

# Multilayer Ceramic Chip Capacitor

**Part Number:** 0402J0500102KXT

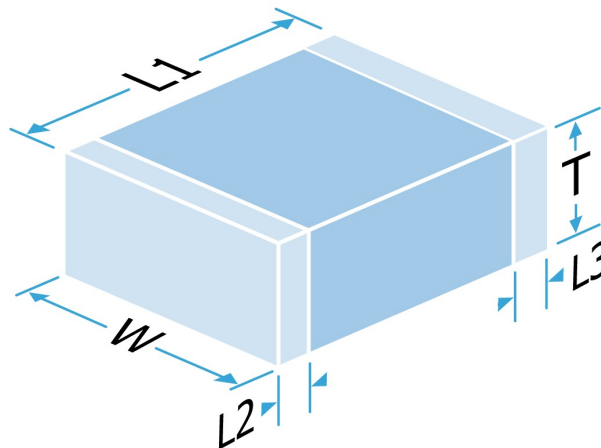
**Description:** 0402 50V 1.0nF  $\pm 10\%$  X7R (2R1)

A range of X7R MLC capacitors to suit a variety of applications. Available in a wide selection of chip sizes, working voltages and termination options, including FlexiCap™, the world's first commercially available flexible termination.

Parts with WS2 suffix code use StackiCap™ patented construction technology.

NC suffix coded parts must be conformally coated after mounting (including between board and chip) to prevent flashover.

Suffix code PXX or PX mandates the use of precious metal electrode (PME) materials. This may incur additional costs.



## Mechanical Specification

Size Code	0402
Length (L1) in mm (")	1.0 $\pm$ 0.10 (0.04 $\pm$ 0.004)
Width (W) in mm (")	0.50 $\pm$ 0.10 (0.02 $\pm$ 0.004)
Thickness (T) in mm (")	0.6 Max (0.024 Max)
Minimum Termination Band (L2,L3) in mm (")	0.10 (0.004)
Maximum Termination Band (L2,L3) in mm (")	0.40 (0.016)
Termination Material	Nickel Barrier, Sn Plated Solder (RoHS compliant)
Solderability	IEC-60068-2-58
Packaging	7" Reel Horizontal Orientation, 10000 per reel

## General Electrical Specification

Rated Voltage	50Vdc
Nominal Capacitance Value	1.0nF
Capacitance Tolerance	$\pm 10\%$
Tangent of Loss Angle (Tan $\delta$ )	$\leq 0.025$
Capacitance and Tan $\delta$ Test Conditions	1.0Vrms @ 1kHz
Voltage Proof (Voltage applied for 5 secs max. @ 50mA max. charge current)	125Vdc
Min Insulation Resistance (IR)	100.00GOhm @ 50Vdc
Dielectric Classification	X7R (2R1)
Rated Temperature Range	-55°C / +125°C
Maximum Capacitance Change over Temperature Range	No DC Voltage $\pm 15\%$ Rated DC Voltage -
Climatic Category (IEC)	55/125/56
Ageing Characteristic	<2% per decade

### Knowles Precision Devices - Sales

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This datasheet is for a standard item and is confirmed valid on the date generated, the latest published data for this part may differ and is available at <http://www.knowlescapacitors.com> or by contacting us.

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Data is correct to the best of our knowledge, errors and omissions excepted.

Date: Sunday, December 08, 2019

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## Environmental

RoHS Compliant to 2011/65/EC as amended by 2015/863/EU

Compliant

REACH Compliant

201 compliant

California Proposition 65

No exposure risk

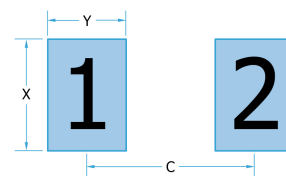
## Board Layout

Knowles' conventional 2-terminal chip capacitors can generally be mounted using pad designs in accordance with international specification IPC-7351, Generic Requirements for Surface Mount Design and Land Pattern Standards, but there are some other factors that have been shown to reduce mechanical stress, such as reducing the pad width to less than the chip width. In addition, the position of the chip on the board should be considered.

Some high voltage parts may require modifications to the board layout and/or the addition of a conformal coating to prevent flashover. Refer to application note AN0043 for further information.

### IPC-7351 pad design

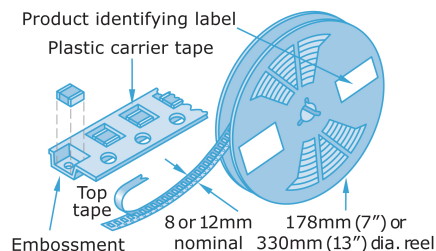
	0402	
C	0.90mm	0.035"
Y	0.65mm	0.026"
X	0.64mm	0.025"



## Packaging

Tape packaging information for tape-and-reel parts:

Tape and reel packing of surface mounting chip capacitors for automatic placement are in accordance with IEC60286-3.



## Soldering

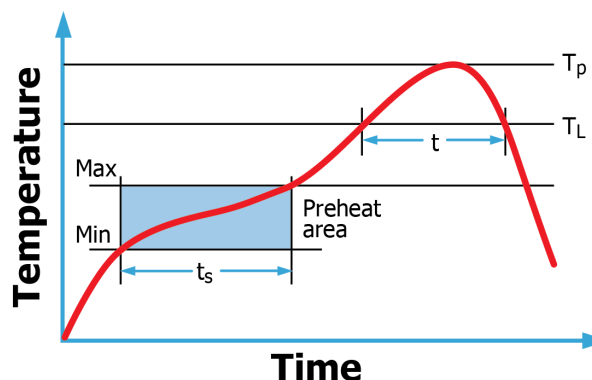
Reflow solder in accordance with IPC-A-610. Recommended reflow profile as laid down in IPC/JEDEC J-STD-020.

Wave soldering is also possible, but care must be taken for case sizes 1210 and larger and component thickness >1.0mm. Trials are encouraged.

Hand soldering is not recommended and can lead to component damage through thermal shock.

PdAg terminations are primarily intended for conductive epoxy attachment - they may be suitable for soldering but trials are recommended.

Application notes with mounting and handling guidance are available on request.



Compex

DLI

Johanson MFG

Novacap

Syfer

Voltronics

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