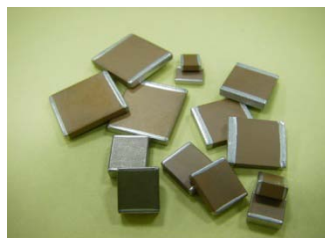


## LCC Series

### Large Size NP0 & X7R MLCC Capacitors

50V – 8KV



#### ◆ Features

- Optimized internal design offers the highest possible voltage rating up to 8KVdc.
- Capacitance range from 470pF - 33uF and case sizes from 1515 – 7565.
- Available with proprietary surface coating for arc prevention
- Available with flexible termination (Super Term) to minimize the effects of mechanical stress.
- High reliability screening is available.
- Pd/Ag, 100% Sn and 90/10 Sn/Pb terminations available.
- RoHS compliant.

#### ◆ Applications.

- Voltage multipliers
- Power supplies
- DC-DC converters
- Surge protection
- Industrial control circuits
- Isolation
- Ballast
- Snubber
- Custom applications

#### ◆ Summary of Specifications

Operating Temperature	-55~+125 °C
Rated Voltage	50Vdc to 8KVdc
Temperature Coefficient	NP0 : $\leq \pm 30\text{ppm}/^\circ\text{C}$ , -55~+125 °C (EIA Class I )
	X7R : $\leq \pm 15\%$ , -55~+125 °C (EIA Class II )
Capacitance Range	NP0 :100pF to 820nF ; X7R :1000pF to 33uF
Dissipation Factor	NP0 : $Q \geq 1000$ ; X7R : D.F. $\leq 2.5\%$
Insulation Resistance	10G $\Omega$ or 500/C $\Omega$ whichever is smaller (C in Farad )
Ageing	NP0:0% ; X7R: 1.0 % per decade of time
Dielectric Strength	$V \leq 500V$ : 200% rated voltage
	$500V \leq V < 1000V$ : 150% rated voltage
	$V \geq 1000V$ : 120% rated voltage

#### ◆ How To Order

C	2520	X	103	K	102	T	N	S	X
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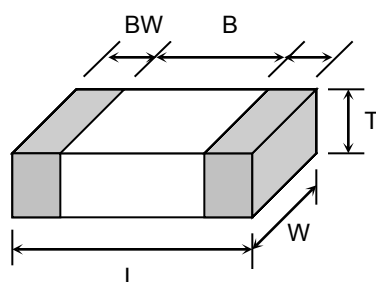
Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Termination	Testing Requirement	Special Requirement
C: MLCC Multilayer Ceramic Capacitor	EX.: 1515 2520 3530 3640 4540 5550 6560 7565	Ex.: N: NP0 X: X7R	Ex.: 100:10×10 <sup>0</sup> 471:47×10 <sup>1</sup> 102:10×10 <sup>2</sup>	Ex.: C: +/-0.25pF D: +/-0.50pF J: +/- 5% K: +/-10% M: +/-20%	Ex.: 050:50Vdc 251:250Vdc 631:630Vdc 102:1000Vdc	Ex.: T: Tape & Reel W: Waffle Pack B: Bulk	Ex.: S: Solderable Ag P: Pd/Ag N: 100% Sn Plated W: 90/10 Sn/Pb Plated	Ex.: S: Standard Electrical H: Hi-Reliability	Ex.: Blank: Standard O: Arc Prevention Coating X: Flexible Termination (Super Term) Z: Arc Prevention and SuperTerm

Sinus Electronic GmbH

07132 9969 25

Michael.Feimer@sinus-electronic.de

## ◆ Dimensions



Unit : mm [inches]

TYPE	L	W	T (max)	B (min)	BW (min)
1515	3.80±0.50 [.15±.020]	3.80±0.50 [.15 ±.020]	3.20 [.126]	1.60 [.059]	0.30 [.012]
2520	6.35±0.50 [.25±.020]	5.00±0.50 [.20±.020]	3.20 [.126]	4.00 [.157]	0.30 [.012]
3530	8.90±0.50 [.35±.020]	7.60±0.50 [.30±.020]	5.00 [.200]	5.50 [.217]	0.30 [.012]
3640	9.20±0.50 [.36±.020]	10.2±0.50 [.40±.020]	5.00 [.200]	6.00 [.236]	0.30 [.012]
4540	11.5±0.50 [.45±.020]	10.2±0.50 [.30±.020]	5.00 [.200]	7.50 [.295]	0.30 [.012]
5550	14.0±0.50 [.55±.020]	12.7±0.50 [.50±.020]	5.00 [.200]	9.00 [.354]	0.30 [.012]
6560	16.5±0.50 [.65±.020]	15.3±0.50 [.60±.020]	5.00 [.200]	11.50 [.453]	0.30 [.012]
7565	19.0±0.50 [.750±.020]	16.5±0.50 [.65±.020]	5.00 [.200]	14.00 [.551]	0.30 [.012]

## ◆ Capacitance Range

Size	Dielectric	Capacitance maximum									
		50V	100V	200V	500V	1KV	2KV	3KV	4KV	5KV	8KV
1515	NPO	473	393	363	103	222	821				
	X7R	225	105	474	124	473	682				
2520	NPO	823	683	563	473	103	392	222	102	471	
	X7R	475	225	474	224	473	153	472	222	102	
3530	NPO	154	134	104	823	253	103	472	332	102	471
	X7R	106	475	225	824	224	473	183	822	472	102
3640	NPO	224	184	124	104	373	153	562	362	122	561
	X7R	126	565	225	105	274	683	273	153	103	182
4540	NPO	284	244	184	154	483	203	962	472	152	621
	X7R	156	685	225	125	394	104	393	223	153	392
5550	NPO	364	304	224	184	683	273	153	562	182	681
	X7R	186	825	275	225	474	124	823	333	223	562
6560	NPO	654	484	404	304	104	423	223	682	332	821
	X7R	226	186	106	335	105	224	104	563	333	103
7565	NPO	844	674	504	474	134	553	283	103	472	102
	X7R	336	226	186	475	125	364	154	823	473	153

■ All values are capacitance EIA codes.

■ Other dimensions, capacitance values and voltage ratings are available. Please contact HEC.

### \*Soldering and handling precautions:

Large ceramic capacitors are more prone to thermal and mechanical cracks. To minimize mechanical cracks, capacitors have to be handled carefully in the original waffle pack container, carrier tape or other suitable container. Care must be taken that ceramic chips do not come into contact with one another causing chip outs, cracks or other mechanical damage.

The recommended method for soldering large chips is reflow soldering. Wave soldering and manual soldering are not recommended. Ceramic capacitors should be preheated to within 50°C of the peak soldering temperature and then use a maximum 2°C/second ramp rate for both heating and cooling. A sudden increase or decrease in temperature during soldering may cause internal thermal cracks.

### Available Options:

- HEC offers flexible termination (Super Term) for very large chips to minimize mechanical cracks due to board flexing.
- To minimize the potential for surface arcing in higher voltage applications, HEC offers the option of a proprietary surface coating.
- Pure tin terminated / ROHS compliant products are offered as standard, however, lead (Pb) content plated termination is also available.
- Pd/Ag termination is also available as an option for hybrid circuits and other applications.