

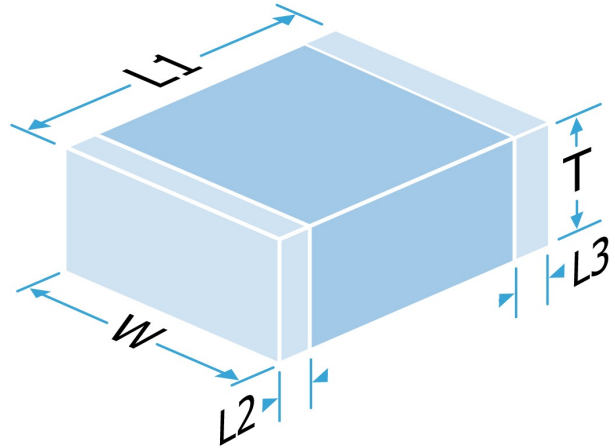
# Multilayer Ceramic Chip Capacitor

**Part Number:** 1812Y1K00103KST

**Description:** 1812 1000V 10nF ±10% X7R (2R1) to AEC-Q200

A range of X7R MLC capacitors fully tested and approved to automotive specification AEC-Q200. Available in 0603 to 3640 chip sizes with capacitance values up to 5.6uF as standard. A variety of termination options are available, including FlexiCap™, the world's first commercially available flexible termination.

Parts with WS2 suffix use StackiCap™ technology. Parts with NC suffix code must be conformally coated after mounting (including between board and chip) to prevent flashover.



## Mechanical Specification

Size Code	1812
Length (L1) in mm (")	4.5 +0.40/-0.30 (0.180 +0.016/-0.012)
Width (W) in mm (")	3.2 ± 0.20 (0.126 ± 0.008)
Thickness (T) in mm (")	2.5 Max (0.1 Max)
Minimum Termination Band (L2,L3) in mm (")	0.25 (0.010)
Maximum Termination Band (L2,L3) in mm (")	1.143 (0.045)
Termination Material	FlexiCap™ Polymer termination, Nickel barrier, Sn Plated Solder (RoHS compliant)
Solderability	IEC-60068-2-58
Packaging	7" Reel Horizontal Orientation, 500 per reel

## General Electrical Specification

Rated Voltage	1000Vdc
Nominal Capacitance Value	10nF
Capacitance Tolerance	±10%
Tangent of Loss Angle (Tan δ)	≤0.025
Capacitance and Tan δ Test Conditions	1.0Vrms @ 1kHz
Voltage Proof	1200Vdc
(Voltage applied for 5 secs max. @ 50mA max. charge current)	
Min Insulation Resistance (IR)	100.00GOhm @ 100Vdc
Dielectric Classification	X7R (2R1) to AEC-Q200
Rated Temperature Range	-55°C / +125°C
Maximum Capacitance Change over Temperature Range	No DC Voltage ±15%
Climatic Category (IEC)	Rated DC Voltage -
Ageing Characteristic	55/125/56
	<2% per decade

### Knowles Precision Devices - Sales

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Date: Friday, January 18, 2019

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## Environmental

RoHS Compliant to 2011/65/EC as amended by 2015/863/EU	Compliant
REACH Compliant	191 compliant
California Proposition 65	No exposure risk

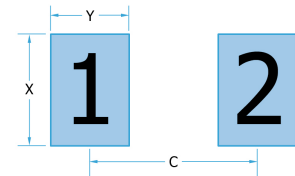
## Board Layout

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

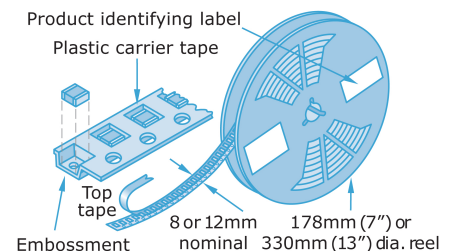
	1812	
C	4.00mm	0.157"
Y	1.55mm	0.061"
X	3.40mm	0.134"



## 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

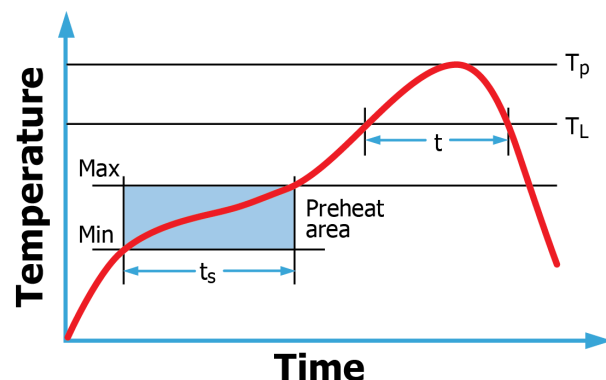
Reflow solder in accordance with IPC-A-610. Recommended reflow profile as laid down in IPC/JEDEC J-STD-020.

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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