

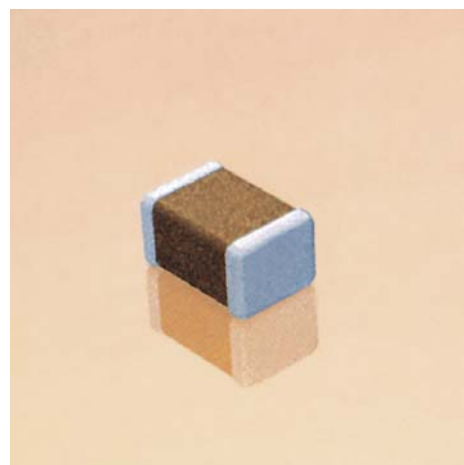
# Tip & Ring Tin/Lead Termination “B”

## Multilayer Ceramic Chip Capacitors

AVX Corporation will support customers for commercial and military Multilayer Ceramic Capacitors with a termination consisting of 5% minimum lead. This termination is indicated by the use of a “B” in the 12th position of the AVX Catalog Part Number. This fulfills AVX’s commitment to providing a full range of products to our customers. AVX has provided in the following pages, a full range of values that we are offering in this “B” termination.

AVX “Tip & Ring” or “ring detector” Multilayer Ceramic Chip Capacitors are designed as a standard telecom filter to block -48 Volts DC telephone line voltage and pass subscriber’s AC signal pulse (16 to 25Hz, 70 to 90 VRMS). The typical ringing signal is seen on figure on page 130. The ringer capacitors replace large leaded film capacitors and are ideal for telecom/modem applications. Using AVX “Tip and Ring” capacitors not only saves valuable real estate on the board and reduces the weight of the overall product, but also features standard surface mounting capabilities, so critical to new and compact designs.

The AVX “Tip & Ring” capacitors are offered in standard EIA sizes and standard values. They offer excellent high frequency performance, low ESR and improved temperature performance over film capacitors.

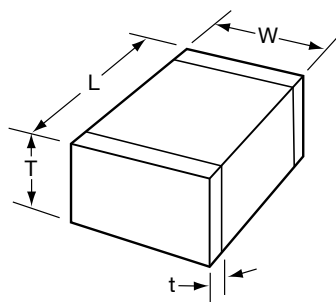


## HOW TO ORDER

| <b>LD12</b>                                                                                                          | <b>P</b>                   | <b>C</b>                       | <b>104</b>                                                                                                                        | <b>K</b>                       | <b>A</b>          | <b>B</b>                                      | <b>1</b>                                | <b>A</b>            |
|----------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-----------------------------------------------|-----------------------------------------|---------------------|
| <b>AVX Style</b>                                                                                                     | <b>Voltage</b>             | <b>Temperature Coefficient</b> | <b>Capacitance Code</b>                                                                                                           | <b>Capacitance Tolerance</b>   | <b>Test Level</b> | <b>Termination</b>                            | <b>Packaging</b>                        | <b>Special Code</b> |
| LD05 - 0805<br>LD06 - 1206<br>LD10 - 1210<br>LD08 - 1808<br>LD12 - 1812<br>LD13 - 1825<br>LD20 - 2220<br>LD14 - 2225 | 250 VDC<br>Telco<br>Rating | X7R                            | (2 significant digits<br>+ no. of zeros)<br>Examples:<br>1,000 pF = 102<br>22,000 pF = 223<br>220,000 pF = 224<br>1 $\mu$ F = 105 | K = $\pm$ 10%<br>M = $\pm$ 20% | A = Standard      | B = 5% Min Pb<br>X = FLEXITERM®<br>5% min. Pb | 1 = 7" Reel<br>3 = 13" Reel<br>9 = Bulk | A = Standard        |

Contact factory for availability of Termination and Tolerance options for Specific Part Numbers.

**Not RoHS Compliant**



## DIMENSIONS

millimeters (inches)

| STYLE (SIZE)  | LD05 (0805)                            | LD06 (1206)                            | LD10* (1210)                           | LD08* (1808)                           | LD12* (1812)                           | LD13* (1825)                           | LD20* (2220)                           | LD14* (2225)                           |
|---------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| (L) Length    | 2.01 $\pm$ 0.20<br>(0.079 $\pm$ 0.008) | 3.20 $\pm$ 0.20<br>(0.126 $\pm$ 0.008) | 3.2 $\pm$ 0.20<br>(0.126 $\pm$ 0.008)  | 4.57 $\pm$ 0.25<br>(0.180 $\pm$ 0.010) | 4.50 $\pm$ 0.30<br>(0.177 $\pm$ 0.012) | 4.50 $\pm$ 0.30<br>(0.177 $\pm$ 0.012) | 5.60 $\pm$ 0.30<br>(0.220 $\pm$ 0.012) | 5.60 $\pm$ 0.25<br>(0.220 $\pm$ 0.010) |
| (W) Width     | 1.25 $\pm$ 0.20<br>(0.049 $\pm$ 0.008) | 1.60 $\pm$ 0.20<br>(0.063 $\pm$ 0.008) | 2.50 $\pm$ 0.20<br>(0.098 $\pm$ 0.008) | 2.03 $\pm$ 0.25<br>(0.080 $\pm$ 0.010) | 3.2 $\pm$ 0.20<br>(0.126 $\pm$ 0.008)  | 6.34 $\pm$ 0.30<br>(0.252 $\pm$ 0.012) | 5.10 $\pm$ 0.40<br>(0.200 $\pm$ 0.016) | 6.35 $\pm$ 0.25<br>(0.250 $\pm$ 0.010) |
| (T) Thickness | 1.30 max.<br>(0.051 max.)              | 1.50 max.<br>(0.059 max.)              | 1.78 max.<br>(0.070 max.)              | 1.78 max.<br>(0.070 max.)              | 2.00 max.<br>(0.080 max.)              | 2.00 max.<br>(0.080 max.)              | 2.00 max.<br>(0.080 max.)              | 2.00 max.<br>(0.080 max.)              |
| (t) terminal  | 0.50 $\pm$ 0.25<br>(0.020 $\pm$ 0.010) | 0.50 $\pm$ 0.25<br>(0.020 $\pm$ 0.010) | 0.50 $\pm$ 0.25<br>(0.020 $\pm$ 0.010) | 0.63 $\pm$ 0.38<br>(0.025 $\pm$ 0.015) | 0.63 $\pm$ 0.38<br>(0.025 $\pm$ 0.015) | 0.63 $\pm$ 0.38<br>(0.025 $\pm$ 0.015) | 0.63 $\pm$ 0.38<br>(0.025 $\pm$ 0.015) | 0.63 $\pm$ 0.38<br>(0.025 $\pm$ 0.015) |

\*Reflow Soldering Only

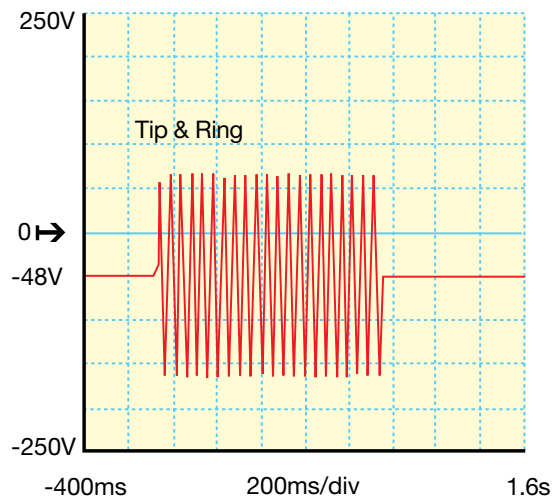
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## Multilayer Ceramic Chip Capacitors

### CAPACITANCE RANGE (μF)

| STYLE (SIZE) | LD05 (0805) | LD06 (1206) | LD10 (1210) | LD08 (1808) | LD12 (1812) | LD13 (1825) | LD20 (2220) | LD14 (2225) |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| min.         | 0.0010      | 0.0010      | 0.0010      | 0.010       | 0.10        | 0.33        | 0.47        | 0.47        |
| max.         | 0.027       | 0.082       | 0.22        | 0.27        | 0.47        | 1.0         | 1.0         | 1.2         |

### “TIP & RING” GRAPH



### PERFORMANCE CHARACTERISTICS

|                             |                                                                |                               |
|-----------------------------|----------------------------------------------------------------|-------------------------------|
| Capacitance Range           | 1000 pF to 1.2 μF                                              | (25°C, 1.0 ±0.2 Vrms at 1kHz) |
| Capacitance Tolerances      | ±10%, ±20%                                                     |                               |
| Dissipation Factor          | 2.5% max.                                                      | (25°C, 1.0 ±0.2 Vrms at 1kHz) |
| Operating Temperature Range | -55°C to +125°C                                                |                               |
| Temperature Characteristic  | X7R ±15% (0 VDC)                                               |                               |
| Voltage Rating              | 250 VDC Telco rating                                           |                               |
| Insulation Resistance       | 1000 megohm-microfarad min.                                    |                               |
| Dielectric Strength         | Minimum 200% rated voltage for 5 seconds at 50 mA max. current |                               |

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Authorized Distributor

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[LD20PC105KAB3A](#) [LD12PC474MAB1A](#) [LD14PC105KAX1A](#) [LD20PC105KAB2A](#) [LD20PC105KAB4A](#)  
[LD14PC105KAX2A](#)