

Multilayer Ceramic Chip Capacitor

Part Number: 0805B102K501NT

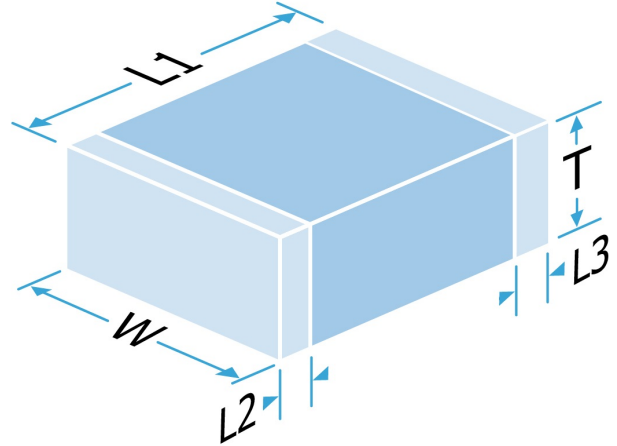
Description: 0805 500Vdc 1.0nF ±10% X7R (2R1) - Contains Lead

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

WS2, WR2, WS3 and WR3 parts use StackiCap™ patented construction technology.

DR1, WR2 and WR3 parts have a voltage de-rating above 105°C.

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



Mechanical Specification

Size Code	0805
Length (L1) in mm (")	2.0 ± 0.20 (0.079 ± 0.008)
Width (W) in mm (")	1.25 ± 0.20 (0.049 ± 0.008)
Thickness (T) in mm (")	1.37 Max (0.054 Max)
Minimum Termination Band (L2,L3) in mm (")	0.25 (0.010)
Maximum Termination Band (L2,L3) in mm (")	0.75 (0.030)
Termination Material	Nickel Barrier, Sn Plated Solder (RoHS compliant)
Solderability	Per MIL-STD-202, Method 208
Packaging	Tape and Reel, 3000 per reel
Conformal Coating	

General Electrical Specification

Rated Voltage	500Vdc
Nominal Capacitance Value	1.0nF
Capacitance Tolerance	±10%
Tangent of Loss Angle (Tan δ)	≤0.025
Capacitance and Tan δ Test Conditions	1.0Vrms @ 1kHz
Voltage Proof	750Vdc
(Voltage applied for 5 secs max. @ 50mA max. charge current. 50% Max, RH)	
Min Insulation Resistance (IR)	100.00GOhm @ 100Vdc
Dielectric Classification	X7R (2R1) - Contains Lead
Rated Temperature Range	-55°C / +125°C
Maximum Capacitance Change over Temperature Range	No DC Voltage ±15%
Climatic Category (IEC)	-
Ageing Characteristic	<2% per decade (nominal capacitance is 1000 hour value)

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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: Monday, January 12, 2026

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Description: 0805 500Vdc 1.0nF ±10% X7R (2R1) - Contains Lead

Environmental

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

Compliant with exemption 7(c)-II
Contains 1 to 8% w/w Lead Titanium Oxide (PbTiO₃, CAS 12060-00-3)
No exposure risk

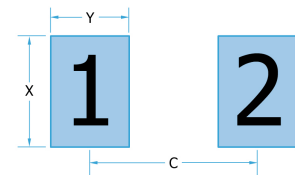
Board Layout

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, especially under high humidity conditions. Board cleanliness and environmental conditions can also impact this. Refer to application note AN0043 for further information.

IPC-7351 pad design

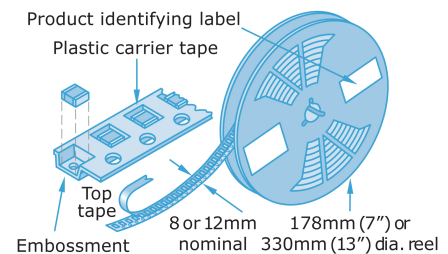
	0805	
C	1.80mm	0.071"
Y	1.15mm	0.045"
X	1.45mm	0.057"



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

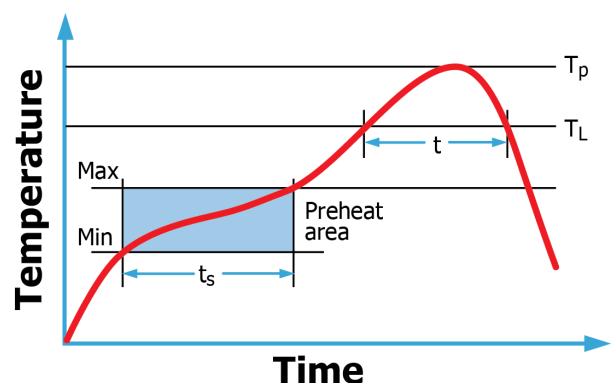
Reflow solder in accordance with IPC-A-610. Recommended reflow profile as laid down in IPC/JEDEC J-STD-020.

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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