

# Chip Beads

Fair-Rite offers a broad selection of cost effective chip beads to suppress conducted EMI in a wide variety of devices such as cellular phones, computers, laptops, pagers, etc.

The small standard package sizes accommodate automated installation 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. Chip beads are organized and listed by increasing current carrying capacity.

- All multi-layer chip beads are supplied taped and reeled, if required bulk packed chip beads can be provided. See table on the next page with tape and reel particulars.
- Chip beads are controlled for impedance. The impedance values listed are typical values. A nominal impedance with a +/- 25% tolerance is specified for the + marked frequency.
- Chip beads are measured for impedance on the HP 4291A and fixture HP 16192A.
- Chip beads can accommodate both reflow and wave soldering technologies. See page 28 for the recommended soldering profile for chip components.
- Suggested land patterns are in accordance to the latest revision of IPC-7351.
- Chip beads have plated contacts, 100% tin over a nickel undercoating.
- Recommended storage and operating temperature range is -55°C to 125°C.
- Performance curves for all listed chip beads, with and without dc bias, are on the Fair-Rite Products CD-ROM.
- Our "Chip Bead Kit" (part number 0199000018) is available for prototype evaluation. See page 68.

## 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>                                   |
|                       |                          |                       | 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 |

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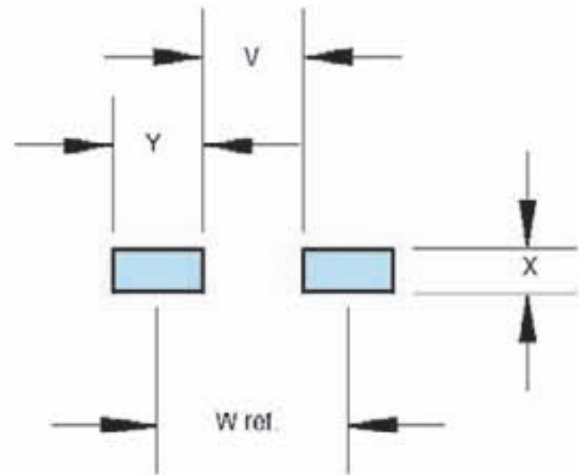
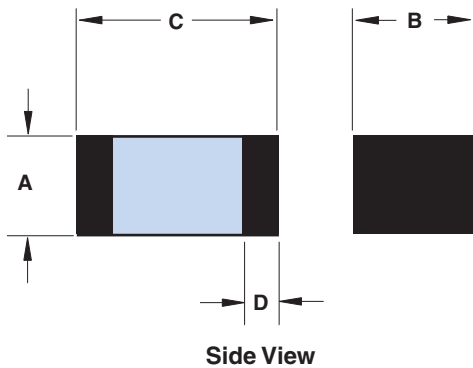
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# Chip Beads

Dimensions (Bold numbers are in millimeters, light numbers are in inches.)

| Pkg. Size             | Dimensions              |                         |                         |                          |              | Land Patterns       |                     |                     |                     | Tape Width mm | Pitch mm | Parts per Reel |        |
|-----------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------|---------------------|---------------------|---------------------|---------------------|---------------|----------|----------------|--------|
|                       | A                       | B                       | C                       | D                        | Wt(g)        | V                   | W ref               | X                   | Y                   |               |          | 7"             | 13"    |
| 0402<br><b>(1005)</b> | <b>0.5±0.15</b><br>.020 | <b>0.5±0.15</b><br>.020 | <b>1.0±0.15</b><br>.040 | <b>0.25±0.15</b><br>.010 | <b>0.002</b> | <b>0.40</b><br>.016 | <b>1.30</b><br>.051 | <b>0.70</b><br>.028 | <b>0.90</b><br>.035 | 8             | 4        | 10,000         | N/A    |
| 0603<br><b>(1608)</b> | <b>0.8±0.3</b><br>.031  | <b>0.8±0.3</b><br>.031  | <b>1.6±0.15</b><br>.063 | <b>0.4±0.2</b><br>.016   | <b>0.006</b> | <b>0.60</b><br>.024 | <b>1.70</b><br>.067 | <b>1.00</b><br>.039 | <b>1.10</b><br>.043 | 8             | 4        | 4,000          | 10,000 |
| 0805<br><b>(2012)</b> | <b>0.9±0.2</b><br>.035  | <b>1.25±0.2</b><br>.049 | <b>2.0±0.2</b><br>.079  | <b>0.5±0.3</b><br>.020   | <b>0.01</b>  | <b>0.60</b><br>.024 | <b>1.90</b><br>.075 | <b>1.50</b><br>.059 | <b>1.30</b><br>.051 | 8             | 4        | 4,000          | 10,000 |
| 1206<br><b>(3216)</b> | <b>1.1±0.2</b><br>.043  | <b>1.6±0.2</b><br>.063  | <b>3.2±0.2</b><br>.126  | <b>0.7±0.3</b><br>.028   | <b>0.03</b>  | <b>1.20</b><br>.047 | <b>2.80</b><br>.110 | <b>1.80</b><br>.071 | <b>1.60</b><br>.063 | 8             | 4        | 3,000          | 10,000 |
| 1806<br><b>(4516)</b> | <b>1.6±0.2</b><br>.063  | <b>1.6±0.2</b><br>.063  | <b>4.5±0.2</b><br>.177  | <b>0.7±0.3</b><br>.028   | <b>0.06</b>  | <b>2.00</b><br>.079 | <b>3.90</b><br>.154 | <b>1.80</b><br>.071 | <b>1.90</b><br>.075 | 12            | 8        | 2,000          | 10,000 |
| 1812<br><b>(4532)</b> | <b>1.6±0.2</b><br>.063  | <b>3.2±0.2</b><br>.126  | <b>4.5±0.2</b><br>.177  | <b>0.7±0.3</b><br>.028   | <b>0.09</b>  | <b>2.00</b><br>.079 | <b>3.90</b><br>.154 | <b>3.40</b><br>.134 | <b>1.90</b><br>.075 | 12            | 8        | 1,000          | 5,000  |



# Chip Beads

| Current      | Pkg. Size      | Signal Speed | Part Number  | Z (Ω)<br>50 MHz | Z (Ω) ± 25%<br>100 MHz <sup>+</sup> | Z (Ω)<br>500 MHz | Z (Ω)<br>1000 MHz | Max.DCR<br>(Ω) | Max Cur.<br>mA |
|--------------|----------------|--------------|--------------|-----------------|-------------------------------------|------------------|-------------------|----------------|----------------|
| Low          | 0402<br>(1005) | Standard     | 2504021007Y0 | 8               | 10                                  | 13               | 14                | 0.05           | 500            |
|              |                |              | 2504026007Y0 | 48              | 60                                  | 79               | 79                | 0.4            | 200            |
|              |                |              | 2504021217Y0 | 88              | 120                                 | 170              | 157               | 0.5            | 200            |
|              |                |              | 2504023017Y0 | 234             | 300                                 | 370              | 264               | 0.75           | 100            |
|              |                |              | 2504026017Y0 | 421             | 600                                 | 652              | 362               | 1.1            | 50             |
|              | 0603<br>(1608) | Standard     | 2506033007Y0 | 23              | 30                                  | 46               | 48                | 0.1            | 400            |
|              |                |              | 2506036007Y0 | 45              | 60                                  | 94               | 82                | 0.15           | 400            |
|              |                |              | 2506038007Y0 | 59              | 80                                  | 121              | 102               | 0.15           | 400            |
|              |                |              | 2506031017Y0 | 77              | 100                                 | 144              | 131               | 0.15           | 400            |
|              |                |              | 2506031217Y0 | 90              | 120                                 | 179              | 142               | 0.15           | 400            |
|              |                |              | 2506031517Y0 | 109             | 150                                 | 224              | 179               | 0.15           | 400            |
|              |                |              | 2506033017Y0 | 213             | 300                                 | 326              | 205               | 0.3            | 400            |
|              |                |              | 2506036017Y0 | 426             | 600                                 | 405              | 226               | 0.35           | 400            |
|              |                | High         | 2506031027Y0 | 653             | 1000                                | 241              | 110               | 0.55           | 300            |
|              |                |              | 2506036007Z0 | 28              | 60                                  | 145              | 96                | 0.25           | 450            |
|              |                |              | 2506031217Z0 | 60              | 120                                 | 278              | 192               | 0.3            | 450            |
|              |                | GHz          | 2506033017Z0 | 112             | 300                                 | 314              | 142               | 0.35           | 450            |
|              |                |              | 2506030707H0 | 4               | 7                                   | 30               | 38                | 0.1            | 700            |
|              |                |              | 2506031007H0 | 5               | 10                                  | 43               | 50                | 0.1            | 700            |
|              |                |              | 2506031217H0 | 50              | 120                                 | 600              | 500               | 0.5            | 200            |
|              | 2506032217H0   |              | 100          | 220             | 800                                 | 1000             | 0.8               | 100            |                |
|              | 2506033317H0   | 150          | 330          | 1300            | 1500                                | 1.2              | 50                |                |                |
|              | 0805<br>(2012) | Standard     | 2508051107Y0 | 8               | 11                                  | 16               | 16                | 0.1            | 300            |
|              |                |              | 2508053007Y0 | 22              | 30                                  | 46               | 49                | 0.1            | 300            |
|              |                |              | 2508055007Y0 | 36              | 50                                  | 73               | 76                | 0.15           | 300            |
|              |                |              | 2508056007Y0 | 45              | 60                                  | 88               | 89                | 0.15           | 300            |
|              |                |              | 2508059007Y0 | 68              | 90                                  | 125              | 107               | 0.2            | 300            |
|              |                |              | 2508051017Y0 | 75              | 100                                 | 134              | 120               | 0.2            | 300            |
|              |                |              | 2508051217Y0 | 89              | 120                                 | 172              | 127               | 0.2            | 300            |
|              |                |              | 2508051817Y0 | 134             | 180                                 | 198              | 111               | 0.2            | 300            |
|              |                |              | 2508053017Y0 | 216             | 300                                 | 161              | 84                | 0.25           | 300            |
|              |                |              | 2508056017Y0 | 428             | 600                                 | 284              | 141               | 0.35           | 300            |
|              |                | High         | 2508051027Y0 | 688             | 1000                                | 300              | 148               | 0.45           | 300            |
| 2508051527Y0 |                |              | 989          | 1500            | 235                                 | 118              | 0.7               | 300            |                |
| 2508056007Z0 |                |              | 28           | 60              | 111                                 | 122              | 0.15              | 300            |                |
| 2508051217Z0 |                |              | 45           | 120             | 253                                 | 191              | 0.2               | 250            |                |
| 2508053017Z0 |                |              | 118          | 300             | 280                                 | 139              | 0.25              | 200            |                |
| GHz          | 2508052027Z0   | 440          | 2000         | 160             | 80                                  | 0.4              | 200               |                |                |
|              |                | GHz          | 2508050507H0 | 2               | 5                                   | 17               | 22                | 0.07           | 500            |

+ Test frequency

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| Current | Pkg. Size      | Signal Speed | Part Number  | Z (Ω)<br>50 MHz | Z (Ω) ± 25%<br>100 MHz <sup>+</sup> | Z (Ω)<br>500 MHz | Z (Ω)<br>1000 MHz | Max.DCR<br>(Ω) | Max Cur.<br>mA |
|---------|----------------|--------------|--------------|-----------------|-------------------------------------|------------------|-------------------|----------------|----------------|
| Low     | 1206<br>(3216) | Standard     | 2512063007Y0 | 21              | 30                                  | 49               | 52                | 0.1            | 800            |
|         |                |              | 2512065007Y0 | 38              | 50                                  | 68               | 67                | 0.15           | 800            |
|         |                |              | 2512067007Y0 | 53              | 70                                  | 101              | 102               | 0.15           | 500            |
|         |                |              | 2512069007Y0 | 72              | 90                                  | 121              | 113               | 0.2            | 450            |
|         |                |              | 2512061017Y0 | 72              | 100                                 | 127              | 86                | 0.2            | 450            |
|         |                |              | 2512061217Y0 | 87              | 120                                 | 151              | 109               | 0.2            | 450            |
|         |                |              | 2512063017Y0 | 203             | 300                                 | 233              | 118               | 0.2            | 350            |
|         |                |              | 2512066017Y0 | 581             | 600                                 | 116              | 67                | 0.25           | 350            |
|         |                |              | 2512061027Y0 | 784             | 1000                                | 230              | 117               | 0.35           | 350            |
|         |                |              | 2512061527Y0 | 1500            | 1500                                | 250              | 200               | 0.4            | 350            |
|         | 1806<br>(4516) | Standard     | 2518061017Y0 | 73              | 100                                 | 153              | 155               | 0.3            | 400            |
|         |                |              | 2518061517Y0 | 110             | 150                                 | 205              | 167               | 0.5            | 200            |
| Medium  | 0603<br>(1608) | Standard     | 2506033007Y3 | 23              | 30                                  | 40               | 41                | 0.04           | 3000           |
|         |                |              | 2506036007Y3 | 48              | 60                                  | 84               | 81                | 0.04           | 3000           |
|         |                |              | 2506031217Y2 | 90              | 120                                 | 170              | 152               | 0.05           | 2000           |
|         | 0805<br>(2012) | Standard     | 2508053007Y3 | 23              | 30                                  | 41               | 41                | 0.03           | 3000           |
|         |                |              | 2508056007Y3 | 49              | 60                                  | 84               | 84                | 0.04           | 3000           |
|         |                |              | 2508051217Y3 | 91              | 120                                 | 165              | 135               | 0.05           | 3000           |
|         |                |              | 2508053017Y3 | 239             | 300                                 | 218              | 117               | 0.05           | 3000           |
|         |                |              | 2508056017Y2 | 449             | 600                                 | 293              | 159               | 0.1            | 2000           |
|         |                |              | 2508051027Y1 | 764             | 1000                                | 402              | 216               | 0.3            | 1000           |
|         | 1206<br>(3216) | Standard     | 2512063007Y3 | 24              | 30                                  | 40               | 38                | 0.03           | 3000           |
|         |                |              | 2512065007Y3 | 39              | 50                                  | 69               | 70                | 0.03           | 3000           |
|         |                |              | 2512067007Y3 | 53              | 70                                  | 102              | 103               | 0.04           | 3000           |
|         |                |              | 2512061517Y3 | 120             | 150                                 | 173              | 130               | 0.05           | 3000           |
|         |                |              | 2512063017Y3 | 212             | 300                                 | 150              | 88                | 0.06           | 3000           |
|         |                |              | 2512066017Y1 | 460             | 600                                 | 260              | 120               | 0.08           | 1000           |
|         |                |              | 2512061027Y1 | 925             | 1000                                | 210              | 117               | 0.30           | 1000           |
|         | 1806<br>(4516) | Standard     | 2518066007Y3 | 44              | 60                                  | 91               | 94                | 0.04           | 3000           |
|         |                |              | 2518068007Y3 | 64              | 80                                  | 114              | 114               | 0.04           | 3000           |
|         | 1812<br>(4532) | Standard     | 2518127007Y3 | 54              | 70                                  | 96               | 96                | 0.04           | 3000           |
|         |                |              | 2518121217Y3 | 92              | 120                                 | 150              | 106               | 0.04           | 3000           |
| High    | 0805<br>(2012) | Standard     | 2508056007Y6 | 47              | 60                                  | 88               | 68                | 0.02           | 6000           |
|         |                |              | 2508051217Y6 | 94              | 120                                 | 158              | 132               | 0.025          | 6000           |
|         | 1206<br>(3216) | Standard     | 2512065007Y6 | 39              | 50                                  | 68               | 56                | 0.02           | 6000           |
|         |                |              | 2512061217Y5 | 96              | 120                                 | 137              | 91                | 0.025          | 5000           |
|         | 1806<br>(4516) | Standard     | 2518065007Y6 | 36              | 50                                  | 63               | 61                | 0.01           | 6000           |
|         |                |              | 2518061017Y6 | 75              | 100                                 | 139              | 132               | 0.02           | 6000           |
| 1812    | Standard       | 2518121217Y6 | 92           | 120             | 149                                 | 105              | 0.02              | 6000           |                |

+ Test frequency

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