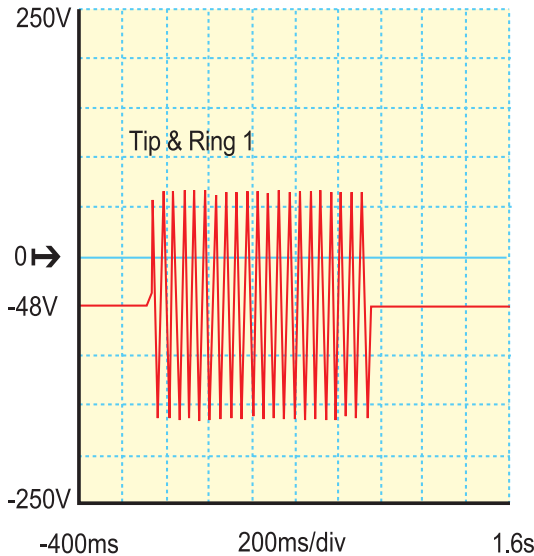
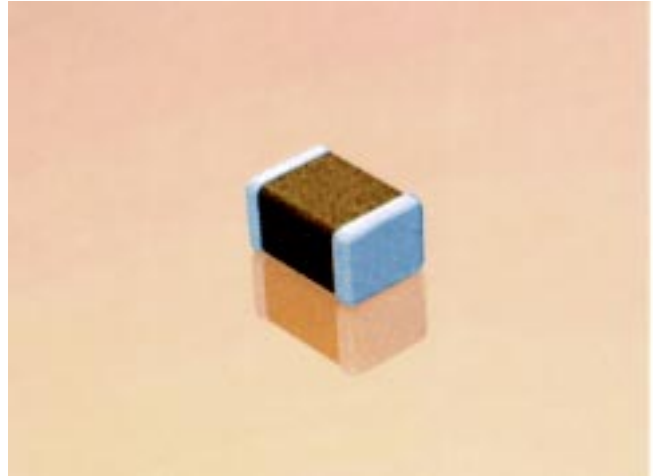


# “Tip & Ring”

## Multilayer Ceramic Chip Capacitors

AVX’s “Tip & Ring”, or “ringer”, 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 90Vrms). The typical ringing signal is shown in the enclosed figure. The ringer capacitor replaces large leaded film capacitors and are ideal for telecom/modem applications. Using AVX’s “Tip & Ring” capacitors not only saves valuable real estate on the board and reduces the weight of overall product, but also features standard surface mounting capabilities, which is critical to new and compact designs.



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

Note: These capacitors are larger than standard surface mount components and are intended for IR, hot plate (belt) and convection reflow or vapor phase reflow (VPR) processes. For recommended soldering profiles reference AVX’s Technical Paper: “Parameters Important for Surface Mount Applications of Multilayer Ceramic Capacitors” on AVX’s World Wide Web site:

<http://www.avxcorp.com>.

### General Specifications

<b>Capacitance Range</b>	0.1 $\mu$ F to 1.2 $\mu$ F (25°C, 1.0 $\pm$ 0.2Vrms at 1kHz)
<b>Capacitance Tolerances</b>	$\pm$ 10%, $\pm$ 20%
<b>Dissipation Factor</b>	2.5% max. (25°C, 1.0 $\pm$ 0.2Vrms at 1kHz)
<b>Temperature Characteristic</b>	Y5R $\pm$ 15% (0VDC)
<b>Voltage Rating</b>	Tip and Ring Application
<b>IR (25°C, at 100VDC)</b>	1000 Megaohm-Microfarad min.
<b>Dielectric Strength</b>	300VDC for 5 seconds at 50mA max. current
<b>Life Test Capabilities</b>	1000hrs, 200VDC at 85°C
<b>Humidity Test</b>	(MIL-C-55681)
<b>Resistance to Soldering Heat</b>	(MIL-C-55681)
<b>Solderability</b>	90% min. coverage (MIL-STD-202, Method 208)

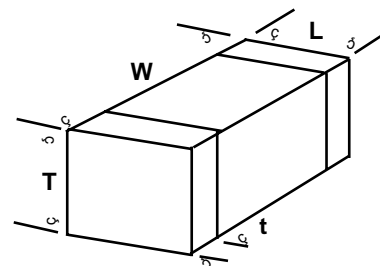
Mean	Min	Max
-48.6954 V	-166.000 V	67.000 V
Peak-Peak	Freq.	
233.000 V	20.42 Hz	

## HOW TO ORDER:

<b>1812</b>	<b>P</b>	<b>2</b>	<b>104</b>	<b>K</b>	<b>A</b>	<b>1</b>	<b>1</b>	<b>A</b>
<b>AVX Style</b>	<b>Voltage</b>	<b>Temp Coefficient</b>	<b>Capacitance Code</b>	<b>Capacitance Tolerance</b>	<b>Failure Rate</b>	<b>Termination</b>	<b>Packaging</b>	<b>Special Code</b>
1812 1825 2225	Tip & Ring Application	Y5R	(2 significant digits + no. of zeros) Examples: 1,000 pF = 102 22,000 pF = 223 220,000 pF = 224 1 $\mu$ F = 105	K = $\pm$ 10% M = $\pm$ 20%	A = Not Applicable	1 = Pd/Ag T = Nickel Barrier Solder Plate	1 = 7" Reel Embossed Tape 3 = 13" Reel Embossed Tape 9 = Bulk	A = Unmarked

### Dimensions Of Tip & Ring Capacitors

<b>Size</b>	<b>1812</b>	<b>1825</b>	<b>2225</b>
(L) Length inches (mm)	.177 $\pm$ .012 (4.50 $\pm$ .3)	.177 $\pm$ .012 (4.50 $\pm$ .3)	.225 $\pm$ .010 (5.72 $\pm$ .25)
(W) Width inches (mm)	.126 $\pm$ .008 (3.20 $\pm$ .2)	.252 $\pm$ .012 (6.40 $\pm$ .3)	.250 $\pm$ .010 (6.35 $\pm$ .25)
(t) terminal in. (mm) min. max.	.010 (.25) .040 (1.02)	.010 (.25) .040 (1.02)	.010 (.25) .040 (1.02)



## PRODUCT OFFERING

<b>SIZE</b>	<b>CAPACITANCE <math>\mu</math>F</b>	<b>(T) THICKNESS (MAX.)</b>
1812	0.10	0.055 (1.40)
	0.22	0.075 (1.91)
1825	0.33	0.055 (1.40)
	0.47	0.070 (1.78)
2225	1.00	0.100 (2.54)
	1.20	.0120 (3.05)

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