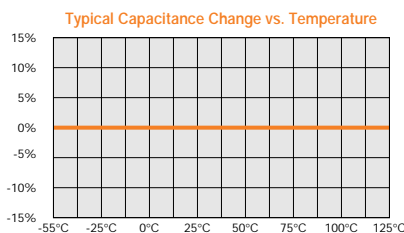


# Ceramic Chip Capacitors

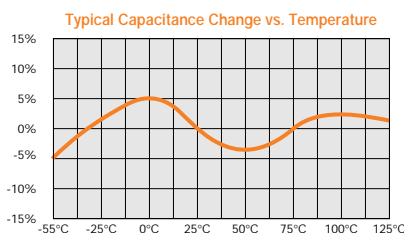
Multilayer chip capacitors have a low residual inductance, an excellent frequency response and minimal stray capacitance since there are no leads. These characteristics enable design to be very close to the theoretical values of the capacitors.

## NP0/C0G: SPECIFICATIONS:



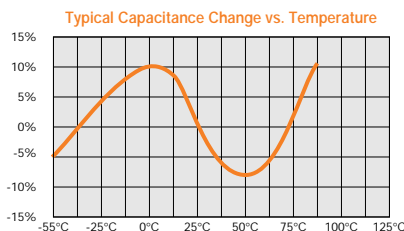
OPERATING TEMPERATURE RANGE:	-55°C to +125°C
TEMPERATURE COEFFICIENT:	0 ±30PPM/°C
TEMPERATURE VOLTAGE COEFFICIENT:	0 ±30PPM/°C
DISSIPATION FACTOR:	0.1% MAX.
INSULATION RESISTANCE:	>1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
AGEING:	None
WITHSTANDING VOLTAGE:	>2.5 times VDCW
TEST PARAMETERS:	1MHz ± 100KHz at 1.0 ± 0.2 Vrms ≤ 100 pF, 25°C 1KHz ± 100Hz at 1.0 ± 0.2 Vrms > 100 pF, 25°C
CAPACITANCE TOLERANCE:	B,C,D,F,G,J,K

## X7R: SPECIFICATIONS:



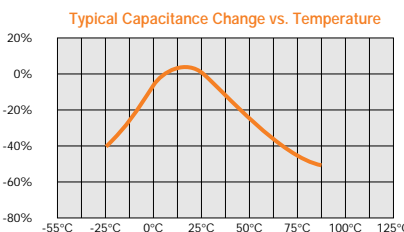
OPERATING TEMPERATURE RANGE:	-55°C to +125°C
TEMPERATURE COEFFICIENT:	0 ±15%Δ°C MAX.
TEMPERATURE VOLTAGE COEFFICIENT:	X7R not applicable
DISSIPATION FACTOR:	For 50 volts and 100 volts: 2.5% MAX.; For 25 volts: 3.0% MAX.; For 16 volts: 3.5% MAX.; For 10 volts: 5.0% MAX.; For 6.3 volts: 10% MAX. For values > 10μF and voltages ≤ 10V, the D.F. is 10% MAX.
INSULATION RESISTANCE:	>1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
AGEING:	2.5% per decade hour, typical
WITHSTANDING VOLTAGE:	>2.5 times VDCW
TEST PARAMETERS:*	1KHz ± 100Hz at 1.0 ± 0.2 Vrms > 100 pF, 25°C
CAPACITANCE TOLERANCE:	J,K,M

## X5R: SPECIFICATIONS:



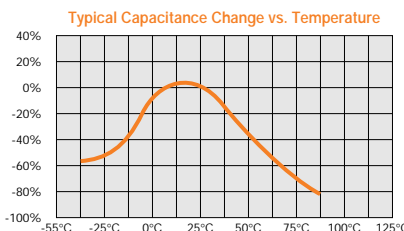
OPERATING TEMPERATURE RANGE:	-55°C to +85°C
TEMPERATURE COEFFICIENT:	0 ±15%Δ°C MAX.
TEMPERATURE VOLTAGE COEFFICIENT:	X5R not applicable
DISSIPATION FACTOR:	For 50 volts and 100 volts: 2.5% MAX.; For 25 volts: 3.0% MAX.; For 16 volts: 3.5% MAX.; For 10 volts: 5.0% MAX.; For 6.3 volts: 10% MAX. For values > 10μF and voltages ≤ 10V, the D.F. is 10% MAX.
INSULATION RESISTANCE:	>1000 ohms F or 100 G ohms, whichever is less at 25°C, VDCW. (10,000 ohms at 125°C)
AGEING:	2.5% per decade hour, typical
WITHSTANDING VOLTAGE:	>2.5 times VDCW
TEST PARAMETERS:*	1KHz ± 100Hz at 1.0 ± 0.2 Vrms > 100 pF, 25°C
CAPACITANCE TOLERANCE:	J,K,M

## Z5U: SPECIFICATIONS:



OPERATING TEMPERATURE RANGE:	+10°C to +85°C
TEMPERATURE COEFFICIENT:	+22% - 56%Δ°C MAX.
DISSIPATION FACTOR:	4.0% MAX.
INSULATION RESISTANCE:	>100 ohms F or 10 G ohms, whichever is less at 25°C, VDCW.
AGEING:	5% per decade hour, typical
WITHSTANDING VOLTAGE:	>2.5 times VDCW
TEST PARAMETERS:	1KHz ± 100Hz at 0.5 ± 0.1 Vrms, 25°C
CAPACITANCE TOLERANCE:	M,Z,P

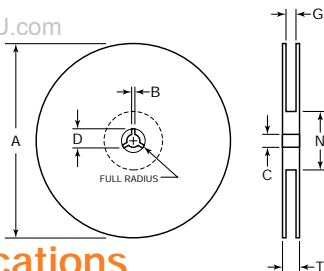
## Y5V: SPECIFICATIONS:



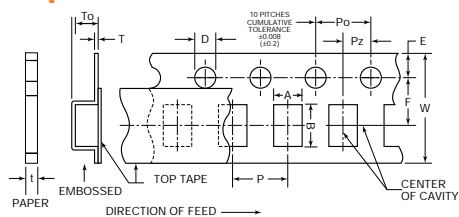
OPERATING TEMPERATURE RANGE:	-30°C to +85°C
TEMPERATURE COEFFICIENT:	+22% - 82%Δ°C MAX.
DISSIPATION FACTOR:	For 25 volts and 50 volts: 5% MAX.; For 16 volts: 7% MAX.; For 10 volts: 9% MAX.; For 6.3 volts: 11% MAX. For higher Cap values > 10μF, the D.F. is 20% MAX.
INSULATION RESISTANCE:	>100 ohms F or 10 G ohms, whichever is less at 25°C, VDCW.
AGEING:	7% per decade hour, typical
WITHSTANDING VOLTAGE:	>2.5 times VDCW
TEST PARAMETERS:*	1KHz ± 100Hz at 1.0 ± 0.2 Vrms, 25°C
CAPACITANCE TOLERANCE:	M,Z

\* Test parameters for Hi-Caps: X7R, X5R and Y5V  
1KHz ± 100Hz at 1.0 ± 0.2 Vrms ≤ 10uF (10 V min.)  
1KHz ± 100Hz at 0.5 ± 0.1 Vrms ≤ 10uF (6.3V max.)  
120Hz ± 24Hz at 0.5 ± 0.1 Vrms > 10uF

All tape and reel specifications must be adhered to per EIA-481-1-A as noted and stated in the Chip Resistor section on page 65.



## Taping Specifications



## Reel Dimensions

Unit: mm (inch)

TAPE	B min	C	A (7")	A (13")	D min	N min	G	T max
8mm	0.3 (.012)	13 ± .05 (.512 ± .02)	178 ± 2.0 (7 ± .079)	330 ± 2.0 (13 ± .08)	20.2 (.795)	50 (1.97)	10 ± 1.5 (.394 ± .059)	14.9 (.587)
12mm	0.3 (.012)	13 ± .05 (.512 ± .02)	178 ± 2.0 (7 ± .079)	330 ± 2.0 (13 ± .08)	20.2 (.795)	50 (1.97)	10 ± 1.5 (.394 ± .059)	14.9 (.587)

## 7 in. Reel Quantities\*\*

SIZE	01005	0201*	0402*	0603	0805	1206	1210	1812	2221
TAPE SIZE	8mm	8mm	8mm	8mm	8mm	8mm	8mm	12mm	12mm
MIN QTY PER REEL	20,000†	15,000	5000	3000	3000	2000	1000	1000	1000
MAX QTY PER REEL	20,000†	15,000	10,000	4000	5000	5000	5000	3000	1000

\*\* Quantity dependent on Chip Thickness  
 \* 0201 and 0402 Pitch ("P") is .079" ± .004" (2.0 ± 0.1mm)  
 † Smaller quantities may be available. Please contact your sales person.

## Paper Tape Carrier Dimensions (8mm)

SIZE	A	B	W	F	E	Po	Pz	D	t	P
01005	0.25 ± 0.05 (0.010 ± .002)	0.45 ± 0.05 (0.018 ± .002)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.039 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	2.0 ± 0.05 (.079 ± .002)
0201	0.37 ± 0.05 (0.014 ± .002)	0.67 ± 0.05 (0.026 ± .002)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.039 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	2.0 ± 0.05 (.079 ± .002)
0402	0.65 ± 0.1 (.026 ± .004)	1.10 ± 0.2 (.043 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.039 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	2.0 ± 0.05 (.079 ± .002)
0603	1.10 ± 0.2 (.043 ± .008)	1.90 ± 0.2 (.075 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)
0805	1.16 ± 0.2 (.046 ± .008)	2.4 ± 0.2 (.095 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)
1206	2.0 ± 0.2 (.079 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.064 + .004 - .000)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)

Unit: mm (inch)

## Embossed Carrier Dimensions (8mm & 12mm)

SIZE	A	B	W	F	E	Po	Pz	D	To	T	P
0805	1.48 ± 0.2 (.058 ± .008)	2.3 ± 0.2 (.091 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.06 + .004 - .000)	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1206	2.0 ± 0.2 (.079 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± .01 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.06 + .004 - .000)	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1210	2.9 ± 0.2 (.114 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± .01 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.06 + .004 - .000)	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1812	3.6 ± 0.2 (.142 ± .008)	4.9 ± 0.2 (.193 ± .008)	12.0 ± 0.3 (.472 ± .012)	5.6 ± 0.1 (.221 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 + 0.1 - 0.0 (.06 + .004 - .000)	3.8 MAX (.150 MAX)	0.6 MAX (.024 MAX)	8.0 ± 0.1 (.315 ± .004)

## How To Order

<b>C0805</b> Series See Chart	<b>C0G</b> Temperature Characteristic	<b>500</b> Rated Voltage 1st two digits are significant followed by number of zeroes. 6R3 = 6.3 VDCW 100 = 10 VDCW 160 = 16 VDCW 250 = 25 VDCW 500 = 50 VDCW 101 = 100 VDCW 201 = 200 VDCW 251 = 250 VDCW	<b>101</b> Capacitance (pico - Farads) 1st two digits are significant, followed by number of zeroes. 101 = 100 pF R denotes decimal 6R8 = 6.8 pF	<b>J</b> Tolerance Code: *B = ± 0.1 pF *C = ± 0.25 pF *D = ± 0.5 pF F = ± 1% G = ± 2% J = ± 5% K = ± 10% M = ± 20% N = ± 30% Z = +80 -20% P = +100 -0% * For capacitance values below 10 pF only.	<b>N</b> Termination N = Nickel Barrier, Tinned Termination Composition is 100% matte Tin (Sn) P = Palladium Silver G = Gold over Nickel P: For Palladium Silver Termination (PdAg) add P above. Pb: For 90% Tin (Sn)/10% Lead (Pb) Termination add Pb above. Standard termination finish for this product is 100% matte Tin (Sn)	<b>□</b> Marking** 6 = EIA "J" Code "Leave blank if No Marking" P = Paper Tape (7" Reel)	<b>P</b> Packaging B = Bulk D = Paper Tape (10" Reel) E = Embossed Tape (7" Reel) R = Paper Tape (13" Reel) U = Embossed Tape (13" Reel)	<b>*</b> Optional Identifier
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\*\* 0201 and 0402 size capacitors cannot be marked

**\* OPTIONAL IDENTIFIER**  
 Min./Max. thickness  
 - designates minimum thickness  
 \* designates maximum thickness

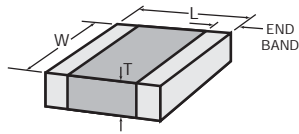
The following letters define thickness as signified below:

CODE:	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	6	9
DIMENSION:	.010	.015	.020	.026	.030	.035	.040	.045	.050	.055	.060	.065	.070	.075	.080	.085	.090	.023	.021

Please Note: Venkel offers Engineering Kits for this product. See page 121 for details [www.DataSheet4U.com](http://www.DataSheet4U.com)

# Ceramic Chip Capacitors

## NP0/C0G Dielectric



Values that are typically available.  
 25V Available in 25V only.

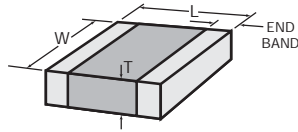
(All measurements in inches)		□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
Size		01005 (± 0.0008)	0201 (± 0.002)	0402 (± 0.004)	0504 (± 0.008)	0603 (± 0.006)	0805 (± 0.008)	1206 (± 0.008)	1210 (± 0.008)	1812 (± 0.012)								
L		.016	.024	.040	.050	.063	.080	.126	.126	.177								
W		.008	.012	.020	.040	.032	.050	.063	.098	.126								
T (max)		.008	.012	.025	.040	.033	.055	.070	.075	.085								
Min E/B		.002	.002	.004	.005	.008	.020 ± .010	.020 ± .010	.020 ± .010	.024 ± .015								
VDCW (MAX)		16V	25V	25V	50V	50V	100V	50V	100V	25V	50V	100V	50V	100V	50V	100V	50V	100V
↑ CAP. CODE ↓	OR5	0.5pF																
	1R0	1.0pF																
	1R2	1.2																
	1R5	1.5																
	1R8	1.8																
	2R2	2.2																
	2R7	2.7																
	3R3	3.3																
	3R9	3.9																
	4R7	4.7																
	5R6	5.6																
	6R8	6.8																
	BR2	8.2																
	100	10pF																
	120	12																
	150	15																
	180	18																
	220	22																
	270	27																
	330	33																
	390	39																
	470	47																
	560	56																
	680	68																
	820	82																
	101	100pF																
	121	120																
	151	150																
	181	180																
	221	220																
	271	270																
	331	330																
	391	390																
471	470																	
561	560																	
681	680																	
821	820																	
102	1000pF																	
122	1200																	
152	1500																	
182	1800																	
222	2200																	
272	2700																	
332	3300																	

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## NP0/C0G Dielectric



Values that are typically available.  
 25V Available in 25V only.

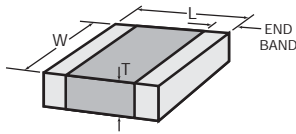
(All measurements in inches)		□		□		□		□		□			□		□		□		□	
Size	0201 (± 0.002)	0402 (± 0.004)		0504 (± 0.008)		0603 (± 0.006)		0805 (± 0.008)			1206 (± 0.008)		1210 (± 0.008)		1812 (± 0.012)		2220 / 2221 (± 0.016)			
L	.024	.040		.050		.063		.080			.126		.126		.177		.225 / .225			
W	.012	.020		.040		.032		.050			.063		.098		.126		.200 / .210			
T (max)	.012	.025		.040		.033		.055			.070		.075		.085		.108 / .108			
Min E/B	.002	.004		.005		.008		.020 ± .010			.020 ± .010		.020 ± .010		.024 ± .015		.025 ± .015			
VDCW (MAX)	25V		25V	50V	50V	100V	50V	100V	25V	50V	100V	50V	100V	50V	100V	50V	100V	50V	100V	
392	3900																			
472	4700																			
562	5600																			
682	6800																			
822	8200																			
103	.01µF																			
123	.012																			
153	.015																			
183	.018																			
223	.022																			
273	.027																			
333	.033																			
393	.039																			
473	.047																			
563	.056																			
683	.068																			
823	.082																			
104	.100µF											25V								
124	.120																			
154	.150																			
184	.180																			
224	.220																			
274	.270																			
334	.330																			
394	.390																			
474	.470																			
564	.560																			
684	.680																			
824	.820																			
105	1.00µF																			
125	1.20																			
155	1.50																			
185	1.80																			
225	2.20																			
335	3.30																			
395	3.90																			
475	4.70																			
685	6.80																			
106	10.0µF																			
156	15.0µF																			
226	22.0µF																			
476	47.0µF																			
107	100.0µF																			

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## X7R Dielectric



Values that are typically available.  
 X5R Available in X5R only. See X5R chart on page 12, for all values 1µF and above

(All measurements in inches)		□			□			□			□					□															
Size		0201 (± 0.002)			0402 (± 0.004)			0504 (± 0.008)			0603 (± 0.006)					0805 (± 0.008)															
L		.024			.040			.050			.063					.080															
W		.012			.020			.040			.032					.050															
T (max)*		.012			.025			.040			.033					.055															
Min E/B		.002			.004			.005			.008					.020 ± .010															
VDCW (MAX)		6.3V		10V		16V		16V		25V		50V		25V		50V		100V		6.3V		10V		16V		25V		50V		100V	
101	100pF																														
121	120																														
151	150																														
181	180																														
221	220																														
271	270																														
331	330																														
391	390																														
471	470																														
561	560																														
681	680																														
821	820																														
102	1000pF																														
122	1200																														
152	1500																														
182	1800																														
222	2200																														
272	2700																														
332	3300																														
392	3900																														
472	4700																														
562	5600																														
682	6800																														
822	8200																														
103	.01µF																														
123	.012																														
153	.015	X5R																													
183	.018																														
223	.022	X5R																													
273	.027																														
333	.033	X5R																													

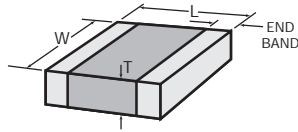
\* For values above 1µF, thickness may be greater than specified above.  
 T(max): 0603 – 0.048"  
 0805 – 0.075"

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## X7R Dielectric



Values that are typically available.  
 X5R Available in X5R only. See X5R chart on page 12, for all values 1µF and above

(All measurements in inches)		□			□			□			□					□				
Size		0201 (± 0.002)			0402 (± 0.004)			0504 (± 0.008)			0603 (± 0.006)					0805 (± 0.008)				
L	.024																			
W	.012																			
T (max)*	.012																			
Min E/B	.002																			
VDCW (MAX)	6.3V	10V	16V	6.3V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V	10V	16V	25V	50V	100V
393	.039	X5R																		
473	.047	X5R																		
563	.056																			
683	.068																			
823	.082																			
104	.100µF	X5R																		
124	.120																			
154	.150																			
184	.180																			
224	.220				X5R															
274	.270																			
334	.330				X5R															
394	.390																			
474	.470				X5R															
564	.560																			
684	.680									X5R	X5R									
824	.820																			
105	1.00µF				X5R															
125	1.20																			
155	1.50																			
185	1.80																			
225	2.20									X5R										
335	3.30																			
475	4.70																			
685	6.80																			
106	10.0µF																			
156	15.0µF																			
226	22.0µF																			
476	47.0µF																			
107	100.0µF																			

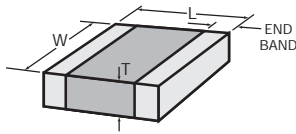
\* For values above 1uF, thickness may be greater than specified above.  
 T(max): 0603 - 0.048"  
 0805 - 0.075"

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## X7R Dielectric



Values that are typically available.  
 X5R Available in X5R only. See X5R chart on page 12, for all values 1µF and above

(All measurements in inches)																						
Size		1206 (± 0.008)					1210 (± 0.008)					1812 (± 0.012)					2220 / 2221 (± 0.016)					
L		.126					.126					.177					.225 / .225					
W		.063					.098					.126					.200 / .210					
T (max)*		.070					.075					.085					.108 / .108					
Min E/B		.020 ± .010					.020 ± .010					.024 ± .015					.025 ± .015					
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V	16V	25V	50V	100V	
CAP. CODE	102	1000pF																				
	122	1200																				
	152	1500																				
	182	1800																				
	222	2200																				
	272	2700																				
	332	3300																				
	392	3900																				
	472	4700																				
	562	5600																				
	682	6800																				
	822	8200																				
	CAP. VALUE	103	.01µF																			
		123	.012																			
		153	.015																			
		183	.018																			
		223	.022																			
		273	.027																			
		333	.033																			
		393	.039																			
473		.047																				
563		.056																				
683	.068																					
823	.082																					
CAP. VALUE	104	.100µF																				
	124	.120																				
	154	.150																				
	184	.180																				
	224	.220																				
	274	.270																				
	334	.330																				

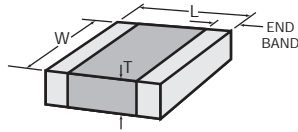
\* For values above 1µF, thickness may be greater than specified above.  
 T(max): 1206 - 0.110" 1812 - 0.130"  
 1210 - 0.125" 2220 - 0.135"

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## X7R Dielectric



Values that are typically available.  
 X5R Available in X5R only. See X5R chart on page 12, for all values 1µF and above

(All measurements in inches)																						
Size		1206 (± 0.008)					1210 (± 0.008)					1812 (± 0.012)					2220 / 2221 (± 0.016)					
L		.126					.126					.177					.225 / .225					
W		.063					.098					.126					.200 / .210					
T (max)*		.070					.075					.085					.108 / .108					
Min E/B		.020 ± .010					.020 ± .010					.024 ± .015					.025 ± .015					
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V	16V	25V	50V	100V	
CAP. CODE	394	.390																				
	474	.470																				
	564	.560																				
	684	.680																				
	824	.820																				
	105	1.00µF																				
	125	1.20																				
	155	1.50																				
	185	1.80																				
	225	2.20																				
	335	3.30																				
	475	4.70																				
	685	6.80																				
	106	10.0µF																				
	156	15.0µF																				
	226	22.0µF																				
	476	47.0µF																				
	107	100.0µF																				

\* For values above 1uF, thickness may be greater than specified above.  
 T(max): 1206 - 0.110" 1812 - 0.130"  
 1210 - 0.125" 2220 - 0.135"

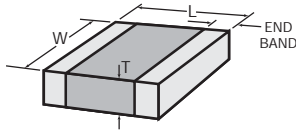
**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.



# Ceramic Chip Capacitors

## X5R Dielectric (Minimum 1µF)



Values that are typically available.

(All measurements in inches)																										
Size		0402 (± 0.004)		0603 (± 0.006)			0805 (± 0.008)				1206 (± 0.008)				1210 (± 0.008)				1812 (± 0.012)				2220 / 2221 (± 0.016)			
L	W	T (max)	Min E/B	VDCW (MAX)	6.3V	4V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	25V	
105	1.00µF																									
125	1.20																									
155	1.50																									
185	1.80																									
225	2.20																									
335	3.30																									

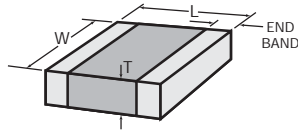
\* For values above 1uF, thickness may be greater than specified above.  
 T(max): 1206 - 0.110" 1812 - 0.130"  
 1210 - 0.125" 2220 - 0.135"

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## X5R Dielectric (Minimum 1µF)



Values that are typically available.

(All measurements in inches)		□		□				□				□				□				□									
Size	0402 (± 0.004)	0603 (± 0.006)						0805 (± 0.008)				1206 (± 0.008)				1210 (± 0.008)				1812 (± 0.012)				2220 / 2221 (± 0.016)					
L	.040	.063						.080				.126				.126				.177				.225 / .225					
W	.020	.032						.050				.063				.098				.126				.200 / .210					
T (max)	.025	.033						.055				.070				.075				.085				.108 / .108					
Min E/B	.004	.008						.020 ± .010				.020 ± .010				.020 ± .010				.024 ± .015				.025 ± .015					
VDCW (MAX)	6.3V	4V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	25V				
CAP. CODE	395	3.90																											
	475	4.70																											
	685	6.80																											
	106	10.0µF																											
	156	15.0µF																											
	226	22.0µF																											
	476	47.0µF																											
	107	100.0µF																											

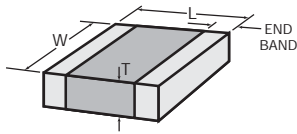
\* For values above 1uF, thickness may be greater than specified above.  
 T(max): 1206 – 0.110" 1812 – 0.130"  
 1210 – 0.125" 2220 – 0.135"

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## Z5U Dielectric



Values that are typically available.

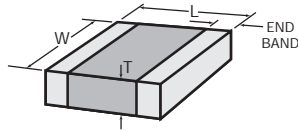
(All measurements in inches)		□		□		□		□		□		□		□	
Size		0504 (± 0.008)		0603 (± 0.006)		0805 (± 0.008)		1206 (± 0.008)		1210 (± 0.008)		1812 (± 0.012)		2220 / 2221 (± 0.016)	
L		.050		.063		.080		.126		.126		.177		.225 / .225	
W		.040		.032		.050		.063		.098		.126		.200 / .210	
T (max)		.040		.033		.055		.070		.075		.085		.108 / .108	
Min E/B		.005		.008		.020 ± .010		.020 ± .010		.020 ± .010		.024 ± .015		.025 ± .015	
VDCW (MAX)		25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	25V	50V
102	1000pF	Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
103	.01µF	Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		Available													
		104	.100µF	Available											
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															
Available															

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## Z5U Dielectric



Values that are typically available.

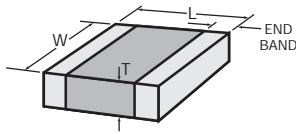
(All measurements in inches)		□		□		□		□		□		□		□		
Size		0504 (± 0.008)		0603 (± 0.006)		0805 (± 0.008)		1206 (± 0.008)		1210 (± 0.008)		1812 (± 0.012)		2220 / 2221 (± 0.016)		
L		.050		.063		.080		.126		.126		.177		.225 / .225		
W		.040		.032		.050		.063		.098		.126		.200 / .210		
T (max)		.040		.033		.055		.070		.075		.085		.108 / .108		
Min E/B		.005		.008		.020 ± .010		.020 ± .010		.020 ± .010		.024 ± .015		.025 ± .015		
VDCW (MAX)		25V 50V		25V 50V		25V 50V		25V 50V		25V 50V		25V 50V		25V 50V		
CAP. CODE	394	CAP. VALUE	.390													
	474		.470													
	564		.560													
	684		.680													
	824		.820													
	105		1.00µF													
	125		1.20													
	155		1.50													
	185		1.80													
	225		2.20													
	335		3.30													
	395		3.90													
	475		4.70													
	685		6.80													
	106		10.0µF													
	156		15.0µF													
	226		22.0µF													
	476		47.0µF													
107	100.0µF															

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## Y5V Dielectric



Values that are typically available.

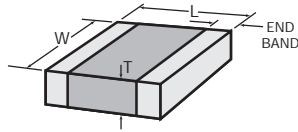
(All measurements in inches)		□	□				□				□				□				□				□					
Size	0201 (± 0.002)	0402 (± 0.004)				0603 (± 0.006)				0805 (± 0.008)				1206 (± 0.008)				1210 (± 0.008)				1812 (± 0.012)						
L	.024	.040				.063				.080				.126				.126				.177						
W	.012	.020				.032				.050				.063				.098				.126						
T (max)	.012	.025				.033				.055				.070				.075				.085						
Min E/B	.002	.004				.008				.020 ± .010				.020 ± .010				.020 ± .010				.024 ± .015						
VDCW (MAX)	10V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	10V	16V	25V	50V	6.3V	10V	16V	25V	6.3V	10V	25V	
102	1000pF																											
122	1200																											
152	1500																											
182	1800																											
222	2200																											
272	2700																											
332	3300																											
392	3900																											
472	4700																											
562	5600																											
682	6800																											
822	8200																											
103	.01µF																											
123	.012																											
153	.015																											
183	.018																											
223	.022																											
273	.027																											
333	.033																											
393	.039																											
473	.047																											
563	.056																											
683	.068																											
823	.082																											
104	.100µF																											
124	.120																											
154	.150																											
184	.180																											
224	.220																											
274	.270																											
334	.330																											

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

# Ceramic Chip Capacitors

## Y5V Dielectric



Values that are typically available.

(All measurements in inches)		□		□			□			□			□		□		□		
Size	0201 (± 0.002)	0402 (± 0.004)			0603 (± 0.006)			0805 (± 0.008)			1206 (± 0.008)		1210 (± 0.008)		1812 (± 0.012)				
L	.024	.040			.063			.080			.126		.126		.177				
W	.012	.020			.032			.050			.063		.098		.126				
T (max)	.012	.025			.033			.055			.070		.075		.085				
Min E/B	.002	.004			.008			.020 ± .010			.020 ± .010		.020 ± .010		.024 ± .015				
VDCW (MAX)	10V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	25V
394	.390																		
474	.470																		
564	.560																		
684	.680																		
824	.820																		
105	1.00µF																		
125	1.20																		
155	1.50																		
185	1.80																		
225	2.20																		
335	3.30																		
395	3.90																		
475	4.70																		
685	6.80																		
106	10.0µF																		
156	15.0µF																		
226	22.0µF																		
476	47.0µF																		
107	100.0µF																		

**Note:**

Due to demand and raw material fluctuations in the market, changes and availability of individual values may occur. Minimum order quantities may apply.

All components in this section are RoHS compliant per the EU directives and definitions.