 5.00 |
| 140 | 494.43 | -2.22 | 5.25 |
| 145 | 442.91 | -2.18 | 5.48 |
| 150 | 397.69 | -2.13 | 5.71 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R ₂₅ AT 22 KΩ | | | |
|--|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.223 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 603211.80 | -6.28 | 7.58 |
| -35 | 443042.83 | -6.06 | 6.83 |
| -30 | 328857.73 | -5.86 | 6.13 |
| -25 | 246572.40 | -5.66 | 5.45 |
| -20 | 186660.99 | -5.47 | 4.80 |
| -15 | 142608.21 | -5.29 | 4.18 |
| -10 | 109909.84 | -5.12 | 3.58 |
| -5 | 85419.80 | -4.96 | 3.01 |
| 0 | 66918.84 | -4.80 | 2.46 |
| 5 | 52826.61 | -4.66 | 1.93 |
| 10 | 42007.45 | -4.51 | 1.42 |
| 15 | 33638.10 | -4.38 | 0.93 |
| 20 | 27116.78 | -4.25 | 0.46 |
| 25 | 22000.00 | -4.12 | 0.00 |
| 30 | 17958.43 | -4.00 | 0.22 |
| 35 | 14745.66 | -3.89 | 0.43 |
| 40 | 12176.02 | -3.77 | 0.64 |
| 45 | 10108.62 | -3.67 | 0.84 |
| 50 | 8435.86 | -3.57 | 1.03 |
| 55 | 7075.02 | -3.47 | 1.22 |
| 60 | 5962.13 | -3.38 | 1.40 |
| 65 | 5047.43 | -3.29 | 1.58 |
| 70 | 4291.97 | -3.20 | 1.75 |
| 75 | 3665.11 | -3.12 | 1.92 |
| 80 | 3142.63 | -3.04 | 2.08 |
| 85 | 2705.24 | -2.96 | 2.23 |
| 90 | 2337.57 | -2.88 | 2.54 |
| 95 | 2027.26 | -2.81 | 2.85 |
| 100 | 1764.33 | -2.74 | 3.14 |
| 105 | 1540.72 | -2.68 | 3.43 |
| 110 | 1349.86 | -2.61 | 3.71 |
| 115 | 1186.38 | -2.55 | 3.98 |
| 120 | 1045.88 | -2.49 | 4.24 |
| 125 | 924.73 | -2.43 | 4.50 |
| 130 | 819.95 | -2.38 | 4.76 |
| 135 | 729.04 | -2.32 | 5.00 |
| 140 | 649.93 | -2.27 | 5.25 |
| 145 | 580.89 | -2.22 | 5.48 |
| 150 | 520.48 | -2.17 | 5.71 |



RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R₂₅ AT 33 KΩ

| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.333 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 1061183.25 | -6.70 | 7.58 |
| -35 | 764124.83 | -6.44 | 6.83 |
| -30 | 557157.76 | -6.20 | 6.13 |
| -25 | 411057.96 | -5.97 | 5.45 |
| -20 | 306646.44 | -5.75 | 4.80 |
| -15 | 231156.78 | -5.55 | 4.18 |
| -10 | 175976.71 | -5.36 | 3.58 |
| -5 | 135222.68 | -5.18 | 3.01 |
| 0 | 104827.07 | -5.01 | 2.46 |
| 5 | 81945.82 | -4.84 | 1.93 |
| 10 | 64568.99 | -4.69 | 1.42 |
| 15 | 51261.67 | -4.54 | 0.93 |
| 20 | 40989.49 | -4.40 | 0.46 |
| 25 | 33000.00 | -4.27 | 0.00 |
| 30 | 26740.98 | -4.14 | 0.22 |
| 35 | 21803.80 | -4.02 | 0.43 |
| 40 | 17883.65 | -3.91 | 0.64 |
| 45 | 14751.46 | -3.80 | 0.84 |
| 50 | 12233.79 | -3.69 | 1.03 |
| 55 | 10198.43 | -3.59 | 1.22 |
| 60 | 8543.91 | -3.49 | 1.40 |
| 65 | 7191.86 | -3.40 | 1.58 |
| 70 | 6081.39 | -3.31 | 1.75 |
| 75 | 5164.90 | -3.22 | 1.92 |
| 80 | 4404.97 | -3.14 | 2.08 |
| 85 | 3772.02 | -3.06 | 2.23 |
| 90 | 3242.57 | -2.99 | 2.54 |
| 95 | 2797.84 | -2.91 | 2.85 |
| 100 | 2422.78 | -2.84 | 3.14 |
| 105 | 2105.27 | -2.78 | 3.43 |
| 110 | 1835.47 | -2.71 | 3.71 |
| 115 | 1605.39 | -2.65 | 3.98 |
| 120 | 1408.51 | -2.59 | 4.24 |
| 125 | 1239.47 | -2.53 | 4.50 |
| 130 | 1093.87 | -2.47 | 4.76 |
| 135 | 968.07 | -2.42 | 5.00 |
| 140 | 859.04 | -2.36 | 5.25 |
| 145 | 764.28 | -2.31 | 5.48 |
| 150 | 681.69 | -2.26 | 5.71 |

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R₂₅ AT 47 KΩ

| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.473 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 1643692.75 | -6.85 | 7.58 |
| -35 | 1174859.36 | -6.59 | 6.83 |
| -30 | 850461.50 | -6.34 | 6.13 |
| -25 | 623018.26 | -6.11 | 5.45 |
| -20 | 461556.69 | -5.89 | 4.80 |
| -15 | 345583.02 | -5.69 | 4.18 |
| -10 | 261354.11 | -5.49 | 3.58 |
| -5 | 199536.23 | -5.31 | 3.01 |
| 0 | 153713.87 | -5.13 | 2.46 |
| 5 | 119426.97 | -4.97 | 1.93 |
| 10 | 93541.28 | -4.81 | 1.42 |



| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.473 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 15 | 73831.58 | -4.66 | 0.93 |
| 20 | 58702.60 | -4.52 | 0.46 |
| 25 | 47000.00 | -4.38 | 0.00 |
| 30 | 37881.11 | -4.25 | 0.22 |
| 35 | 30725.55 | -4.13 | 0.43 |
| 40 | 25072.93 | -4.01 | 0.64 |
| 45 | 20578.93 | -3.89 | 0.84 |
| 50 | 16984.15 | -3.79 | 1.03 |
| 55 | 14091.76 | -3.68 | 1.22 |
| 60 | 11751.42 | -3.58 | 1.40 |
| 65 | 9847.55 | -3.49 | 1.58 |
| 70 | 8290.73 | -3.40 | 1.75 |
| 75 | 7011.37 | -3.31 | 1.92 |
| 80 | 5954.99 | -3.22 | 2.08 |
| 85 | 5078.74 | -3.14 | 2.23 |
| 90 | 4348.67 | -3.07 | 2.54 |
| 95 | 3737.83 | -2.99 | 2.85 |
| 100 | 3224.64 | -2.92 | 3.14 |
| 105 | 2791.80 | -2.85 | 3.43 |
| 110 | 2425.34 | -2.87 | 3.71 |
| 115 | 2113.94 | -2.72 | 3.98 |
| 120 | 1848.39 | -2.65 | 4.24 |
| 125 | 1621.16 | -2.59 | 4.50 |
| 130 | 1426.09 | -2.54 | 4.76 |
| 135 | 1258.09 | -2.48 | 5.00 |
| 140 | 1112.95 | -2.42 | 5.25 |
| 145 | 987.19 | -2.37 | 5.48 |
| 150 | 877.91 | -2.32 | 5.71 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R ₂₅ AT 68 KΩ | | | |
|--|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.683 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 2324375.76 | -6.77 | 7.58 |
| -35 | 1667529.37 | -6.52 | 6.83 |
| -30 | 1211147.53 | -6.28 | 6.13 |
| -25 | 889916.80 | -6.05 | 5.45 |
| -20 | 661046.51 | -5.84 | 4.80 |
| -15 | 496103.17 | -5.64 | 4.18 |
| -10 | 375940.63 | -5.45 | 3.58 |
| -5 | 287504.04 | -5.28 | 3.01 |
| 0 | 221786.10 | -5.11 | 2.46 |
| 5 | 172502.28 | -4.95 | 1.93 |
| 10 | 135221.13 | -4.79 | 1.42 |
| 15 | 106786.33 | -4.65 | 0.93 |
| 20 | 84928.25 | -4.51 | 0.46 |
| 25 | 68000.00 | -4.38 | 0.00 |
| 30 | 54796.21 | -4.26 | 0.22 |
| 35 | 44427.35 | -4.14 | 0.43 |
| 40 | 36231.83 | -4.02 | 0.64 |
| 45 | 29713.87 | -3.91 | 0.84 |
| 50 | 24499.27 | -3.81 | 1.03 |
| 55 | 20303.65 | -3.71 | 1.22 |

2322 615 3....

Vishay BCcomponents

Surface Mount, NTC Thermistors



| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.683 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 60 | 16909.48 | -3.61 | 1.40 |
| 65 | 14149.29 | -3.52 | 1.58 |
| 70 | 11893.39 | -3.43 | 1.75 |
| 75 | 10040.74 | -3.34 | 1.92 |
| 80 | 8512.21 | -3.26 | 2.08 |
| 85 | 7245.46 | -3.18 | 2.23 |
| 90 | 6191.15 | -3.11 | 2.54 |
| 95 | 5310.02 | -3.03 | 2.85 |
| 100 | 4570.69 | -2.96 | 3.14 |
| 105 | 3947.95 | -2.90 | 3.43 |
| 110 | 3421.48 | -2.83 | 3.71 |
| 115 | 2974.79 | -2.77 | 3.98 |
| 120 | 2594.49 | -2.71 | 4.24 |
| 125 | 2269.63 | -2.65 | 4.50 |
| 130 | 1991.22 | -2.59 | 4.76 |
| 135 | 1751.89 | -2.53 | 5.00 |
| 140 | 1545.52 | -2.48 | 5.25 |
| 145 | 1367.06 | -2.43 | 5.48 |
| 150 | 1212.28 | -2.38 | 5.71 |

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R ₂₅ AT 100 KΩ | | | |
|---|-------------------------------|-------------|--------------------------------|
| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.104 | | |
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| -40 | 3921252.41 | -7.03 | 7.58 |
| -35 | 2774564.66 | -6.77 | 6.83 |
| -30 | 1988706.07 | -6.52 | 6.13 |
| -25 | 1442860.78 | -6.28 | 5.45 |
| -20 | 1058901.24 | -6.06 | 4.80 |
| -15 | 785573.28 | -5.85 | 4.18 |
| -10 | 588792.99 | -5.65 | 3.58 |
| -5 | 445601.87 | -5.47 | 3.01 |
| 0 | 340346.26 | -5.29 | 2.46 |
| 5 | 262229.45 | -5.12 | 1.93 |
| 10 | 203722.79 | -4.96 | 1.42 |
| 15 | 159521.65 | -4.80 | 0.93 |
| 20 | 125851.24 | -4.66 | 0.46 |
| 25 | 100000.00 | -4.52 | 0.00 |
| 30 | 80002.55 | -4.39 | 0.22 |
| 35 | 64422.07 | -4.26 | 0.43 |
| 40 | 52199.54 | -4.14 | 0.64 |
| 45 | 42548.23 | -4.02 | 0.84 |
| 50 | 34879.32 | -3.91 | 1.03 |
| 55 | 28748.92 | -3.80 | 1.22 |
| 60 | 23820.09 | -3.70 | 1.40 |
| 65 | 19835.37 | -3.60 | 1.58 |
| 70 | 16596.82 | -3.51 | 1.75 |
| 75 | 13951.27 | -3.42 | 1.92 |
| 80 | 11779.54 | -3.33 | 2.08 |
| 85 | 9988.36 | -3.25 | 2.23 |
| 90 | 8504.34 | -3.17 | 2.54 |
| 95 | 7269.45 | -3.09 | 2.85 |
| 100 | 6237.53 | -3.02 | 3.14 |
| 105 | 5371.72 | -2.95 | 3.43 |
| 110 | 4642.45 | -2.88 | 3.71 |

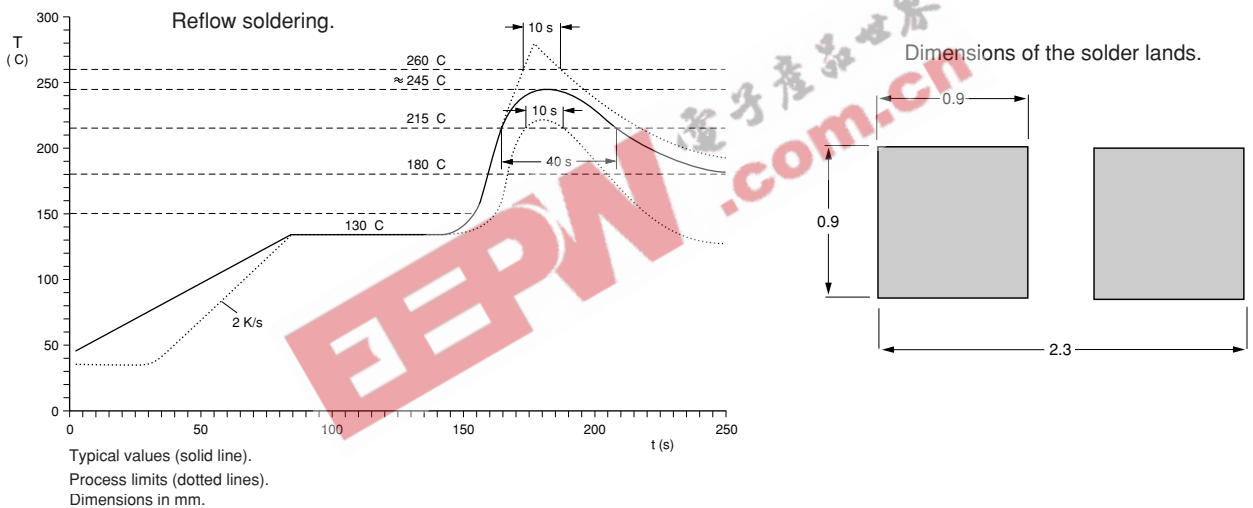


| T _{oper} (°C) | CATALOG NUMBER 2322 615 3.104 | | |
|---------------------------|-------------------------------|-------------|--------------------------------|
| | R _T (Ω) | TC (%/K) | ΔR/R DUE TO B-TOLERANCE (%) |
| 115 | 4025.87 | -2.81 | 3.98 |
| 120 | 3502.66 | -2.75 | 4.24 |
| 125 | 3057.12 | -2.68 | 4.50 |
| 130 | 2676.44 | -2.62 | 4.76 |
| 135 | 2350.10 | -2.57 | 5.00 |
| 140 | 2069.46 | -2.51 | 5.25 |
| 145 | 1827.38 | -2.46 | 5.48 |
| 150 | 1617.93 | -2.40 | 5.71 |

SOLDERING CONDITIONS

This SMD thermistor is only suitable for wave or reflow soldering, in accordance with "CECC 00802". The maximum temperature of 260 °C during 10 s should not be exceeded.

Typical examples of a soldering processes that will provide reliable joints without damage, are shown below.

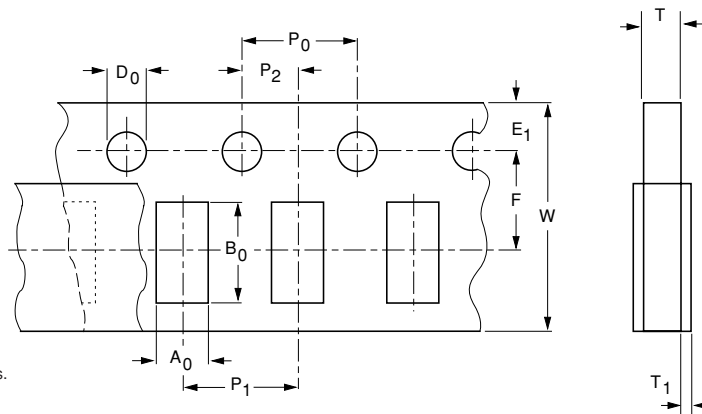


PACKAGING

TAPE SPECIFICATIONS

All tape specifications are in accordance with "IEC 60286-3". Basic dimensions are given below . Carrier tape material is paper.

PAPER TAPE



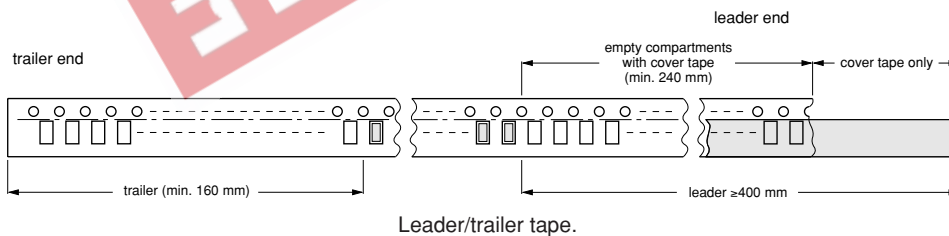
Cumulative pitch error: 0.2 mm over 10 pitches.
Cumulative tolerance over 10 holes: ±0.2 mm.

| DIMENSIONS OF PAPER TAPE in millimeters | | |
|---|-----------|-----------|
| PARAMETER | DIMENSION | TOLERANCE |
| A ₀ ; note 1 | 1.15 | ±0.1 |
| B ₀ ; note 1 | 1.9 | ±0.1 |
| K ₀ | 4.1 | ±0.1 |
| W | 8.0 | ±0.2 |
| E1 | 1.75 | ±0.1 |
| F | 3.5 | ±0.05 |
| D ₀ | 1.55 | ±0.05 |
| D ₁ | 1.5 | +0.1/-0.0 |
| P ₀ ; note 2 | 4.0 | ±0.1 |
| P ₁ | 12 | ±0.1 |
| P ₂ | 2.0 | ±0.05 |
| T tape thickness | 1.1 | max |
| T ₁ cover tape | <0.1 | - |

Notes

1. Measured 0.3 mm above base pocket.
2. P₀ pitch tolerance over any 10 pitches is ±0.2 mm.

LEADER/TRAILER TAPE SPECIFICATION



TAPING PACKAGE REQUIREMENTS

Component is free and not sticking to top and/or bottom tape.
 Component should be easy to remove from carrier tape.

TESTS AND REQUIREMENTS

| SOLDERABILITY AND RESISTANCE TO SOLDERING HEAT | | | | |
|--|----------------|------------------------------|----------------|----------------------------|
| IEC 60068-2-58 | TEST METHOD | TEST | PROCEDURE | REQUIREMENTS |
| 6 | T _c | solderability | 2 s at 235 °C | min. 95% of surface wetted |
| | | resistance to soldering heat | 10 s at 260 °C | ΔR/R < 5% |