

## Multilayer Ceramic Chip Capacitors [ Large Size Ceramic Chip Capacitors ] LCC Series



### ◆ Features

- Optimized internal designs offers the highest voltage rating (up to 8KVdc)
- Capacitance range from 100pF to 47uF and sizes from 1515 to 3640
- Available with proprietary surface coating for arc prevention
- Available with flexible termination (Super Term) to minimize the effects of mechanical stress
- RoHS compliant

### ◆ Applications

- Voltage Multipliers
- Power Supplies
- DC-DC Converters
- Surge protection
- Industrial control circuits
- Isolation
- Ballast
- Snubber
- Custom applications

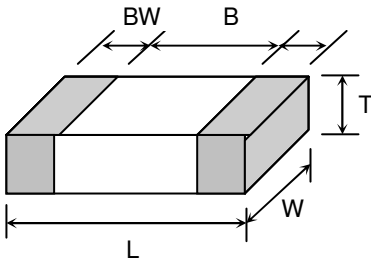
### ◆ Summary of Specifications

Operation Temperature	-55 °C ~ +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 220nF , X7R : 1000pF to 47uF
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 )
Aging	NP0 : 0% , X7R : 2.5 % 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
Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Termination	Testing Requirement	Special Requirement
C: MLCC (Multilayer Ceramic Chip of Capacitor)	EX.: 1515 2520 3530 3640	EX.: N : NP0 X : X7R	EX.: 100 : 10 $\times$ 10 <sup>0</sup> 471 : 47 $\times$ 10 <sup>1</sup> 102 : 10 $\times$ 10 <sup>2</sup>	EX.: J : +/- 5% K : +/-10% M : +/-20%	EX.: 050:50Vdc 251:250Vdc 631:630Vdc 102:1000Vdc	EX.: T : T&R W : Waffle B : Bulk	EX: N: Ni Barrier/Sn Plate P: Pd/Ag	EX.: S: Standard Electrical H: Hi-Reliability	EX.: O: Arc Prevention Coating X: Cushion Termination (Super Term)

## ◆ 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]

## ◆ Capacitance Range

size	Dielectric	Capacitance (pF) maximum									
		50V	100V	250V	500V	1KV	2KV	3KV	4KV	5KV	8KV
1515	NP0	473	393	333	103	222	821	471	221	680	—
	X7R	395	275	225	474	104	333	103	472	222	102
	X7R	475	335	475			473	223			
2520	NP0	823	683	563	473	103	392	222	102	471	101
	X7R	226	106	475	125	274	823	183	123	562	182
	X7R	396	276	685			224	393			
3530	NP0	224	184	104	823	473	103	472	332	102	251
	X7R	336	226	685	225	474	154	333	223	103	392
	X7R	476	396	106			334	104			
3640	NP0	224	184	104	823	473	123	562	392	122	561
	X7R	336	396	725	275	524	184	393	273	183	472
	X7R	476	526	156			394	154			

■ Under development, please contact Holy Stone

- All values are capacitance EIA codes.
- Other dimensions, capacitance values and voltages rating are available. Please contact Holy Stone.

### 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 these capacitors do not come into contact with each other which can cause chip outs, cracks or other mechanical damage.

The recommended method for soldering large chips is reflow soldering. Wave soldering and manual soldering with Iron is not recommended. Ceramic capacitors must be preheated with less than 2°C/second rate to about 50°C below the reflow temperature. Any sudden increase or decrease in temperature more than the recommended rate, during soldering, may cause internal thermal cracks.

### Options:

- HEC offers polymer 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.
- Pd/Ag termination is also offered as a standard option for Hybrid circuits and other applications.