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Fair-Rite offers a broad selection of cost effective multi-layer chip beads to suppress conducted EMI signals. Chip beads can be used in an array of devices such as cellular phones, computers, laptops, pagers, etc. The small package sizes accommodate automated placements and allow for a dense packaging of circuit boards. Chip beads are 100% tested for impedance and dc resistance. They are available in standard, high and GHz signal speeds. The multi-layer chip beads are organized by increasing package size and current carrying capacity.

- All multi-layer chip beads are supplied taped and reeled, if required bulk packed chip beads can be provided.
- The impedance values listed are typical values. The nominal impedance with a +/- 25% tolerance is specified for the + marked 100 MHz. Chip beads are measured for impedance on the HP 4291A and fixture HP 16192A.
- Chip beads have plated contacts, 100% matte tin over a nickel undercoating. They can accommodate both reflow and wave soldering technologies.
- The suggested land patterns are in accordance to the latest revision of IPC-7351.
- Recommended storage and operating temperature range is -55 °C to 125 °C.
- Performance curves for these suppression components are our web site.
- Our "Chip Bead Kit" (part number 0199000018) is available for prototype evaluation.

## Part Number System: Example 2512063017Y1

| 25                    | 1206                     | 301                   | 7   | Y   | 1   |
|-----------------------|--------------------------|-----------------------|---|---|---|
| <b>Chip Bead Code</b> | <b>Package Size Code</b> | <b>Impedance Code</b> | <b>Packaging Code</b>   | <b>Material Code</b>  | <b>Current Code</b>                                   |
|                       |                          | 300Ω                  | 6= Bulk Packed<br>7= Taped and Reeled 7" Reel<br>8= Taped and Reeled 13" Reel | Y = Standard Signal Speed<br>Z = High Signal Speed<br>H = GHz Speed | 0 < 1.0A<br>1 ≥ 1.0A < 2.0A<br>3 ≥ 3.0A < 4.0A<br>ETC |

# Chip Beads

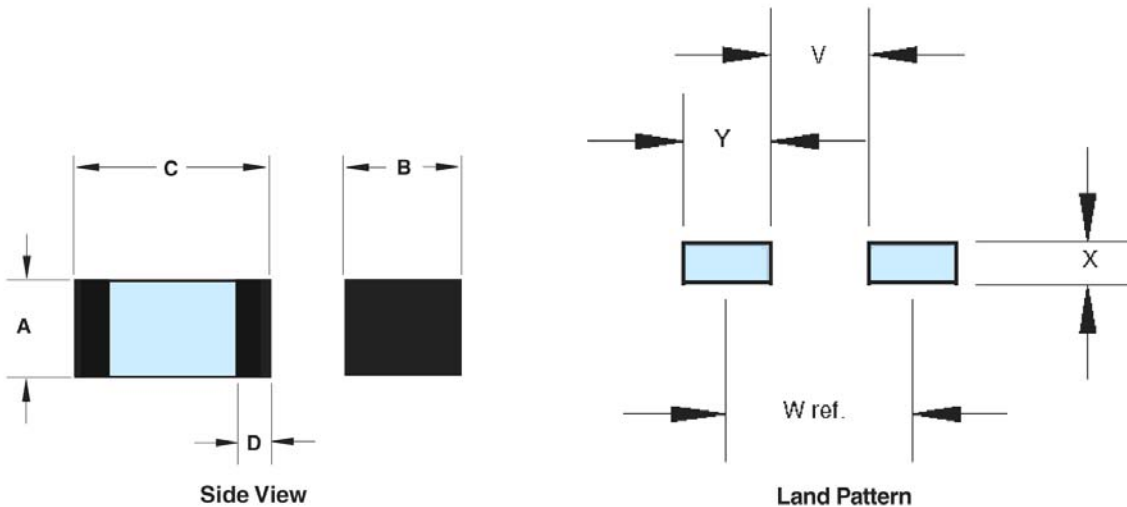


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Legend

Dimensions ( Top numbers are in millimeters, bottom numbers are in nominal inches. )

| Pkg. Size      | A                 | B                 | C                 | D                  | Wt. (g) | Land Patterns |               |               |               | Reel Information |          |               |                |
|----------------|-------------------|-------------------|-------------------|--------------------|---------|---------------|---------------|---------------|---------------|------------------|----------|---------------|----------------|
|                |                   |                   |                   |                    |         | V             | W (ref)       | X             | Y             | Tape Width mm    | Pitch mm | Parts 7" Reel | Parts 13" Reel |
| 0402<br>(1005) | 0.5±0.05<br>0.020 | 0.5±0.05<br>0.020 | 1.0±0.05<br>0.040 | 0.25±0.15<br>0.010 | 0.002   | 0.40<br>0.016 | 1.30<br>0.051 | 0.70<br>0.028 | 0.90<br>0.035 | 8                | 4        | 10000         | —              |
| 0603<br>(1608) | 0.8±0.15<br>0.031 | 0.8±0.15<br>0.031 | 1.6±0.15<br>0.063 | 0.4±0.2<br>0.016   | 0.006   | 0.60<br>0.024 | 1.70<br>0.067 | 1.00<br>0.039 | 1.10<br>0.043 | 8                | 4        | 4000          | 10000          |
| 0805<br>(2012) | 0.9±0.2<br>0.035  | 1.25±0.2<br>0.049 | 2.0±0.2<br>0.079  | 0.5±0.3<br>0.020   | 0.01    | 0.60<br>0.024 | 1.90<br>0.075 | 1.50<br>0.059 | 1.30<br>0.051 | 8                | 4        | 4000          | 10000          |
| 1206<br>(3216) | 1.1±0.2<br>0.043  | 1.6±0.2<br>0.063  | 3.2±0.2<br>0.126  | 0.7±0.3<br>0.028   | 0.03    | 1.20<br>0.047 | 2.80<br>0.110 | 1.80<br>0.071 | 1.60<br>0.063 | 8                | 4        | 3000          | 10000          |
| 1806<br>(4516) | 1.6±0.2<br>0.063  | 1.6±0.2<br>0.063  | 4.5±0.2<br>0.177  | 0.7±0.3<br>0.028   | 0.06    | 2.00<br>0.079 | 3.90<br>0.154 | 1.80<br>0.071 | 1.90<br>0.075 | 12               | 8        | 2000          | 10000          |
| 1812<br>(4532) | 1.5±0.2<br>0.059  | 3.2±0.2<br>0.126  | 4.5±0.2<br>0.177  | 0.7±0.3<br>0.028   | 0.09    | 2.00<br>0.079 | 3.90<br>0.154 | 3.40<br>0.134 | 1.90<br>0.075 | 12               | 8        | 1000          | 5000           |



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Legend

Chip Beads are listed in ascending order by current, package size, impedance and signal speed. \* Test frequency

## Low Current

| Part Number  | Pkg. Size   | Impedance ( $\Omega$ ) |                      |         |          |                       | Signal Speed | Max DCR ( $\Omega$ ) | Max Current (mA) |
|--------------|-------------|------------------------|----------------------|---------|----------|-----------------------|--------------|----------------------|------------------|
|              |             | 50 MHz                 | 100 MHz <sup>+</sup> | 500 MHz | 1000 MHz | 1000 MHz <sup>+</sup> |              |                      |                  |
| 2504021007Y0 | 0402 (1005) | 8                      | 10 $\pm$ 25%         | 13      | 14       | -                     | Standard     | 0.050                | 500              |
| 2504026007Y0 | 0402 (1005) | 48                     | 60 $\pm$ 25%         | 79      | 79       | -                     | Standard     | 0.400                | 200              |
| 2504021217Y0 | 0402 (1005) | 88                     | 120 $\pm$ 25%        | 170     | 157      | -                     | Standard     | 0.500                | 200              |
| 2504023017Y0 | 0402 (1005) | 234                    | 300 $\pm$ 25%        | 370     | 264      | -                     | Standard     | 0.750                | 100              |
| 2504026017Y0 | 0402 (1005) | 421                    | 600 $\pm$ 25%        | 652     | 362      | -                     | Standard     | 1.100                | 50               |
| 2506033007Y0 | 0603 (1608) | 23                     | 30 $\pm$ 25%         | 46      | 48       | -                     | Standard     | 0.100                | 400              |
| 2506036007Y0 | 0603 (1608) | 45                     | 60 $\pm$ 25%         | 94      | 82       | -                     | Standard     | 0.150                | 400              |
| 2506038007Y0 | 0603 (1608) | 59                     | 80 $\pm$ 25%         | 121     | 102      | -                     | Standard     | 0.150                | 400              |
| 2506031017Y0 | 0603 (1608) | 77                     | 100 $\pm$ 25%        | 144     | 131      | -                     | Standard     | 0.150                | 400              |
| 2506031217Y0 | 0603 (1608) | 90                     | 120 $\pm$ 25%        | 179     | 142      | -                     | Standard     | 0.150                | 400              |
| 2506031517Y0 | 0603 (1608) | 109                    | 150 $\pm$ 25%        | 224     | 179      | -                     | Standard     | 0.150                | 400              |
| 2506033017Y0 | 0603 (1608) | 213                    | 300 $\pm$ 25%        | 326     | 205      | -                     | Standard     | 0.300                | 400              |
| 2506036017Y0 | 0603 (1608) | 426                    | 600 $\pm$ 25%        | 405     | 226      | -                     | Standard     | 0.350                | 400              |
| 2506031027Y0 | 0603 (1608) | 653                    | 1000 $\pm$ 25%       | 241     | 110      | -                     | Standard     | 0.550                | 300              |
| 2506036007Z0 | 0603 (1608) | 28                     | 60 $\pm$ 25%         | 145     | 96       | -                     | High         | 0.250                | 450              |
| 2506031217Z0 | 0603 (1608) | 60                     | 120 $\pm$ 25%        | 278     | 192      | -                     | High         | 0.300                | 450              |
| 2506033017Z0 | 0603 (1608) | 112                    | 300 $\pm$ 25%        | 314     | 142      | -                     | High         | 0.350                | 450              |
| 2506030707H0 | 0603 (1608) | 4                      | 7 $\pm$ 25%          | 30      | 38       | -                     | GHz          | 0.100                | 700              |
| 2506031007H0 | 0603 (1608) | 5                      | 10 $\pm$ 25%         | 43      | 50       | -                     | GHz          | 0.100                | 700              |
| 2506031217H0 | 0603 (1608) | 50                     | 120 $\pm$ 25%        | 600     | -        | 500 $\pm$ 40%         | GHz          | 0.500                | 200              |
| 2506032217H0 | 0603 (1608) | 100                    | 220 $\pm$ 25%        | 800     | -        | 1100 $\pm$ 40%        | GHz          | 0.800                | 100              |
| 2506033317H0 | 0603 (1608) | 150                    | 330 $\pm$ 25%        | 1300    | -        | 1300 $\pm$ 40%        | GHz          | 1.200                | 50               |
| 2506031027H0 | 0603 (1608) | 500                    | 1000 $\pm$ 25%       | 1800    | -        | 1600 $\pm$ 40%        | GHz          | 1.000                | 100              |
| 2508051107Y0 | 0805 (2012) | 8                      | 11 $\pm$ 25%         | 16      | 16       | -                     | Standard     | 0.100                | 300              |
| 2508053007Y0 | 0805 (2012) | 22                     | 30 $\pm$ 25%         | 46      | 49       | -                     | Standard     | 0.100                | 300              |
| 2508055007Y0 | 0805 (2012) | 36                     | 50 $\pm$ 25%         | 73      | 76       | -                     | Standard     | 0.150                | 300              |

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## Low Current

| Part Number  | Pkg. Size   | Impedance ( $\Omega$ ) |                      |         |          |                       | Signal Speed | Max DCR ( $\Omega$ ) | Max Current (mA) |
|--------------|-------------|------------------------|----------------------|---------|----------|-----------------------|--------------|----------------------|------------------|
|              |             | 50 MHz                 | 100 MHz <sup>+</sup> | 500 MHz | 1000 MHz | 1000 MHz <sup>+</sup> |              |                      |                  |
| 2508056007Y0 | 0805 (2012) | 45                     | 60 $\pm$ 25%         | 88      | 89       | -                     | Standard     | 0.150                | 300              |
| 2508059007Y0 | 0805 (2012) | 68                     | 90 $\pm$ 25%         | 125     | 107      | -                     | Standard     | 0.200                | 300              |
| 2508051017Y0 | 0805 (2012) | 75                     | 100 $\pm$ 25%        | 134     | 120      | -                     | Standard     | 0.200                | 300              |
| 2508051217Y0 | 0805 (2012) | 89                     | 120 $\pm$ 25%        | 172     | 127      | -                     | Standard     | 0.200                | 300              |
| 2508051817Y0 | 0805 (2012) | 134                    | 180 $\pm$ 25%        | 198     | 111      | -                     | Standard     | 0.200                | 300              |
| 2508053017Y0 | 0805 (2012) | 216                    | 300 $\pm$ 25%        | 161     | 84       | -                     | Standard     | 0.250                | 300              |
| 2508056017Y0 | 0805 (2012) | 428                    | 600 $\pm$ 25%        | 284     | 141      | -                     | Standard     | 0.350                | 300              |
| 2508051027Y0 | 0805 (2012) | 688                    | 1000 $\pm$ 25%       | 300     | 148      | -                     | Standard     | 0.450                | 300              |
| 2508051527Y0 | 0805 (2012) | 989                    | 1500 $\pm$ 25%       | 235     | 118      | -                     | Standard     | 0.700                | 300              |
| 2508056007Z0 | 0805 (2012) | 28                     | 60 $\pm$ 25%         | 111     | 122      | -                     | High         | 0.150                | 300              |
| 2508051217Z0 | 0805 (2012) | 45                     | 120 $\pm$ 25%        | 253     | 191      | -                     | High         | 0.200                | 250              |
| 2508053017Z0 | 0805 (2012) | 118                    | 300 $\pm$ 25%        | 280     | 139      | -                     | High         | 0.250                | 200              |
| 2508052027Z0 | 0805 (2012) | 440                    | 2000 $\pm$ 25%       | 160     | 80       | -                     | High         | 0.400                | 200              |
| 2512063007Y0 | 1206 (3216) | 21                     | 30 $\pm$ 25%         | 49      | 52       | -                     | Standard     | 0.100                | 800              |
| 2512065007Y0 | 1206 (3216) | 38                     | 50 $\pm$ 25%         | 68      | 67       | -                     | Standard     | 0.150                | 800              |
| 2512067007Y0 | 1206 (3216) | 53                     | 70 $\pm$ 25%         | 101     | 102      | -                     | Standard     | 0.150                | 500              |
| 2512069007Y0 | 1206 (3216) | 72                     | 90 $\pm$ 25%         | 121     | 113      | -                     | Standard     | 0.200                | 450              |
| 2512061017Y0 | 1206 (3216) | 72                     | 100 $\pm$ 25%        | 127     | 86       | -                     | Standard     | 0.200                | 450              |
| 2512061217Y0 | 1206 (3216) | 87                     | 120 $\pm$ 25%        | 151     | 109      | -                     | Standard     | 0.200                | 450              |
| 2512063017Y0 | 1206 (3216) | 203                    | 300 $\pm$ 25%        | 233     | 118      | -                     | Standard     | 0.200                | 350              |
| 2512066017Y0 | 1206 (3216) | 581                    | 600 $\pm$ 25%        | 116     | 67       | -                     | Standard     | 0.250                | 350              |
| 2512061027Y0 | 1206 (3216) | 784                    | 1000 $\pm$ 25%       | 230     | 117      | -                     | Standard     | 0.350                | 350              |
| 2512061527Y0 | 1206 (3216) | 1600                   | 1500 $\pm$ 25%       | 120     | 25       | -                     | Standard     | 0.400                | 350              |
| 2518061017Y0 | 1806 (4516) | 73                     | 100 $\pm$ 25%        | 153     | 155      | -                     | Standard     | 0.300                | 400              |
| 2518061517Y0 | 1806 (4516) | 110                    | 150 $\pm$ 25%        | 205     | 167      | -                     | Standard     | 0.500                | 200              |

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## Medium Current

| Part Number  | Pkg. Size   | Impedance ( $\Omega$ ) |                      |         |          | Signal Speed | Max DCR ( $\Omega$ ) | Max Current (mA) |
|--------------|-------------|------------------------|----------------------|---------|----------|--------------|----------------------|------------------|
|              |             | 50 MHz                 | 100 MHz <sup>+</sup> | 500 MHz | 1000 MHz |              |                      |                  |
| 2506033007Y3 | 0603 (1608) | 23                     | 30 $\pm$ 25%         | 40      | 41       | Standard     | 0.040                | 3000             |
| 2506036007Y3 | 0603 (1608) | 48                     | 60 $\pm$ 25%         | 84      | 81       | Standard     | 0.040                | 3000             |
| 2506031217Y2 | 0603 (1608) | 90                     | 120 $\pm$ 25%        | 170     | 152      | Standard     | 0.050                | 2000             |
| 2508053007Y3 | 0805 (2012) | 23                     | 30 $\pm$ 25%         | 41      | 41       | Standard     | 0.030                | 3000             |
| 2508056007Y3 | 0805 (2012) | 49                     | 60 $\pm$ 25%         | 84      | 84       | Standard     | 0.040                | 3000             |
| 2508051217Y3 | 0805 (2012) | 91                     | 120 $\pm$ 25%        | 165     | 135      | Standard     | 0.050                | 3000             |
| 2508053017Y3 | 0805 (2012) | 239                    | 300 $\pm$ 25%        | 218     | 117      | Standard     | 0.050                | 3000             |
| 2508056017Y2 | 0805 (2012) | 449                    | 600 $\pm$ 25%        | 293     | 159      | Standard     | 0.100                | 2000             |
| 2508051027Y1 | 0805 (2012) | 764                    | 1000 $\pm$ 25%       | 402     | 216      | Standard     | 0.300                | 1000             |
| 2508052027Y1 | 0805 (2012) | 599                    | 2000 $\pm$ 25%       | 350     | 189      | Standard     | 0.300                | 1000             |
| 2512063007Y3 | 1206 (3216) | 24                     | 30 $\pm$ 25%         | 40      | 38       | Standard     | 0.030                | 3000             |
| 2512065007Y3 | 1206 (3216) | 39                     | 50 $\pm$ 25%         | 69      | 70       | Standard     | 0.030                | 3000             |
| 2512067007Y3 | 1206 (3216) | 53                     | 70 $\pm$ 25%         | 102     | 103      | Standard     | 0.040                | 3000             |
| 2512061517Y3 | 1206 (3216) | 120                    | 150 $\pm$ 25%        | 173     | 130      | Standard     | 0.050                | 3000             |
| 2512063017Y3 | 1206 (3216) | 212                    | 300 $\pm$ 25%        | 150     | 88       | Standard     | 0.060                | 3000             |
| 2512066017Y1 | 1206 (3216) | 460                    | 600 $\pm$ 25%        | 260     | 120      | Standard     | 0.080                | 1000             |
| 2512061027Y1 | 1206 (3216) | 925                    | 1000 $\pm$ 25%       | 210     | 117      | Standard     | 0.300                | 1000             |
| 2518066007Y3 | 1806 (4516) | 44                     | 60 $\pm$ 25%         | 91      | 94       | Standard     | 0.040                | 3000             |
| 2518068007Y3 | 1806 (4516) | 64                     | 80 $\pm$ 25%         | 114     | 114      | Standard     | 0.040                | 3000             |
| 2518127007Y3 | 1812 (4532) | 54                     | 70 $\pm$ 25%         | 96      | 96       | Standard     | 0.040                | 3000             |
| 2518121217Y3 | 1812 (4532) | 92                     | 120 $\pm$ 25%        | 150     | 106      | Standard     | 0.040                | 3000             |

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## High Current

| Part Number  | Pkg. Size   | Impedance ( $\Omega$ ) |                      |         |          | Signal Speed | Max DCR ( $\Omega$ ) | Max Current (mA) |
|--------------|-------------|------------------------|----------------------|---------|----------|--------------|----------------------|------------------|
|              |             | 50 MHz                 | 100 MHz <sup>+</sup> | 500 MHz | 1000 MHz |              |                      |                  |
| 2508056007Y6 | 0805 (2012) | 47                     | 60 $\pm$ 25%         | 88      | 68       | Standard     | 0.020                | 6000             |
| 2508051217Y6 | 0805 (2012) | 94                     | 120 $\pm$ 25%        | 158     | 132      | Standard     | 0.025                | 6000             |
| 2512065007Y6 | 1206 (3216) | 39                     | 50 $\pm$ 25%         | 68      | 56       | Standard     | 0.020                | 6000             |
| 2512061217Y5 | 1206 (3216) | 96                     | 120 $\pm$ 25%        | 137     | 91       | Standard     | 0.025                | 5000             |
| 2518065007Y6 | 1806 (4516) | 36                     | 50 $\pm$ 25%         | 63      | 61       | Standard     | 0.010                | 6000             |
| 2518061017Y6 | 1806 (4516) | 75                     | 100 $\pm$ 25%        | 139     | 132      | Standard     | 0.020                | 6000             |
| 2518121217Y6 | 1812 (4532) | 92                     | 120 $\pm$ 25%        | 149     | 105      | Standard     | 0.020                | 6000             |

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