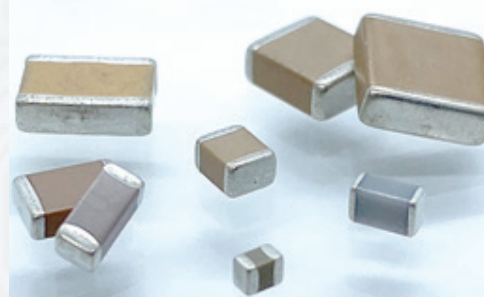


# HIGH VOLTAGE CERAMIC CHIP CAPACITOR

## - CHV SERIES -

### SCOPE

- Cal-Chip's unique construction process ensures excellent volumetric efficiency and stability of capacitance with temperature.
- Our high voltage capacitors have extended values to those previously offered.



### FEATURES

- Special internal electrode design offers the highest voltage rating.
- Surface mount suitable for wave and reflow soldering
- High reliability
- RoHS compliant

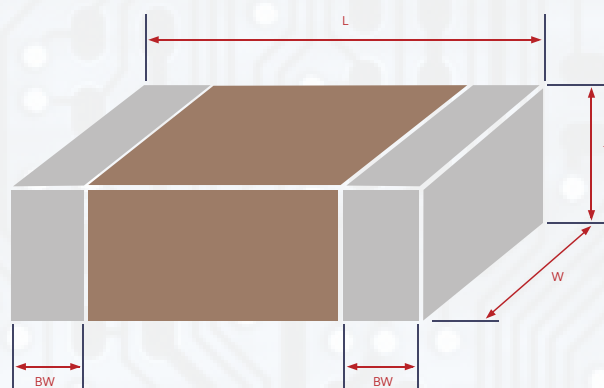
### APPLICATIONS

- Suitable for LAN/WLAN interface
- Back-lighting inverter, DC-DC converters
- Ballast, Modems and Power Supplies

### ELECTRICAL SPECIFICATIONS

Operating Temperature	-55°C to 125°C
Rating Voltage	100Vdc to 5000Vdc
Temperature Coefficient	NPO: $\leq \pm 30 \text{ppmi}/^\circ\text{C}$ , -55°C ~ +125°C (EIA Class I)
	X7R: $\leq \pm 15 \text{ppmi}/^\circ\text{C}$ , -55°C ~ +125°C (EIA Class II)
Dissipation Factor	NPO: $Q > 1000$ , X7R: D.F. $\leq 2.5\%$
Insulation Resistance	10GΩ or 500/CΩ whichever is smaller
Aging	NPO: 0%, X&R: Typically 1.0% per decade of time
Dielectric Strength	$100 \leq V < 500\text{V}$ , 200% Rated Voltage
	$500 \leq V < 1000\text{V}$ , 150% Rated Voltage
	$1000 \leq V$ , 120% Rated Voltage

### DIMENSIONS



TYPE (MM)	L (MM)	W (MM)	T (MAX) (MM)	BW (MIN) (MM)
0402	1.00+/-0.05	0.5+/-0.05	*	0.13
0603	1.60±0.10	0.80±0.10	*	0.15
0805	2.00±0.20	1.25±0.20	*	0.20
1206	3.20±0.30	1.60±0.20	*	0.30
1210	3.20±0.30	2.50±0.20	*	0.30
1808	4.60±0.30	2.00±0.20	*	0.30
1812	4.60±0.30	3.20±0.30	*	0.30
1825	4.60±0.30	6.35±0.40	*	0.30
2220	5.70±0.40	5.00±0.40	*	0.30
2225	5.70±0.40	6.35±0.40	*	0.30

### ORDER INFORMATION

CHV	0805	N	250	103	K	X	T	D
PRODUCT TYPE	SIZE	TERMINATION OPTIONS	RATED VOLTAGE	CAPACITANCE	TOLERANCE	DIELECTRIC	PACKAGING	PACKAGING
	0402 : 0402 0603 : 0603 0805 : 0805 1206 : 1206 1210 : 1210 1808 : 1808 1812 : 1812 1825 : 1825 2220 : 2220 2225 : 2225	N: Nickel Barrier  A: Nickel Barrier/ Arc Protection  P: Pd/Ag	250 : 250V 450 : 450V 500 : 500V 630 : 630V 1K0 : 1KV 1K5 : 1.5KV 2K0 : 2KV 2K5 : 2.5KV 3K0 : 3KV 4K0 : 4KV 5K0 : 5KV 6K0 : 6KV	Two significant digits followed by no. of zeros. And R in place of decimal point.	B: $\pm 0.1\text{pF}$ C: $\pm 0.25\text{pF}$ D: $\pm 0.50\text{pF}$ F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$ K: $\pm 10\%$ M: $\pm 20\%$	C: COG X: X7R	T: 7" REEL	D Optional 10K reel (from 0603-1210 size)



\*REFERENCE CHARTS BELOW





# CAPACITANCE RANGE

DIMENSION (MM)		0402		0603				0805							
L (L1)		1.0 ± 0.05		1.6 ± 0.1				2.00 ± 0.2							
W		0.5 ± 0.05		0.8 ± 0.1				1.25 ± 0.2							
BW		0.1 ~ 0.35		0.40 ± 0.05				0.7 ± 0.2							
DIELECTRIC		COG		COG		X7R		COG			X7R				
T (MAX)		0.55		0.95				1.45			1.45				
RATED VOLTAGE		250		250	500	250	500	250	500	630	1KV	250	500	630	1KV
1.0pF	1R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.1	1R1	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.2	1R2	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.3	1R3	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.5	1R5	█	█	█	█	█	█	█	█	█	█	█	█	█	█
1.8	1R8	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.0	2R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.2	2R2	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.4	2R4	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.5	2R5	█	█	█	█	█	█	█	█	█	█	█	█	█	█
2.7	2R7	█	█	█	█	█	█	█	█	█	█	█	█	█	█
3.0	3R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
3.3	3R3	█	█	█	█	█	█	█	█	█	█	█	█	█	█
3.6	3R6	█	█	█	█	█	█	█	█	█	█	█	█	█	█
3.9	3R9	█	█	█	█	█	█	█	█	█	█	█	█	█	█
4.0	4R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
4.3	4R3	█	█	█	█	█	█	█	█	█	█	█	█	█	█
4.7	4R7	█	█	█	█	█	█	█	█	█	█	█	█	█	█
5.0	5R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
5.1	5R1	█	█	█	█	█	█	█	█	█	█	█	█	█	█
5.6	5R6	█	█	█	█	█	█	█	█	█	█	█	█	█	█
6.0	6R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
6.2	6R2	█	█	█	█	█	█	█	█	█	█	█	█	█	█
6.8	6R8	█	█	█	█	█	█	█	█	█	█	█	█	█	█
7.0	7R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
7.5	7R5	█	█	█	█	█	█	█	█	█	█	█	█	█	█
8.0	8R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
8.2	8R2	█	█	█	█	█	█	█	█	█	█	█	█	█	█
9	9R0	█	█	█	█	█	█	█	█	█	█	█	█	█	█
9.1	9R1	█	█	█	█	█	█	█	█	█	█	█	█	█	█
10	100	█	█	█	█	█	█	█	█	█	█	█	█	█	█
11	110	█	█	█	█	█	█	█	█	█	█	█	█	█	█
12	120	█	█	█	█	█	█	█	█	█	█	█	█	█	█
13	130	█	█	█	█	█	█	█	█	█	█	█	█	█	█
15	150	█	█	█	█	█	█	█	█	█	█	█	█	█	█
16	160	█	█	█	█	█	█	█	█	█	█	█	█	█	█
18	180	█	█	█	█	█	█	█	█	█	█	█	█	█	█
20	200	█	█	█	█	█	█	█	█	█	█	█	█	█	█
22	220	█	█	█	█	█	█	█	█	█	█	█	█	█	█
24	240	█	█	█	█	█	█	█	█	█	█	█	█	█	█
27	270	█	█	█	█	█	█	█	█	█	█	█	█	█	█
30	300	█	█	█	█	█	█	█	█	█	█	█	█	█	█
33	330	█	█	█	█	█	█	█	█	█	█	█	█	█	█
36	360	█	█	█	█	█	█	█	█	█	█	█	█	█	█
39	390	█	█	█	█	█	█	█	█	█	█	█	█	█	█
43	430	█	█	█	█	█	█	█	█	█	█	█	█	█	█
47	470	█	█	█	█	█	█	█	█	█	█	█	█	█	█
56	560	█	█	█	█	█	█	█	█	█	█	█	█	█	█
68	680	█	█	█	█	█	█	█	█	█	█	█	█	█	█
82	820	█	█	█	█	█	█	█	█	█	█	█	█	█	█
100	101	█	█	█	█	█	█	█	█	█	█	█	█	█	█
120	121	█	█	█	█	█	█	█	█	█	█	█	█	█	█
150	151	█	█	█	█	█	█	█	█	█	█	█	█	█	█
180	181	█	█	█	█	█	█	█	█	█	█	█	█	█	█
220	221	█	█	█	█	█	█	█	█	█	█	█	█	█	█

CAP. RANGE





# CAPACITANCE RANGE

DIMENSION (MM)		0603				0805							
L (L1)		1.6 ± 0.1				2.00 ± 0.2							
W		0.8 ± 0.1				1.25 ± 0.2							
BW		0.40 ± 0.05				0.7 ± 0.2							
DIELECTRIC		COG		X7R		COG				X7R			
T (MAX)		0.95				1.45				1.45			
RATED VOLTAGE		250	500	500	1KV	250	500	630	1KV	250	500	630	1KV
240	241	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
270	271	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
300	301	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
330	331	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
360	361	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
390	391	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
430	431	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
470	471	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
510	511	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
560	561	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
620	621	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
680	681	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
750	751	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
820	821	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
910	911	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.0nF	102	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.2	122	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.3	132	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.5	152	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.6	162	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
1.8	182	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
2.0	202	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
2.2	222	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
2.7	272	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
3.3	332	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
3.9	392	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
4.7	472	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
5.6	562	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
6.8	682	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
8.2	822	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
10	103	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
12	123	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
15	153	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
18	183	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
22	223	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
27	273	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
33	333	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
39	393	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
47	473	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
56	563	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
68	683	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
82	823	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
100	104	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

CAP. RANGE



# CAPACITANCE RANGE

DIMENSION (MM)		1206													
L (L1)		3.2 ± 0.30													
W		1.6 ± 0.2													
BW		1.50 ± 0.3													
DIELECTRIC		COG						X7R							
T (MAX)		1.9						1.45						1.8	
RATED VOLTAGE		250	500	630	1K	2K	3K	250	500	630	1KV	1.5KV	2KV	2.5KV	3KV
1.0pF	1R0														
2.0	2R0														
3.3	3R3														
3.9	3R9														
5.0	5R0														
8.2	8R2														
10	100														
12	120														
15	150														
18	180														
22	220														
27	270														
33	330														
39	390														
47	470														
56	560														
68	680														
82	820														
100	101														
120	121														
150	151														
180	181														
220	221														
270	271														
330	331														
390	391														
470	471														
560	561														
680	681														
820	821														
1.0nF	102														
1.2	122														
1.5	152														
1.8	182														
2.2	222														
2.7	272														
3.3	332														
3.9	392														
4.7	472														
5.6	562														
6.8	682														
8.2	822														
10	103														
12	123														
15	153														
18	183														
22	223														
27	273														
33	333														
39	393														
47	473														
56	563														
68	683														
82	823														
100	104														
120	124														
150	154														
180	184														
220	224														

CAP. RANGE





# CAPACITANCE RANGE

DIMENSION (MM)		1210											
L (L1)		3.2 ± 0.30											
W		2.50 ± 0.20											
BW		1.60 ± 0.30											
DIELECTRIC		COG						X7R					
T (MAX)		2.2						2.2		2.6			
RATED VOLTAGE		250	500	630	1K	1.5K	2KV	250	500	630	1KV	1.5KV	2KV
3.9	3R9												
5.0	5R0												
8.2	8R2												
10	100												
12	120												
15	150												
18	180												
22	220												
27	270												
33	330												
39	390												
47	470												
56	560												
68	680												
82	820												
100	101												
120	121												
150	151												
180	181												
220	221												
270	271												
330	331												
390	391												
470	471												
560	561												
680	681												
820	821												
1.0nF	102												
1.2	122												
1.5	152												
1.8	182												
2.2	222												
2.7	272												
3.3	332												
3.9	392												
4.7	472												
5.6	562												
6.8	682												
8.2	822												
10	103												
12	123												
15	153												
18	183												
22	223												
27	273												
33	333												
39	393												
47	473												
56	563												
68	683												
82	823												
100	104												
120	124												
150	154												
180	184												
220	224												
270	274												
330	334												
390	394												
470	474												
560	564												
680	684												

CAP. RANGE



# CAPACITANCE RANGE

DIMENSION (MM)		1808														
L (L1)		4.60 ± 0.30														
W		2.00 ± 0.20														
BW		2.50 ± 0.30														
DIELECTRIC		COG							X7R							
T (MAX)		1.8			2.2				2.2							
RATED VOLTAGE		250	500	630	1KV	2KV	3KV	4KV	5KV	250	500	630	1KV	2KV	3KV	4KV
2.0pF	2R0															
3.3	3R3															
3.9	3R9															
5.0	5R0															
8.2	8R2															
10	100															
12	120															
15	150															
18	180															
22	220															
27	270															
33	330															
39	390															
47	470															
56	560															
68	680															
82	820															
100	101															
120	121															
150	151															
180	181															
220	221															
270	271															
330	331															
390	391															
470	471															
560	561															
680	681															
820	821															
1.0nF	102															
1.2	122															
1.5	152															
1.8	182															
2.2	222															
2.7	272															
3.3	332															
3.9	392															
4.7	472															
5.6	562															
6.8	682															
8.2	822															
10	103															
12	123															
15	153															
18	183															
22	223															
27	273															
33	333															
39	393															
47	473															
56	563															
68	683															
82	823															
100nF	104															
120	124															
150	154															
180	184															
220	224															
270	274															

CAP. RANGE





# CAPACITANCE RANGE

DIMENSION (MM)		1812																			
L (L1)		4.60 ± 0.30																			
W		3.20 ± 0.30																			
BW		2.50 ± 0.30																			
DIELECTRIC		COG									X7R										
T (MAX)		1.8			2.6	2.2	2.6			2.7	2.6	3					2.2		2.7		
RATED VOLTAGE		250	500	630	1KV	2KV	3KV	4KV	5KV	6KV	250	500	630	1KV	1.5KV	2KV	3KV	4KV	5KV	6KV	
10	100																				
12	120																				
15	150																				
18	180																				
22	220																				
27	270																				
33	330																				
39	390																				
47	470																				
56	560																				
68	680																				
82	820																				
100	101																				
120	121																				
150	151																				
180	181																				
220	221																				
270	271																				
330	331																				
390	391																				
470	471																				
560	561																				
680	681																				
820	821																				
1.0nF	102																				
1.2	122																				
1.5	152																				
1.8	182																				
2.2	222																				
2.4	242																				
2.7	272																				
3.3	332																				
3.9	392																				
4.7	472																				
5.6	562																				
6.8	682																				
8.2	822																				
10	103																				
12	123																				
15	153																				
18	183																				
22	223																				
27	273																				
33	333																				
39	393																				
47	473																				
56	563																				
68	683																				
82	823																				
100	104																				
120	124																				
150	154																				
180	184																				
220	224																				
270	274																				
330	334																				
390	394																				
470	474																				
560	564																				
680	684																				
820	824																				
1.0uF	105																				
2.2	225																				

CAP. RANGE



CAPACITANCE RANGE

DIMENSION (MM)		1825															
L (L1)		4.60 ± 0.30															
W		6.35 ± 0.40															
BW		2.50 ± 0.30															
DIELECTRIC		COG							X7R								
T (MAX)		1.8		2.6					3.0	1.8		2.2		2.6		2.7	
RATED VOLTAGE		250	500	630	1KV	1.5KV	2KV	2.5KV	3KV	250	500	630	1KV	2KV	3KV	4KV	5KV
10	100																
12	120																
15	150																
18	180																
22	220																
27	270																
33	330																
39	390																
47	470																
56	560																
68	680																
82	820																
100	101																
120	121																
150	151																
180	181																
220	221																
270	271																
330	331																
390	391																
470	471																
560	561																
680	681																
820	821																
1.0nF	102																
1.2	122																
1.5	152																
1.8	182																
2.2	222																
2.7	272																
3.3	332																
3.9	392																
4.7	472																
5.6	562																
6.8	682																
8.2	822																
10	103																
12	123																
15	153																
18	183																
22	223																
27	273																
33	333																
39	393																
47	473																
56	563																
68	683																
82	823																
100	104																
120	124																
150	154																
180	184																
220	224																
270	274																
330	334																
390	394																
470	474																
560	564																
680	684																
820	824																
1.0uF	105																
2.2	225																

CAP. RANGE







# CAPACITANCE RANGE

DIMENSION (MM)		2220																	
L (L1)		5.70 ± 0.30																	
W		5.00 ± 0.40																	
BW		3.50 ± 0.30																	
DIELECTRIC		COG									X7R								
T (MAX)		1.8			2.2	3.2	2.5	3.0	3.1			2.6	1.8		2.2	2.7			
RATED VOLTAGE		250	500	630	1KV	1.5KV	2KV	3KV	4KV	5KV	250	500	630	1KV	2KV	3KV	4KV	5KV	6KV
2.0pF	2R0																		
3.3	3R3																		
3.9	3R9																		
5.0	5R0																		
8.2	8R2																		
10	100																		
12	120																		
15	150																		
18	180																		
22	220																		
27	270																		
33	330																		
39	390																		
47	470																		
56	560																		
68	680																		
82	820																		
100	101																		
120	121																		
150	151																		
180	181																		
220	221																		
270	271																		
330	331																		
390	391																		
470	471																		
560	561																		
600	601																		
680	681																		
820	821																		
1.0nF	102																		
1.2	122																		
1.5	152																		
1.8	182																		
2.2	222																		
2.7	272																		
3.3	332																		
3.9	392																		
4.7	472																		
5.6	562																		
6.8	682																		
8.2	822																		
10	103																		
12	123																		
15	153																		
18	183																		
22	223																		
27	273																		
33	333																		
39	393																		
47	473																		
56	563																		
68	683																		
82	823																		
100	104																		
120	124																		
150	154																		
180	184																		
220	224																		
270	274																		
330	334																		
390	394																		
470	474																		
560	564																		
680	684																		
820	824																		
1.0uF	105																		
2.2	225																		
3.3	335																		

CAP RANGE



# CAPACITANCE RANGE

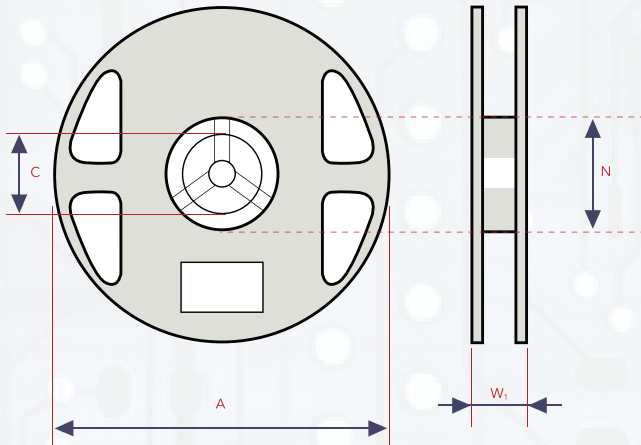
DIMENSION (MM)		2225															
L (L1)		5.70 ± 0.40															
W		6.35 ± 0.40															
BW		3.50 ± 0.30															
DIELECTRIC		COG								X7R							
T (MAX)		3.0								3.0	2.2			2.6	1.8	2.2	2.7
RATED VOLTAGE		250	500	630	1KV	2KV	3KV	4KV	5KV	250	500	630	1KV	2KV	3KV	4KV	5KV
10	100																
12	120																
15	150																
18	180																
22	220																
27	270																
33	330																
39	390																
47	470																
56	560																
68	680																
82	820																
100	101																
120	121																
150	151																
180	181																
220	221																
270	271																
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390	391																
470	471																
560	561																
680	681																
820	821																
1.0nF	102																
1.2	122																
1.5	152																
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220	224																
270	274																
330	334																
390	394																
470	474																
560	564																
680	684																
820	824																
1.0uF	105																
1.2	125																
2.2	225																
3.3	335																
4.7	475																
6.8	685																
8.2	825																
100	106																

CAP. RANGE



# PACKAGING (TAPING)

## REEL TYPE SIZE



SIZE	0402, 0603, 0805, 1206, 1210			1808, 1812, 1825, 2220, 2225
REEL SIZE	7"	10"	13"	7"
C	13.0 ± 0.5	13.0 ± 0.5	13.0 ± 0.5	13.0 ± 0.5
W1	10.0 ± 1.5	10.0 ± 1.5	10.0 ± 1.5	12.4 + 2.0/-0
A	178.0 ± 2.0	250.0 ± 2.0	330.0 ± 2.0	178.0 ± 2.0
N	60.0 + 1.0/-0	50 MIN	50 MIN	60.0 + 1.0/-0

- To peel off the cover tape by the method shown in the right figure apply a peel-off force of 20GF - 60GF (card board); 10GF - 75GF (plastic tape).

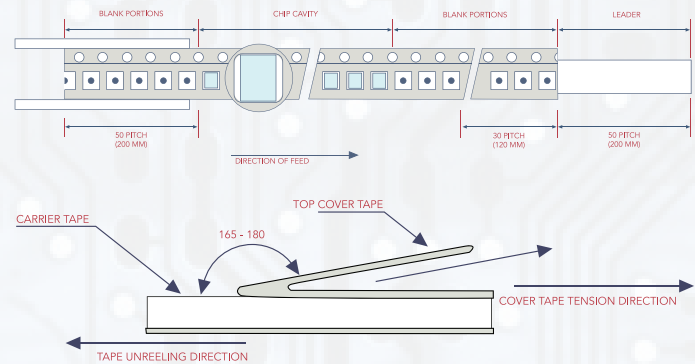
- The cover tape should not touch the top or bottom of the chip.

- If the cover tape has been peeled off it may be difficult to remove the chip due to punch-hole clearance, dirt, and debris. Make sure therefore that no paper waste will adhere to and block the absorption nozzle.

- If the cover tape has been peeled off from the top, stick it back on with a suitable adhesive.

- Follow the illustration for the start and end of the winding operation.

## CARRIER TAPE STANDARD



### CARDBOARD CARRIER TAPE FOR 0402, 0603, 0805/1206 TYPE

UNIT - MM

TYPE	A	B	W	F	E	P1	P2	P0	D0	t1	t2	MOUNTING HOLE	STD. REEL QTY 7"
0402	0.7±0.2	1.3±0.2	8.0±0.3	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.5	4.0±0.1	1.5±0.1	1.1 max	1.4 max	Angular Punch Hole	10,000 (20,000)
0603	1.1±0.2	1.9±0.2											4,000 (10,000)
0805	1.65±0.2	2.4±0.2											4,000 (10,000)
1206	2.0±0.2	3.6±0.2											4,000 (10,000)

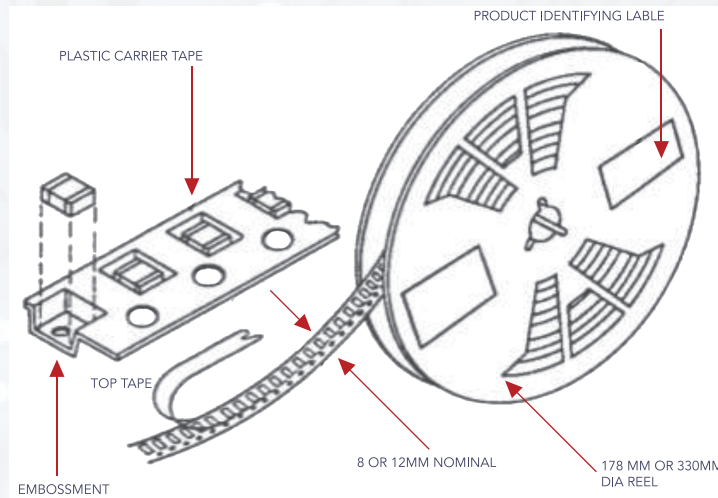
### EMBOSSED PLASTIC CARRIER TAPE FOR 0805/1206 TYPE AND 1210 TYPE

UNIT - MM

TYPE	A	B	W	F	E	P1	P2	P0	D0	t1	t2	MOUNTING HOLE	STD. REEL QTY 7"	OPTIONAL REEL QTY (10"/13")
0805	1.45±0.2	2.3±0.2	8.0±0.3	3.5±0.05	1.75±0.1	4.0±0.1	2.0±0.5	4.0±0.1	1.5±0.1	0.6 max	2.5 max	Angular Embossed Hole	2,000 / 3,000	10,000
1206	2.0±0.2	3.6±0.2											2,000 / 3,000	10,000
1210	2.9±0.2	3.6±0.2											1,000 / 2,000 / 3,000	4,000
1808	3.6±0.2	4.9±0.2	12.0±0.3	5.5±0.05	1.75±0.1	8.0±0.1	2.0±0.5	4.0±0.1	1.5±0.1	0.6 max	6.5 max	Angular Embossed Hole	500 / 1,000	2,000
1812	3.6±0.2	4.9±0.2											500 / 1,000	2,000
1825	6.8±0.3	4.9±0.2											500 / 1,000	1,500
2220	5.5±0.3	6.2±0.3											500 / 700 / 1,000	1,500
2225	6.8±0.3	6.2±0.3											500 / 700	1,000

**PACKAGING**

- Tape and reel packing of surface mounting chip capacitors for automatic placement are in accordance with IEC286 part 3 and RS481



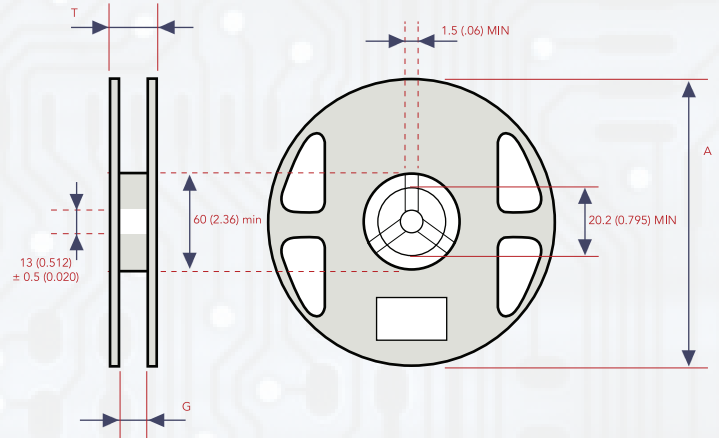
**PEEL FORCE**

The peel force of the top sealing tape is between 0.2 and 1.0 Newton at 1800. The breaking force of the carrier and sealing tape in the direction of unreeling is greater than 10 Newtons.

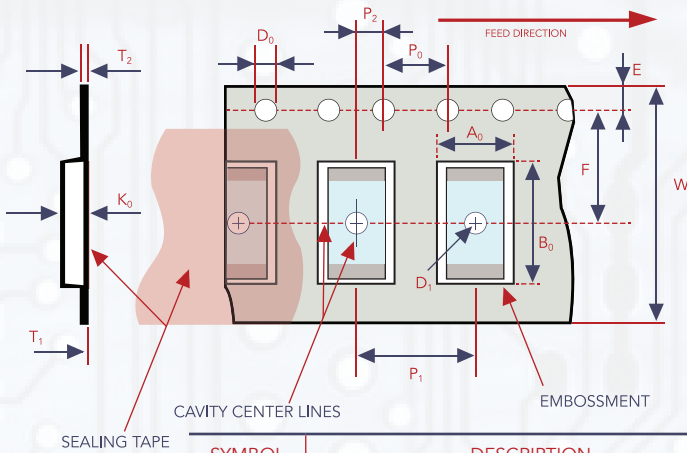
**TAPE DIMENSIONS MM (INCHES)**

The peel force of the top sealing tape is between 0.2 and 1.0 Newton at 1800. The breaking force of the carrier and sealing tape in the direction of unreeling is greater than 10 Newtons.

**REEL DIMENSIONS MM (INCHES)**



SYMBOL	DESCRIPTION	178 MM REEL	330 MM REEL
A	Reel Diameter	178 (7) ±2 (0.079)	330 (13) max
G	Reel Inside with	8.4 (0.33) ± 1.5 (0.059) - 0	12.4 (0.49) ± 1.5 (0.059) - 0
T	Reel Outside with	14.4 (0.56) max	18.4 (0.72) max



SYMBOL	DESCRIPTION	8 MM TAPE	12 MM TAPE
A <sub>0</sub>	Width of cavity	Dependent of chip size to minimize rotation	
B <sub>0</sub>	Length of cavity	Dependent of chip size to minimize rotation	
K <sub>0</sub>	Depth of cavity	Dependent of chip size to minimize rotation	
W	Width of tape	8 (0.315) ± 0.2 (0.008)	12 (0.472) ± 0.2 (0.008)
F	Distance between drive hole centres and cavity centres	3.5 (0.138) ± 0.5 (0.002)	5.5 (0.213) ± 0.05 (0.002)
E	Distance between drive hole centres and tape edge	1.75 (0.069) ± 0.1 (0.004)	
P <sub>1</sub>	Distance between cavity centres	4 (0.156) ± 0.1 (0.004)	8 (0.315) ± 0.1 (0.004)
P <sub>2</sub>	Axial distance between drive hole centres and cavity centres	2 (0.079) ± 0.5 (0.002)	
P <sub>0</sub>	Axial distance between drive hole centres	4 (0.156) ± 0.1 (0.004)	
D <sub>0</sub>	Drive to hole diameter	1.5 (0.059) ± 0.1 (0.004) - 0	
D <sub>1</sub>	Diameter of cavity piercing	1 (0.039) ± 0.1 (0.004) - 0	1.5 (0.059) ± 0.1 (0.004) - 0
t <sub>1</sub>	Embossed tape thickness	0.3 (0.012) ± 0.1 (0.004)	0.4 (0.016) ± 0.1 (0.004)
t <sub>2</sub>	Top tape thickness	0.1 (0.004) max	

