

SMD 0603, Glass Protected NTC Thermistors



FEATURES

- TCR ranging from - 7 %/K at - 40 °C to - 2 %/K at 150 °C
- Tolerance on R_{25} down to 1 %, and on $B_{25/85}$ down to 1 %
- Suitable for wave or reflow soldering
- NiSn terminations
- Fully glass coated and protected
- cUL recognized for safety applications (file E148885)
- AEC-Q200 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Temperature sensing, protection and compensation in automotive, industrial, telecom and consumer applications. Examples are:
 - Battery chargers
 - Power suppliers
 - Office equipment
 - LCD compensation
 - In-car entertainment

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.

DESIGN-IN SUPPORT

For complete Curve Computation, visit:

www.vishay.com/resistors-non-linear/curve-computation-list/

| QUICK REFERENCE DATA | | |
|---|---------------------------------------|----------|
| PARAMETER | VALUE | UNIT |
| Resistance value at 25 °C | 2.0K to 100K | Ω |
| Tolerance on R_{25} -value | ± 1 ; ± 2 ; ± 3 ; ± 5 | % |
| $B_{25/85}$ -value | 3420 to 4100 | K |
| Tolerance on $B_{25/85}$ -value | ± 1 | % |
| Maximum dissipation at 25 °C | 125 | mW |
| Thermal time constant τ | ≈ 8 | s |
| Dissipation factor D | 3.0 | mW/K |
| Operating temperature range at zero power | - 40 to + 150 | °C |
| Weight | ≈ 0.006 | g |

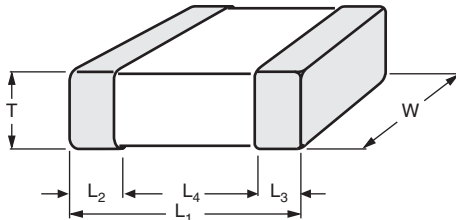
| ELECTRICAL DATA AND ORDERING INFORMATION | | | |
|--|------------------------|------------------------------|---|
| R_{25} -VALUE (k Ω) | $B_{25/85}$ -VALUE (K) | TOLERANCE ON $B_{25/85}$ (%) | SAP MATERIAL AND ORDERING NUMBER ⁽¹⁾ |
| 2.0 | 3420 | ± 1 | NTCS0603E3202*LT ⁽²⁾ |
| 2.2 | 3520 | ± 1 | NTCS0603E3222*MT |
| 2.7 | 3600 | ± 1 | NTCS0603E3272*MT |
| 4.7 | 3830 | ± 1 | NTCS0603E3472*HT |
| 10 | 3435 | ± 1 | NTCS0603E3103*LT |
| 10 | 3610 | ± 1 | NTCS0603E3103*MT |
| 10 | 3960 | ± 1 | NTCS0603E3103*HT |
| 15 | 3600 | ± 1 | NTCS0603E3153*MT ⁽³⁾ |
| 22 | 3730 | ± 1 | NTCS0603E3223*MT |
| 33 | 3860 | ± 1 | NTCS0603E3333*HT |
| 47 | 3960 | ± 1 | NTCS0603E3473*HT |
| 68 | 3985 | ± 1 | NTCS0603E3683*HT |
| 100 | 4100 | ± 1 | NTCS0603E3104*XT |

Notes

⁽¹⁾ Replace * in SAP by J for ± 5 %, H for ± 3 %, G for ± 2 %, F for ± 1 % tolerance on R_{25}

⁽²⁾ Type NTCS0603E3202*LT only available in 5 % tolerance on R_{25}

⁽³⁾ Type NTCS0603E3153*MT is not UL recognized

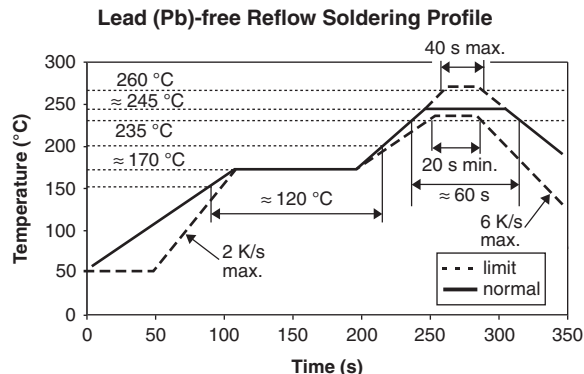
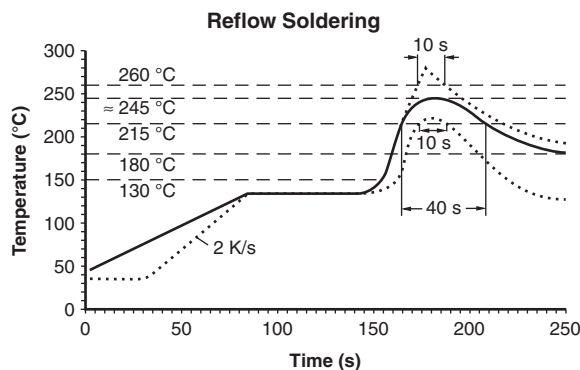
DIMENSIONS in millimeters


| 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 |

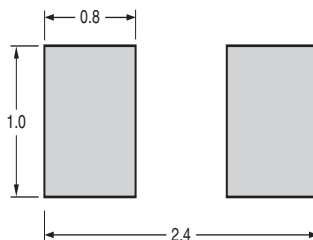
SOLDERING CONDITIONS

This SMD thermistor is only suitable for wave or reflow soldering, in accordance with JEDEC J-STD-020. The maximum temperature of 260 °C during 40 s should not be exceeded.

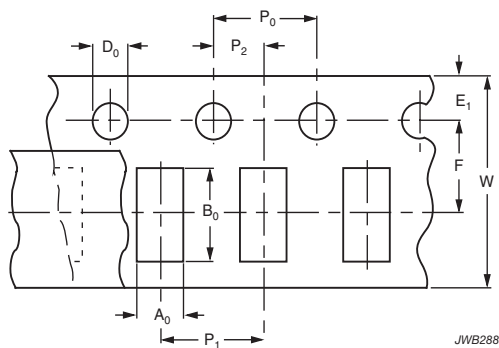
Typical examples of a soldering processes that will provide reliable joints without damage, are shown below.



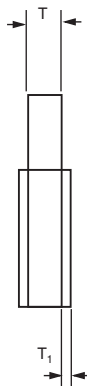
Recommended solder land pattern dimensions (mm)


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


JWB288


DIMENSIONS OF PAPER TAPE in millimeters

| PARAMETER | DIMENSION | TOLERANCE |
|-------------------------------|-----------|-----------|
| A ₀ ⁽¹⁾ | 1.15 | ± 0.1 |
| B ₀ ⁽¹⁾ | 1.9 | ± 0.1 |
| W | 8.0 | ± 0.2 |
| E ₁ | 1.75 | ± 0.1 |
| F | 3.5 | ± 0.05 |
| D ₀ | 1.55 | ± 0.05 |
| P ₀ ⁽²⁾ | 4.0 | ± 0.1 |
| P ₁ | 4.0 | ± 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 cumulative error over any 10 pitches ± 0.2 mm



For complete Curve Computation, visit: www.vishay.com/resistors-non-linear/curve-computation-list/

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 2.0 kΩ, 2.2 kΩ, 2.7 kΩ, AND 4.7 kΩ | | | | | | | | |
|--|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|
| T_{OPER} (°C) | PART NUMBER NTCS0603E3202*MT | | PART NUMBER NTCS0603E3222*MT | | PART NUMBER NTCS0603E3272*MT | | PART NUMBER NTCS0603E3472*HT | |
| | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) |
| -40 | 44 297 | - 5.93 | 53 503 | - 6.11 | 65 247 | - 6.26 | 152 832 | - 6.66 |
| -35 | 33 114 | - 5.71 | 39 637 | - 5.89 | 48 436 | - 6.03 | 110 192 | - 6.43 |
| -30 | 25 010 | - 5.51 | 29 680 | - 5.68 | 36 340 | - 5.82 | 80 369 | - 6.20 |
| -25 | 19 076 | - 5.32 | 22 451 | - 5.48 | 27 539 | - 5.61 | 59 267 | - 5.98 |
| -20 | 14 687 | - 5.14 | 17 149 | - 5.29 | 21 069 | - 5.42 | 44 170 | - 5.78 |
| -15 | 11 410 | - 4.96 | 13 221 | - 5.11 | 16 265 | - 5.23 | 33 252 | - 5.58 |
| -10 | 8940.4 | - 4.80 | 10 283 | - 4.94 | 12 664 | - 5.06 | 25 276 | - 5.39 |
| -5 | 7062.8 | - 4.64 | 8066.2 | - 4.77 | 9940.1 | - 4.89 | 19 392 | - 5.21 |
| 0 | 5623.4 | - 4.48 | 6378.5 | - 4.62 | 7862.7 | - 4.72 | 15 009 | - 5.04 |
| 5 | 4510.9 | - 4.34 | 5083.1 | - 4.47 | 6265.2 | - 4.57 | 11 716 | - 4.87 |
| 10 | 3644.4 | - 4.20 | 4080.7 | - 4.32 | 5027.3 | - 4.42 | 9219.5 | - 4.71 |
| 15 | 2964.6 | - 4.06 | 3299.2 | - 4.18 | 4060.9 | - 4.28 | 7311.4 | - 4.56 |
| 20 | 2427.4 | - 3.94 | 2685.5 | - 4.05 | 3301.2 | - 4.14 | 5841.3 | - 4.42 |
| 25 | 2000.0 | - 3.81 | 2200.0 | - 3.93 | 2700.0 | - 4.02 | 4700.0 | - 4.28 |
| 30 | 1657.7 | - 3.70 | 1813.5 | - 3.80 | 2221.1 | - 3.89 | 3807.5 | - 4.15 |
| 35 | 1382.0 | - 3.58 | 1503.7 | - 3.69 | 1837.3 | - 3.77 | 3104.5 | - 4.02 |
| 40 | 1158.4 | - 3.48 | 1253.9 | - 3.58 | 1528.0 | - 3.66 | 2547.2 | - 3.90 |
| 45 | 976.12 | - 3.37 | 1051.3 | - 3.47 | 1277.2 | - 3.55 | 2102.4 | - 3.78 |
| 50 | 826.68 | - 3.27 | 886.05 | - 3.37 | 1072.8 | - 3.45 | 1745.3 | - 3.67 |
| 55 | 703.51 | - 3.18 | 750.49 | - 3.27 | 905.29 | - 3.35 | 1456.8 | - 3.56 |
| 60 | 601.48 | - 3.09 | 638.72 | - 3.18 | 767.40 | - 3.25 | 1222.4 | - 3.46 |
| 65 | 516.53 | - 3.00 | 546.09 | - 3.09 | 653.33 | - 3.16 | 1030.9 | - 3.36 |
| 70 | 445.49 | - 2.92 | 468.95 | - 3.00 | 558.52 | - 3.07 | 873.61 | - 3.26 |
| 75 | 385.79 | - 2.84 | 404.41 | - 2.92 | 479.37 | - 2.99 | 743.79 | - 3.17 |
| 80 | 335.42 | - 2.76 | 350.18 | - 2.84 | 413.02 | - 2.90 | 636.11 | - 3.08 |
| 85 | 292.73 | - 2.69 | 304.40 | - 2.76 | 357.17 | - 2.83 | 546.36 | - 3.00 |
| 90 | 256.40 | - 2.61 | 265.61 | - 2.69 | 309.97 | - 2.75 | 471.22 | - 2.92 |
| 95 | 225.37 | - 2.55 | 232.60 | - 2.62 | 269.92 | - 2.68 | 408.03 | - 2.84 |
| 100 | 198.77 | - 2.48 | 204.39 | - 2.55 | 235.83 | - 2.61 | 354.67 | - 2.77 |
| 105 | 175.88 | - 2.42 | 180.22 | - 2.49 | 206.70 | - 2.54 | 309.43 | - 2.69 |
| 110 | 156.11 | - 2.35 | 159.41 | - 2.42 | 181.72 | - 2.48 | 270.91 | - 2.62 |
| 115 | 138.98 | - 2.29 | 141.44 | - 2.36 | 160.24 | - 2.41 | 238.01 | - 2.56 |
| 120 | 124.09 | - 2.24 | 125.88 | - 2.3 | 141.70 | - 2.35 | 209.79 | - 2.49 |
| 125 | 111.11 | - 2.18 | 112.35 | - 2.25 | 125.65 | - 2.30 | 185.50 | - 2.43 |
| 130 | 99.757 | - 2.13 | 100.55 | - 2.19 | 111.72 | - 2.24 | 164.53 | - 2.37 |
| 135 | 89.796 | - 2.08 | 90.239 | - 2.14 | 99.589 | - 2.19 | 146.36 | - 2.31 |
| 140 | 81.033 | - 2.03 | 81.192 | - 2.09 | 88.997 | - 2.13 | 130.57 | - 2.26 |
| 145 | 73.304 | - 1.98 | 73.235 | - 2.04 | 79.724 | - 2.08 | 116.80 | - 2.20 |
| 150 | 66.468 | - 1.94 | 66.218 | - 1.99 | 71.585 | - 2.04 | 104.76 | - 2.15 |



For complete Curve Computation, visit: www.vishay.com/resistors-non-linear/curve-computation-list/

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 10 kΩ, 15 kΩ, AND 22 kΩ | | | | | | | | | | |
|---|---------------------------------|--------------|---------------------------------|--------------|---------------------------------|--------------|---------------------------------|--------------|---------------------------------|--------------|
| T_{OPER} (°C) | PART NUMBER NTCS0603E3103*LT | | PART NUMBER NTCS0603E3103*MT | | PART NUMBER NTCS0603E3103*HT | | PART NUMBER NTCS0603E3153*MT | | PART NUMBER NTCS0603E3223*MT | |
| | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) |
| -40 | 183 402 | -5.54 | 243 448 | -6.06 | 347 116 | -6.66 | 362 484 | -6.07 | 603 212 | -6.28 |
| -35 | 139 680 | -5.35 | 180 772 | -5.85 | 250 089 | -6.45 | 269 089 | -5.85 | 443 043 | -6.06 |
| -30 | 107 381 | -5.17 | 135 623 | -5.65 | 182 023 | -6.25 | 201 888 | -5.64 | 328 858 | -5.86 |
| -25 | 83 297 | -4.99 | 102 751 | -5.46 | 133 804 | -6.06 | 152 997 | -5.45 | 246 572 | -5.66 |
| -20 | 65 175 | -4.82 | 78 576 | -5.28 | 99 313 | -5.87 | 117 051 | -5.26 | 186 661 | -5.47 |
| -15 | 51 419 | -4.66 | 60 623 | -5.10 | 74 408 | -5.68 | 90 361 | -5.09 | 142 608 | -5.29 |
| -10 | 40 889 | -4.51 | 47 168 | -4.94 | 56 257 | -5.50 | 70 354 | -4.92 | 109 910 | -5.12 |
| -5 | 32 763 | -4.36 | 36 995 | -4.78 | 42 910 | -5.33 | 55 223 | -4.76 | 85 420 | -4.96 |
| 0 | 26 444 | -4.21 | 29 240 | -4.63 | 33 009 | -5.16 | 43 682 | -4.61 | 66 919 | -4.80 |
| 5 | 21 493 | -4.08 | 23 280 | -4.49 | 25 602 | -5.00 | 34 807 | -4.47 | 52 827 | -4.66 |
| 10 | 17 586 | -3.95 | 18 664 | -4.35 | 20 015 | -4.85 | 27 929 | -4.33 | 42 007 | -4.51 |
| 15 | 14 482 | -3.82 | 15 064 | -4.22 | 15 767 | -4.70 | 22 561 | -4.20 | 33 638 | -4.38 |
| 20 | 11 999 | -3.70 | 12 236 | -4.10 | 12 512 | -4.55 | 18 340 | -4.08 | 27 117 | -4.25 |
| 25 | 10 000 | -3.59 | 10 000 | -3.98 | 10 000 | -4.41 | 15 000 | -3.96 | 22 000 | -4.12 |
| 30 | 8355.2 | -3.56 | 8220.3 | -3.86 | 8046.8 | -4.28 | 12 340 | -3.85 | 17 958 | -4.00 |
| 35 | 7004.1 | -3.49 | 6795.2 | -3.75 | 6517.6 | -4.15 | 10 207 | -3.74 | 14 746 | -3.89 |
| 40 | 5891.3 | -3.43 | 5647.3 | -3.65 | 5312.5 | -4.03 | 8488.7 | -3.64 | 12 176 | -3.77 |
| 45 | 4972.5 | -3.36 | 4717.5 | -3.55 | 4356.6 | -3.91 | 7095.4 | -3.54 | 10 109 | -3.67 |
| 50 | 4211.6 | -3.29 | 3960.3 | -3.45 | 3593.6 | -3.79 | 5959.8 | -3.44 | 8435.9 | -3.57 |
| 55 | 3579.7 | -3.22 | 3340.4 | -3.36 | 2981.0 | -3.68 | 5029.4 | -3.35 | 7075.0 | -3.47 |
| 60 | 3053.3 | -3.15 | 2830.3 | -3.27 | 2486.2 | -3.58 | 4263.3 | -3.26 | 5962.1 | -3.38 |
| 65 | 2613.3 | -3.08 | 2408.6 | -3.18 | 2084.3 | -3.48 | 3629.6 | -3.18 | 5047.4 | -3.29 |
| 70 | 2244.5 | -3.01 | 2058.4 | -3.10 | 1756.2 | -3.38 | 3102.9 | -3.10 | 4292.0 | -3.20 |
| 75 | 1934.4 | -2.94 | 1766.2 | -3.02 | 1486.9 | -3.28 | 2663.2 | -3.02 | 3665.1 | -3.12 |
| 80 | 1672.8 | -2.87 | 1521.4 | -2.95 | 1264.7 | -3.19 | 2294.6 | -2.94 | 3142.6 | -3.04 |
| 85 | 1451.3 | -2.81 | 1315.4 | -2.87 | 1080.6 | -3.10 | 1984.3 | -2.87 | 2705.2 | -2.96 |
| 90 | 1263.4 | -2.74 | 1141.4 | -2.80 | 927.23 | -3.02 | 1722.0 | -2.80 | 2337.6 | -2.88 |
| 95 | 1103.3 | -2.68 | 993.91 | -2.73 | 798.94 | -2.94 | 1499.6 | -2.73 | 2027.3 | -2.81 |
| 100 | 966.49 | -2.62 | 868.35 | -2.67 | 691.16 | -2.86 | 1310.2 | -2.67 | 1764.3 | -2.74 |
| 105 | 849.29 | -2.55 | 761.11 | -2.61 | 600.23 | -2.78 | 1148.3 | -2.61 | 1540.7 | -2.68 |
| 110 | 748.56 | -2.50 | 669.19 | -2.54 | 523.20 | -2.71 | 1009.6 | -2.55 | 1349.9 | -2.61 |
| 115 | 661.73 | -2.44 | 590.14 | -2.48 | 457.68 | -2.64 | 890.23 | -2.49 | 1186.4 | -2.55 |
| 120 | 586.65 | -2.38 | 521.94 | -2.43 | 401.76 | -2.57 | 787.23 | -2.43 | 1045.9 | -2.49 |
| 125 | 521.56 | -2.32 | 462.92 | -2.37 | 353.85 | -2.51 | 698.07 | -2.38 | 924.73 | -2.43 |
| 130 | 464.96 | -2.27 | 411.68 | -2.32 | 312.65 | -2.44 | 620.67 | -2.32 | 819.95 | -2.38 |
| 135 | 415.62 | -2.22 | 367.08 | -2.27 | 277.10 | -2.38 | 553.27 | -2.27 | 729.04 | -2.32 |
| 140 | 372.48 | -2.17 | 328.14 | -2.22 | 246.34 | -2.32 | 494.43 | -2.22 | 649.93 | -2.27 |
| 145 | 334.66 | -2.12 | 294.05 | -2.17 | 219.62 | -2.27 | 442.91 | -2.18 | 580.89 | -2.22 |
| 150 | 301.43 | -2.07 | 264.12 | -2.12 | 196.35 | -2.21 | 397.69 | -2.13 | 520.48 | -2.17 |



For complete Curve Computation, visit: www.vishay.com/resistors-non-linear/curve-computation-list/

| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 33 kΩ, 47 kΩ, 68 kΩ, AND 100 kΩ | | | | | | | | |
|---|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|
| T_{OPER} (°C) | PART NUMBER NTCS0603E3333*HT | | PART NUMBER NTCS0603E3473*HT | | PART NUMBER NTCS0603E3683*HT | | PART NUMBER NTCS0603E3104*XT | |
| | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) | R_T (Ω) | TCR (%/K) |
| -40 | 1 061 183 | - 6.70 | 1 643 693 | - 6.85 | 2 324 376 | - 6.77 | 3 921 252 | - 7.03 |
| -35 | 764 125 | - 6.44 | 1 174 859 | - 6.59 | 1 667 529 | - 6.52 | 2 774 565 | - 6.77 |
| -30 | 557 158 | - 6.20 | 850 461 | - 6.34 | 1 211 148 | - 6.28 | 1 988 706 | - 6.52 |
| -25 | 411 058 | - 5.97 | 623 018 | - 6.11 | 889 917 | - 6.05 | 1 442 861 | - 6.28 |
| -20 | 306 646 | - 5.75 | 461 557 | - 5.89 | 661 047 | - 5.84 | 1 058 901 | - 6.06 |
| -15 | 231 157 | - 5.55 | 345 583 | - 5.69 | 496 103 | - 5.64 | 785 573 | - 5.85 |
| -10 | 175 977 | - 5.36 | 261 354 | - 5.49 | 375 941 | - 5.45 | 588 793 | - 5.65 |
| -5 | 135 223 | - 5.18 | 199 536 | - 5.31 | 287 504 | - 5.28 | 445 602 | - 5.47 |
| 0 | 104 827 | - 5.01 | 153 714 | - 5.13 | 221 786 | - 5.11 | 340 346 | - 5.29 |
| 5 | 81 946 | - 4.84 | 119 427 | - 4.97 | 172 502 | - 4.95 | 262 229 | - 5.12 |
| 10 | 64 569 | - 4.69 | 93 541 | - 4.81 | 135 221 | - 4.79 | 203 723 | - 4.96 |
| 15 | 51 262 | - 4.54 | 73 832 | - 4.66 | 106 786 | - 4.65 | 159 522 | - 4.80 |
| 20 | 40 989 | - 4.40 | 58 703 | - 4.52 | 84 928 | - 4.51 | 125 851 | - 4.66 |
| 25 | 33 000 | - 4.27 | 47 000 | - 4.38 | 68 000 | - 4.38 | 100 000 | - 4.52 |
| 30 | 26 741 | - 4.14 | 37 881 | - 4.25 | 54 796 | - 4.26 | 80 003 | - 4.39 |
| 35 | 21 804 | - 4.02 | 30 726 | - 4.13 | 44 427 | - 4.14 | 64 422 | - 4.26 |
| 40 | 17 884 | - 3.91 | 25 073 | - 4.01 | 36 232 | - 4.02 | 52 200 | - 4.14 |
| 45 | 14 751 | - 3.80 | 20 579 | - 3.89 | 29 714 | - 3.91 | 42 548 | - 4.02 |
| 50 | 12 234 | - 3.69 | 16 984 | - 3.79 | 24 499 | - 3.81 | 34 879 | - 3.91 |
| 55 | 10 198 | - 3.59 | 14 092 | - 3.68 | 20 304 | - 3.71 | 28 749 | - 3.80 |
| 60 | 8543.9 | - 3.49 | 11 751 | - 3.58 | 16 909 | - 3.61 | 23 820 | - 3.70 |
| 65 | 7191.9 | - 3.40 | 9847.6 | - 3.49 | 14 149 | - 3.52 | 19 835 | - 3.60 |
| 70 | 6081.4 | - 3.31 | 8290.7 | - 3.40 | 11 893 | - 3.43 | 16 597 | - 3.51 |
| 75 | 5164.9 | - 3.22 | 7011.4 | - 3.31 | 10 041 | - 3.34 | 13 951 | - 3.42 |
| 80 | 4405.0 | - 3.14 | 5955.0 | - 3.22 | 8512.2 | - 3.26 | 11 780 | - 3.33 |
| 85 | 3772.0 | - 3.06 | 5078.7 | - 3.14 | 7245.5 | - 3.18 | 9988.4 | - 3.25 |
| 90 | 3242.6 | - 2.99 | 4348.7 | - 3.07 | 6191.1 | - 3.11 | 8504.3 | - 3.17 |
| 95 | 2797.8 | - 2.91 | 3737.8 | - 2.99 | 5310.0 | - 3.03 | 7269.4 | - 3.09 |
| 100 | 2422.8 | - 2.84 | 3224.6 | - 2.92 | 4570.7 | - 2.96 | 6237.5 | - 3.02 |
| 105 | 2105.3 | - 2.78 | 2791.8 | - 2.85 | 3948.0 | - 2.90 | 5371.7 | - 2.95 |
| 110 | 1835.5 | - 2.71 | 2425.3 | - 2.87 | 3421.5 | - 2.83 | 4642.5 | - 2.88 |
| 115 | 1605.4 | - 2.65 | 2113.9 | - 2.72 | 2974.8 | - 2.77 | 4025.9 | - 2.81 |
| 120 | 1408.5 | - 2.59 | 1848.4 | - 2.65 | 2594.5 | - 2.71 | 3502.7 | - 2.75 |
| 125 | 1239.5 | - 2.53 | 1621.2 | - 2.59 | 2269.6 | - 2.65 | 3057.1 | - 2.68 |
| 130 | 1093.9 | - 2.47 | 1426.1 | - 2.54 | 1991.2 | - 2.59 | 2676.4 | - 2.62 |
| 135 | 968.07 | - 2.42 | 1258.1 | - 2.48 | 1751.9 | - 2.53 | 2350.1 | - 2.57 |
| 140 | 859.04 | - 2.36 | 1112.9 | - 2.42 | 1545.5 | - 2.48 | 2069.5 | - 2.51 |
| 145 | 764.28 | - 2.31 | 987.19 | - 2.37 | 1367.1 | - 2.43 | 1827.4 | - 2.46 |
| 150 | 681.69 | - 2.26 | 877.91 | - 2.32 | 1212.3 | - 2.38 | 1617.9 | - 2.40 |



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