

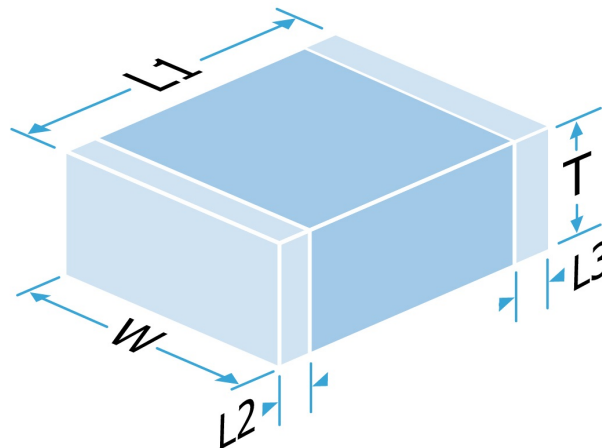
Multilayer Ceramic Chip Capacitor

Part Number: 2211Y5000394KST

Description: 2211 500Vdc 390nF $\pm 10\%$ X7R (2R1) to AEC-Q200

A range of X7R MLC capacitors fully tested and approved to automotive specification AEC-Q200. Available in a wide selection of chip sizes, working voltages and termination options, including FlexiCap™, the world's first commercially available flexible termination.

WS2 and WS3 parts use StackiCap™ patented construction technology.



Mechanical Specification

Size Code	2211
Length (L1) in mm (")	5.7 +0.50/-0.40 (0.225 +0.02/-0.016)
Width (W) in mm (")	2.79 $\pm$ 0.30 (0.11 $\pm$ 0.012)
Thickness (T) in mm (")	2.8 Max (0.11 Max)
Minimum Termination Band (L2,L3) in mm (")	0.25 (0.010)
Maximum Termination Band (L2,L3) in mm (")	0.80 (0.030)
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
Conformal Coating	Not normally required

General Electrical Specification

Rated Voltage	500Vdc
Nominal Capacitance Value	390nF
Capacitance Tolerance	$\pm 10\%$
Tangent of Loss Angle (Tan δ)	≤ 0.025
Capacitance and Tan δ Test Conditions	1.0Vrms @ 1kHz
Voltage Proof (Voltage applied for 5 secs max. @ 50mA max. charge current)	750Vdc
Min Insulation Resistance (IR)	2.56GOhm @ 100Vdc
Dielectric Classification	X7R (2R1) to AEC-Q200
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 (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: Tuesday, April 25, 2023

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Description: 2211 500Vdc 390nF $\pm 10\%$ X7R (2R1) to AEC-Q200

Environmental

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

Compliant

REACH Compliant

233 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

	2211	
C	5.40mm	0.213"
Y	1.35mm	0.053"
X	3.10mm	0.122"



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 $> 1.0\text{mm}$. 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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