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5% Carbon Film Resistors

Table of Values in Ohms

| | | | | | | | | | |
|-----|-----|-----|-----|------|------|-----|------|------|------|
| 1.0 | 5.6 | 33 | 160 | 820 | 3.9K | 20K | 100K | 510K | 2.7M |
| 1.1 | 6.2 | 36 | 180 | 910 | 4.3K | 22K | 110K | 560K | 3M |
| 1.2 | 6.8 | 39 | 200 | 1K | 4.7K | 24K | 120K | 620K | 3.3M |
| 1.3 | 7.5 | 43 | 220 | 1.1K | 5.1K | 27K | 130K | 680K | 3.6M |
| 1.5 | 8.2 | 47 | 240 | 1.2K | 5.6K | 30K | 150K | 750K | 3.9M |
| 1.6 | 9.1 | 51 | 270 | 1.3K | 6.2K | 33K | 160K | 820K | 4.3M |
| 1.8 | 10 | 56 | 300 | 1.5K | 6.6K | 36K | 180K | 910K | 4.7M |
| 2.0 | 11 | 62 | 330 | 1.6K | 7.5K | 39K | 200K | 1M | 5.1M |
| 2.2 | 12 | 68 | 360 | 1.8K | 8.2K | 43K | 220K | 1.1M | 5.6M |
| 2.4 | 13 | 75 | 390 | 2K | 9.1K | 47K | 240K | 1.2M | 6.2M |
| 2.7 | 15 | 82 | 430 | 2.2K | 10K | 51K | 270K | 1.3M | 6.8M |
| 3.0 | 16 | 91 | 470 | 2.4K | 11K | 56K | 300K | 1.5M | 7.5M |
| 3.3 | 18 | 100 | 510 | 2.7K | 12K | 62K | 330K | 1.6M | 8.2M |
| 3.6 | 20 | 110 | 560 | 3K | 13K | 68K | 360K | 1.8M | 9.1M |
| 3.9 | 22 | 120 | 620 | 3.2K | 15K | 75K | 390K | 2M | 10M |
| 4.3 | 24 | 130 | 680 | 3.3K | 16K | 82K | 430K | 2.2M | 15M |
| 4.7 | 27 | 150 | 750 | 3.6K | 18K | 91K | 470K | 2.4M | 22M |
| 5.1 | 30 | | | | | | | | |

1% Metal Film Resistors

Table of Values in Ohms

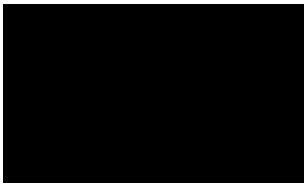
| | | | | | | | | | |
|------|------|-----|-----|-------|-------|-------|-------|------|------|
| 10 | 33 | 100 | 332 | 1K | 3.32K | 10.5K | 34K | 107K | 357K |
| 10.2 | 33.2 | 102 | 340 | 1.02K | 3.4K | 10.7K | 34.8K | 110K | 360K |
| 10.5 | 34 | 105 | 348 | 1.05K | 3.48K | 11K | 35.7K | 113K | 365K |
| 10.7 | 34.8 | 107 | 350 | 1.07K | 3.57K | 11.3K | 36K | 115K | 374K |
| 11 | 35.7 | 110 | 357 | 1.1K | 3.6K | 11.5K | 36.5K | 118K | 383K |
| 11.3 | 36 | 113 | 360 | 1.13K | 3.65K | 11.8K | 37.4K | 120K | 390K |
| 11.5 | 36.5 | 115 | 365 | 1.15K | 3.74K | 12K | 38.3K | 121K | 392K |
| 11.8 | 37.4 | 118 | 374 | 1.18K | 3.83K | 12.1K | 39K | 124K | 402K |

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Resistors

| | | | | | | | | | |
|------|------|-----|-----|-------|-------|-------|-------|------|------|
| 12 | 38.3 | 120 | 383 | 1.2K | 3.9K | 12.4K | 39.2K | 127K | 412K |
| 12.1 | 39 | 121 | 390 | 1.21K | 3.92K | 12.7K | 40.2K | 130K | 422K |
| 12.4 | 39.2 | 124 | 392 | 1.24K | 4.02K | 13K | 41.2K | 133K | 430K |
| 12.7 | 40.2 | 127 | 402 | 1.27K | 4.12K | 13.3K | 42.2K | 137K | 432K |
| 13 | 41.2 | 130 | 412 | 1.3K | 4.22K | 13.7K | 43K | 140K | 442K |
| 13.3 | 42.2 | 133 | 422 | 1.33K | 4.32K | 14K | 43.2K | 143K | 453K |
| 13.7 | 43 | 137 | 430 | 1.37K | 4.42K | 14.3K | 44.2K | 147K | 464K |
| 14 | 43.2 | 140 | 432 | 1.4K | 4.53K | 14.7K | 45.3K | 150K | 470K |
| 14.3 | 44.2 | 143 | 442 | 1.43K | 4.64K | 15K | 46.4K | 154K | 475K |
| 14.7 | 45.3 | 147 | 453 | 1.47K | 4.7K | 15.4K | 47K | 158K | 487K |
| 15 | 46.4 | 150 | 464 | 1.5K | 4.75K | 15.8K | 47.5K | 160K | 499K |
| 15.4 | 47 | 154 | 470 | 1.54K | 4.87K | 16K | 48.7K | 162K | 511K |
| 15.8 | 47.5 | 158 | 475 | 1.58K | 4.99K | 16.2K | 49.9K | 165K | 523K |
| 16 | 48.7 | 160 | 487 | 1.6K | 5.1K | 16.5K | 51K | 169K | 536K |
| 16.2 | 49.9 | 162 | 499 | 1.62K | 5.11K | 16.9K | 51.1K | 174K | 549K |
| 16.5 | 51 | 165 | 510 | 1.65K | 5.23K | 17.4K | 52.3K | 178K | 560K |
| 16.9 | 51.1 | 169 | 511 | 1.69K | 5.36K | 17.8K | 53.6K | 180K | 562K |
| 17.4 | 52.3 | 174 | 523 | 1.74K | 5.49K | 18K | 54.9K | 182K | 576K |
| 17.8 | 53.6 | 178 | 536 | 1.78K | 5.6K | 18.2K | 56K | 187K | 590K |
| 18 | 54.9 | 180 | 549 | 1.8K | 5.62K | 18.7K | 56.2K | 191K | 604K |
| 18.2 | 56 | 182 | 560 | 1.82K | 5.76K | 19.1K | 57.6K | 196K | 619K |
| 18.7 | 56.2 | 187 | 562 | 1.87K | 5.9K | 19.6K | 59K | 200K | 620K |
| 19.1 | 57.6 | 191 | 565 | 1.91K | 6.04K | 20K | 60.4K | 205K | 634K |
| 19.6 | 59 | 196 | 578 | 1.96K | 6.19K | 20.5K | 61.9K | 210K | 649K |
| 20 | 60.4 | 200 | 590 | 2K | 6.2K | 21K | 62K | 215K | 665K |
| 20.5 | 61.9 | 205 | 604 | 2.05K | 6.34K | 21.5K | 63.4K | 220K | 680K |
| 21 | 62 | 210 | 619 | 2.1K | 6.49K | 22K | 64.9K | 221K | 681K |
| 21.5 | 63.4 | 215 | 620 | 2.15K | 6.65K | 22.1K | 66.5K | 226K | 698K |
| 22 | 64.9 | 220 | 634 | 2.2K | 6.8K | 22.6K | 68K | 232K | 715K |
| 22.1 | 66.5 | 221 | 649 | 2.21K | 6.81K | 23.2K | 68.1K | 237K | 732K |
| 22.6 | 68 | 226 | 665 | 2.26K | 6.98K | 23.7K | 69.8K | 240K | 750K |
| 23.2 | 68.1 | 232 | 680 | 2.32K | 7.15K | 24K | 71.5K | 243K | 768K |
| 23.7 | 69.8 | 237 | 681 | 2.37 | 7.32K | 24.3K | 73.2K | 249K | 787K |
| 24 | 71.5 | 240 | 698 | 2.4K | 7.5K | 24.9K | 75K | 255K | 806K |
| 24.3 | 73.2 | 243 | 715 | 2.43K | 7.68K | 25.5K | 76.8K | 261K | 820K |
| 24.7 | 75 | 249 | 732 | 2.49K | 7.87K | 26.1K | 78.7K | 267K | 825K |
| 24.9 | 75.5 | 255 | 750 | 2.55K | 8.06K | 26.7K | 80.6K | 270K | 845K |
| 25.5 | 76.8 | 261 | 768 | 2.61K | 8.2K | 27K | 82K | 274K | 866K |
| 26.1 | 78.7 | 267 | 787 | 2.67K | 8.25K | 27.4K | 82.5K | 280K | 887K |
| 26.7 | 80.6 | 270 | 806 | 2.7K | 8.45K | 28K | 84.5K | 287K | 909K |
| 27 | 82 | 274 | 820 | 2.74K | 8.66K | 28.7K | 86.6K | 294K | 910K |
| 27.4 | 82.5 | 280 | 825 | 2.8K | 8.8K | 29.4K | 88.7K | 300K | 931K |
| 28 | 84.5 | 287 | 845 | 2.87K | 8.87K | 30K | 90.9K | 301K | 953K |
| 28.7 | 86.6 | 294 | 866 | 2.94K | 9.09K | 30.1K | 91K | 309K | 976K |
| 29.4 | 88.7 | 300 | 887 | 3.0K | 9.1K | 30.9K | 93.1K | 316K | 1.0M |
| 30 | 90.9 | 301 | 909 | 3.01K | 9.31K | 31.6K | 95.3K | 324K | 1.5M |



| | | | | | | | | | |
|------|------|-----|-----|-------|-------|-------|-------|------|------|
| 30.1 | 91 | 309 | 910 | 3.09K | 9.53K | 32.4K | 97.6K | 330K | 2.2M |
| 30.9 | 93.1 | 316 | 931 | 3.16K | 9.76K | 33K | 100K | 332K | |
| 31.6 | 95.3 | 324 | 953 | 3.24K | 10K | 33.2K | 102K | 340K | |
| 32.4 | 97.6 | 330 | 976 | 3.3K | 10.2K | 33.6K | 105K | 348K | |

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| DURACELL PRODUCT NUMBER | SIZE | NOMINAL VOLTAGE (V) | RATED CAPACITY ⁽¹⁾ (mAh) | RATED VOLTAGE CUTOFF (V) | RATED LOAD (Ohms) | APPROX. DRAIN (mA) | DIMENSIONS ⁽²⁾ | | | | AVERAGE WEIGHT | | MAXIMUM VOLUME | | CROSS REFERENCE | | |
|---|-------------|---------------------------|---|-----------------------------------|-------------------------|--------------------------|---------------------------|----------------|---------------|----------------|-------------------|-------|-------------------|-----------------|--------------------|-------|--------------|
| | | | | | | | MAXIMUM mm | MAXIMUM in. | MAXIMUM mm | MAXIMUM in. | g | oz. | cm ³ | in ³ | ANSI | IEC | |
| CYLINDRICAL CELL - STANDARD PRODUCTS | | | | | | | | | | | | | | | | | |
| | | | | | | | DIAMETER | | HEIGHT | | | | | | | | |
| MN1300 | D | 1.5 | 15000 | 0.8 | 10 | 115 | 34.20 | 1.346 | 61.50 | 2.421 | - | - | 138.0 | 4.86 | 56.4 | 3.44 | 13A LR20 |
| MN1400 | C | 1.5 | 7800 | 0.8 | 20 | 60 | 26.20 | 1.031 | 50.00 | 1.969 | - | - | 65.0 | 2.29 | 26.9 | 1.64 | 14A LR14 |
| MN1500 | AA | 1.5 | 2850 | 0.8 | 43 | 28 | 14.50 | 0.571 | 50.50 | 1.988 | - | - | 23.6 | 0.83 | 8.4 | 0.51 | 15A LR6 |
| MN2400 | AAA | 1.5 | 1150 | 0.8 | 75 | 15 | 10.50 | 0.413 | 44.50 | 1.752 | - | - | 11.0 | 0.39 | 3.8 | 0.23 | 24A LR03 |
| MN9100 | N | 1.5 | 800 | 0.8 | 100 | 12 | 12.00 | 0.472 | 30.20 | 1.189 | - | - | 9.6 | 0.34 | 3.4 | 0.21 | 910A LR1 |
| OTHER SELECTED MULTICELL BATTERIES - STANDARD PRODUCTS | | | | | | | | | | | | | | | | | |
| | | | | | | | LENGTH | | HEIGHT | | WIDTH | | | | | | |
| MN1203 | - | 4.5 | 4400 | 2.4 | 20 | 175 | 62.00 | 2.441 | 67.00 | 2.638 | 22.00 | 0.866 | 154.0 | 5.43 | 91.4 | 5.58 | 706A 3LR12 |
| 7K67 | J | 6.0 | 580 | 3.2 | 340 | 14 | 35.60 | 1.402 | 48.50 | 1.909 | 9.14 | 0.360 | 34.0 | 1.20 | 15.7 | 0.96 | 1412AP 4LR61 |
| MN908 | LANTERN | 6.0 | 11500 | 3.2 | 15 | 290 | 68.20 | 2.685 | 115.00 | 4.528 | 68.20 | 2.685 | 612.0 | 21.60 | 501.8 | 30.62 | 908A - |
| MN918 | LANTERN | 6.0 | 24000 | 3.2 | 9 | 490 | 136.50 | 5.370 | 127.00 | 5.000 | 73.00 | 2.874 | 1270.0 | 44.80 | 1243.5 | 75.88 | 918A - |
| MN1604 | 9-VOLT | 9.0 | 580 | 4.8 | 620 | 12 | 26.50 | 1.043 | 48.50 | 1.909 | 17.50 | 0.689 | 45.9 | 1.62 | 22.8 | 1.39 | 1604A 6LR61 |
| MN21 | CYLINDRICAL | 12.0 | 34 | 6.0 | 20K | 0.50 | 10.32 | 0.406 | 28.50 | 1.122 | - | - | 7.4 | 0.26 | 2.3 | 0.14 | 1811A - |

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American Wire Gauge (AWG)

| AWG | Inches | mm | AWG | Inches | mm |
|-----|--------|-------|-----|--------|-------|
| 40 | 0.0031 | 0.079 | 24 | 0.0201 | 0.511 |
| 39 | 0.0035 | 0.089 | 23 | 0.0226 | 0.574 |
| 38 | 0.004 | 0.102 | 22 | 0.0253 | 0.643 |
| 37 | 0.0045 | 0.114 | 21 | 0.0285 | 0.724 |
| 36 | 0.005 | 0.127 | 20 | 0.032 | 0.813 |
| 35 | 0.0056 | 0.142 | 19 | 0.0359 | 0.912 |
| 34 | 0.0063 | 0.16 | 18 | 0.0403 | 1.02 |
| 33 | 0.0071 | 0.18 | 17 | 0.0453 | 1.15 |
| 32 | 0.008 | 0.203 | 16 | 0.0508 | 1.29 |
| 31 | 0.0089 | 0.226 | 15 | 0.0571 | 1.45 |
| 30 | 0.01 | 0.254 | 14 | 0.0641 | 1.63 |
| 29 | 0.0113 | 0.287 | 13 | 0.072 | 1.83 |
| 28 | 0.0126 | 0.32 | 12 | 0.0808 | 2.05 |
| 27 | 0.0142 | 0.361 | 11 | 0.0907 | 2.3 |
| 26 | 0.0159 | 0.404 | 10 | 0.1019 | 2.6 |
| 25 | 0.0179 | 0.455 | | | |

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The Complete Smith Chart

Black Magic Design

