



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Type TYC Series

### Key Features

- Choice of Dielectrics (NP0, X7R, X5R, Y5V)
- 0402 to 1812 sizes as standard
- Other sizes available. 0201 available soon
- 6.3V to 50V in standard range
- Voltage ratings to 3kV on selected products
- Range of tolerances available
- RoHS Compliant
- Excellent thermal stability
- Low dissipation factor

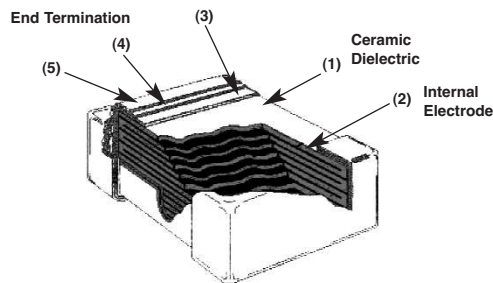


Multilayer ceramic capacitors (MLCC) are manufactured by suspending ceramic powders in liquid and casting into a thin green sheet from 20mm in thickness to 5mm or thinner. Metal electrodes are sieved printed onto green sheets, which are later stacked to form a laminated structure. The metal electrodes are arranged so that the termination alternates from one edge to another of the capacitor.

Upon sintering at high temperature the part becomes a monolithic block, which can provide an extremely high capacitance in small mechanical volumes.

Finally, the termination electrodes are formed by composite of outer metal-glass electrode and followed by a barrier layer and pure-tin plating to permit MLCC to be soldered directly onto printed circuit board.

### Structure



### Class 1

No		Specifications	Material
1		Ceramic dielectric	Barium titanate base
2		Internal Electrode	Pb, PdAg
3		Inner Layer	Ag
4	End Terminal	Middle Layer	Ni
5		Outer Layer	Sn

### Class 2

No		Specifications	Material	
1		Ceramic dielectric	Barium titanate base	
2	Internal Electrode		Pb, PbAg	Ni
3		Inner Layer	Ag	Cu
4	End Terminal	Middle Layer	Ni	
5		Outer Layer	Sn	

### Type TYC Series

#### Capacitance & Voltage (NPO)

EIA	Size	0402				0603				0805				1206				1210				1812				
Code	VDCW	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	10V	16V	25V	50V	
0R5	0.5pF	N	N	N	N	S	S	S	S	A	A	A	A													
1R0	1	N	N	N	N	S	S	S	S	A	A	A	A													
1R2	1.2	N	N	N	N	S	S	S	S	A	A	A	A													
1R5	1.5	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
1R8	1.8	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
2R2	2.2	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
2R7	2.7	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
3R3	3.3	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
3R9	3.9	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
4R7	4.7	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
5R6	5.6	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
6R8	6.8	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
8R2	8.2	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
100	10pF	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
120	12	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
150	15	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
180	18	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B									
220	22	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
270	27	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
330	33	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
390	39	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
470	47	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
560	56	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
680	68	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
820	82	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
101	100pF	F	N	N	N	N	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
121	120	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
151	150	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
181	180	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
221	220	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
271	270	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
331	330	N	N	N	N	S	S	S	S	A	A	A	A	B	B	B	B	C	C	C	C					
391	390	N	N			S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C					
471	470	N	N			S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C					
561	560					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C					
681	680					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C					
821	820					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C					
102	1000pF					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D	D
122	1200					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D	D
152	1500					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D	D
182	1800					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D	D
222	2200					S	S	S	S	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D	D	D
272	2700					S	S	D	D	D	D			B	B	B	B	C	C	C	C	D	D	D	D	D
332	3300					S	S	D	D	D	D			B	B	B	B	C	C	C	C	D	D	D	D	D
392	3900									D	D	D	D	B	B	B	B	C	C	C	C	D	D	D	D	D
472	4700									D	D	D	D	B	B	B	B	C	C	C	C	D	D	D	D	D
562	5600									D	D			B	B	B	B	C	C	C	C	D	D	D	D	D
682	6800									D	D			C	C	C	C					D	D	D	D	D
822	8200									D	D			C	C	C	C					D	D	D	D	D
103	0.01μF									D	D		D'									D	D	D	D	D
123	0.012																					D	D	D	D	D
153	0.015																					D	D	D	D	D
183	0.018																					D	D	D	D	D
223	0.022																					D	D	D	D	D
273	0.027																					D	D	D	D	D
333	0.033																					D	D	D	D	D
393	0.039																					D	D	D	D	D
473	0.047																					D	D	D	D	D
563	0.056																					D	D	D	D	D
683	0.068																					D	D	D	D	D
823	0.082																					D	D	D	D	D
104	0.1μF									D	D											D	D	D	D	D

(1) [D']: The thickness spec. of said items is special defined on 1.25±0.2mm for 0805 and 1.15±0.15mm for 1206.

Size Unit:	Inch (mm)	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1808 (4520)	1812 (4532)
A=	0.60±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
B=	0.80±0.10 mm	-	-	Paper 4Kp/reel	Paper 4Kp/reel	-	-	-
C=	0.95±0.10 mm	-	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-	-
D=	1.25±0.10 mm	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 2Kp/reel	Plastic 1Kp/reel
G=	1.60±0.20 mm	-	-	-	Plastic 2Kp/reel	Plastic 2Kp/reel	-	-
S=	0.80±0.07 mm	-	Paper 4Kp/reel	-	-	-	-	-
N=	0.50±0.05 mm	Paper 10Kp/reel	-	-	-	-	-	-
K=	2.00±0.20 mm	-	-	-	-	Plastic 2Kp/reel	Plastic 1Kp/reel	Plastic 1Kp/reel
M=	2.50±0.30 mm	-	-	-	-	Plastic 1Kp/reel	-	Plastic 1Kp/reel



**Type TYC Series**

**Capacitance & Voltage (Hi-Voltage NPO)**

EIA	Size	0603				0805				1206				1210				1808			1812								
Code	VDCW	100	100	200	250	500	100	200	250	500	1000	2000	100	200	250	500	1000	2000	1000	2000	3000	100	200	250	500	1000	2000	3000	
0R5	0.5pF	S	A	A	A	A																							
1R0	1	S	A	A	A	A																							
1R2	1.2	S	A	A	A	A																							
1R5	1.5	S	A	A	A	A	B	B	B	B	B	B																	
1R8	1.8	S	A	A	A	A	B	B	B	B	B	B																	
2R2	2.2	S	A	A	A	A	B	B	B	B	B	B																	
2R7	2.7	S	A	A	A	A	B	B	B	B	B	B																	
3R3	3.3	S	A	A	A	A	B	B	B	B	B	B																	
3R9	3.9	S	A	A	A	A	B	B	B	B	B	B																	
4R7	4.7	S	A	A	A	A	B	B	B	B	B	B																	
5R6	5.6	S	A	A	A	A	B	B	B	B	B	B																	
6R8	6.8	S	A	A	A	A	B	B	B	B	B	B																	
8R2	8.2	S	A	A	A	A	B	B	B	B	B	B																	
100	10pF	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
120	12	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
150	15	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
180	18	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
220	22	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
270	27	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
330	33	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
390	39	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
470	47	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
560	56	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
680	68	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
820	82	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
101	100pF	S	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
121	120	S	A	A	A	A	D	B	B	B	B	B	D	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
151	150	S	A	B	B	D	B	B	B	B	C	D	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D
181	180	S	A	B	B	D	B	B	B	B	C	G	C	C	C	C	C	C	D	D	D	K	D	D	D	D	D	D	D
221	220	S	A	D	D	D	B	B	B	B	D	G	C	C	C	C	C	C	D	D	D	K	D	D	D	D	D	D	D
271	270	S	A	D	D	D	B	B	B	C	D		C	C	C	C	C	C	D	D	D	K	D	D	D	D	D	D	K
331	330	S	A	D	D	D	B	B	B	C			C	C	C	C	D		D	D		D	D	D	D	D	D	D	K
391	390	S	B	D	D	D	B	B	B	C			C	C	C	C	D		D	K		D	D	D	D	D	D	D	K
471	470	S	B	D	D	B	C	C	C				C	C	C	C	D		D	K		D	D	D	D	D	D	D	K
561	560	S	B	D	B	C	C	C					C	C	C	C			K	K		D	D	D	D	D	D	D	D
681	680	B	D	B	C	C	C						C	C	C	C			K	K		D	D	D	D	D	D	D	K
821	820	B	D	B	C	D	D						C	C	C	C			K	K		D	D	D	D	D	D	D	K
102	1000pF	B	B		C								C	C	C	C			K			D	D	D	D	D	D	D	K
122	1200	B	B	C									C	D	D	D						D	D	D	D	D	D	D	K
152	1500	B	B	C									C	D	D	D						D	D	D	D	D	D	D	K
182	1800	B	B	C									C	D	D	D						D	D	D	D	D	D	D	
222	2200	B	B	D									C	D	D	D						D	D	D	D	D	D	D	
272	2700	D	B										C	D	D							D	D	D	D	D	D	D	
332	3300	D	B										C	D								D	D	D	D	D	D	D	
392	3900	D	B										C	D								D	D						
472	4700	B											C									D	D						
562	5600	B											C									D	D						
682	6800	C											C									D	D						
822	8200	C											C									D							
103	0.01μF												C									D							
123	0.012												D									D							
153	0.015												D									D							
183	0.018																					D							
223	0.022																					D							
273	0.027																					D							
333	0.033μF																					D							

Size Unit:	Inch (mm)	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1808 (4520)	1812 (4532)
A=	0.60±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
B=	0.80±0.10 mm	-	-	Paper 4Kp/reel	Paper 4Kp/reel	-	-	-
C=	0.95±0.10 mm	-	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-	-
D=	1.25±0.10 mm	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 2Kp/reel	Plastic 1Kp/reel
G=	1.60±0.20 mm	-	-	-	Plastic 2Kp/reel	Plastic 2Kp/reel	-	-
S=	0.80±0.07 mm	-	Paper 4Kp/reel	-	-	-	-	-
N=	0.50±0.05 mm	Paper 10Kp/reel	-	-	-	-	-	-
K=	2.00±0.20 mm	-	-	-	-	Plastic 2Kp/reel	Plastic 1Kp/reel	Plastic 1Kp/reel
M=	2.50±0.30 mm	-	-	-	-	Plastic 1Kp/reel	-	Plastic 1Kp/reel

## Type TYC Series

### Capacitance & Voltage (X7R/X5R)

EIA Code	Size VDCW	0402				0603				0805				1206				1210				1812								
		10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V					
101	100pF	N	N	N	N		S	S	S	S		B	B	B	B															
121	120	N	N	N	N		S	S	S	S		B	B	B	B															
151	150	N	N	N	N		S	S	S	S		B	B	B	B															
181	180	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
221	220	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
271	270	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
331	330	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
391	390	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
471	470	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
561	560	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
681	680	N	N	N	N		S	S	S	S		B	B	B	B		B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>	B <sup>A</sup>										
821	820	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B										
102	1000pF	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
122	1200	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
152	1500	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
182	1800	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
222	2200	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
272	2700	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
332	3300	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
392	3900	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
472	4700	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
562	5600	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
682	6800	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	C <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
822	8200	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
103	0.01μF	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
123	0.012	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
153	0.015	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
183	0.018	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
223	0.022	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
273	0.027	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
333	0.033	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
393	0.039	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
473	0.047	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
563	0.056	N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
683	0.068	*N	N	N	N		S	S	S	S		B	B	B	B		B	B	B	B		C	C	C	C	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	D <sup>A</sup>	
823	0.082	*N	N	N	N		S	S	S	S		B	B	B	D		B	B	B	B		C	C	C	C	D	D	D	D	
104	0.1μF	*N	N	N	N		S	S	S	S		B	B	B	D		B	B	B	B		C	C	C	C	D	D	D	D	
124	0.12	N	N	N	N		S	S	S	S		B	B	B	D		B	B	B	B		C	C	C	C	D	D	D	D	
154	0.15	N	N	N	N		S	S	S	S		D	D	D	D		C	C	C	C		C	C	C	C	D	D	D	D	
184	0.18	N	N	N	N		S	S	S	S		D	D	D	D'		C	C	C	C		C	C	C	C	D	D	D	D	
224	0.22	N	N	N	N		S	S	S	S		D	D	D	D'		C	C	C	C		C	C	C	C	D	D	D	D	
274	0.27	N	N	N	N		S	S	S	S		D	D	D	D'		C	C	C	C		C	C	C	C	D	D	D	D	
334	0.33	N	N	N	N		*S'	S	S	S		D	D	D	D'		C	C	C	C		C	C	C	C	D	D	D	D	
394	0.39	N	N	N	N		S	S	S	S		D	D	D	D'		C	C	C	C		C	C	C	C	D	D	D	D	
474	0.47	N	N	N	N		*S'	S	S	S		D	D	D'	G'		C	C	C	C		C	C	C	C	D	D	D	D	
564	0.56	N	N	N	N		S	S	S	S		D	D	D	D'		D	D	D	D					D	D	D	D	D	
684	0.68	N	N	N	N		S	S	S	S		D	D	D'	D'		D	D	D	D					D	D	D	D	K	
824	0.82	N	N	N	N		S	S	S	S		D	D	D'	D'		D	D	D	D					D	D	D	D	K	
105	1μF	N	N	N	N		*S'	*S'	S	S		D	D'	D'	D'		D	D	G'	G'		G	G	G		D	D	D	K	
225	2.2	N	N	N	N		*S'	S	S	S		*D'	*D'	D'	D'		*D'	*D'	G'	G'		K	K	K						
335	3.3	N	N	N	N		S	S	S	S		*D'	*D'	D'	D'		*G'	*G'	G'	G'		K	K	K						
475	4.7	N	N	N	N		S	S	S	S		*D'	D'	D'	D'		*G'	*G'	*G'	G'		K	K	K						
685	6.8	N	N	N	N		S	S	S	S		S	S	S	S		S	S	S	S										
106	10μF	N	N	N	N		S	S	S	S		*D'	D'	D'	D'		*G'	*G'	G'	G'		*K	*K	*K					M	
226	22μF	N	N	N	N		S	S	S	S		S	S	S	S		*G'	*G'	G'	G'		*M	*M	*M			*M			
107	100μF	N	N	N	N		S	S	S	S		S	S	S	S		S	S	S	S						*U				

- (1) [\*]: The said items are made by NME (Noble Metal Electrode).
- (2) [\*']: The said items are available in X5R.
- (3) [S]: The thickness spec. of said items is special defined on 0.80±0.15/-0.1mm.
- (4) [D]: The thickness spec. of said items is special defined on 1.25±0.2mm for 0805 and 1.15±0.15mm for 1206.
- (5) [G]: The thickness spec. of said items is special defined on 1.60±0.3/-0.1mm.

Size Unit:	Inch (mm)	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1808 (4520)	1812 (4532)
A=	0.60±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
B=	0.80±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
C=	0.95±0.10 mm	-	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-	-
D=	1.25±0.10 mm	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 2Kp/reel	Plastic 1Kp/reel
G=	1.60±0.20 mm	-	-	-	Plastic 2Kp/reel	Plastic 2Kp/reel	-	-
S=	0.80±0.07 mm	-	Paper 4Kp/reel	-	-	-	-	-
N=	0.50±0.05 mm	Paper 10Kp/reel	-	-	-	-	-	-
K=	2.00±0.20 mm	-	-	-	-	Plastic 2Kp/reel	Plastic 1Kp/reel	Plastic 1Kp/reel
M=	2.50±0.30 mm	-	-	-	-	Plastic 1Kp/reel	-	Plastic 1Kp/reel
U=	2.80±0.30 mm	-	-	-	-	-	-	Plastic 0.5Kp/reel

Type TYC Series

Capacitance & Voltage (Hi-Voltage X7R)

EIA	Size	0603					0805					1206					1210					1808			1812						
Code	VDCW	100	100	200	250	500	100	200	250	500	1000	1500	2000	100	200	250	500	1000	1000	1500	2000	100	200	250	500	1000	2000	3000			
101	100pF	S	B	B^	B^	B^																									
121	120	S	B	B^	B^	B^																									
151	150	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	B^						D^	D^	D^										
181	180	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	B^						D^	D^	D^										
221	220	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	B^						D^	D^	D^										
271	270	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	B^						D^	D^	D^						D^	D^			
331	330	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	B^						D^	D^	D^						D^	D^			
391	390	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	C^						D^	D^	D^						D^	D^			
471	470	S	B	B^	B^	B^	B^	B^	B^	B^	B^	B^	C^						D^	D^	D^						D^	D^			
561	560	S	B	B^	B^	B^	B^	B^	B^	B^	B^	C^	C^						D^	D^	D^						D^	D^			
681	680	S	B	B^	B^	B^	B^	B^	B^	B^	B^	C^	C^						D^	D^	D^						D^	D^	K^		
821	820	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^						D^	D^	D^						D^	D^	K^		
102	1000pF	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	C^	D^	D^	K^	D^	D^	D^	D^	D^	D^	D^	K^		
122	1200	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	C^	D^	D^	K^	D^	D^	D^	D^	D^	D^	D^	D^		
152	1500	S	B	B^	B^	B^	B	B^	B^	B^	B^	C^	G^	C^	C^	C^	C^	C^	D^	D^	K^	D^	D^	D^	D^	D^	D^	D^	D^		
182	1800	S	B	B^	B^	B^	B	B^	B^	B^	B^	C^	G^	C^	C^	C^	C^	C^	D^	D^	K^	D^	D^	D^	D^	D^	D^	D^	D^		
222	2200	S	B	B^	B^	B^	B	B^	B^	B^	B^	D^	G^	C^	C^	C^	C^	C^	D^	D^	K^	D^	D^	D^	D^	D^	D^	D^	D^		
272	2700	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	C^	D^	D^	D^						D^	D^	D^		
332	3300	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	D^	D^	K^							D^	D^	K^		
392	3900	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	D^									D^	D^	K^		
472	4700	S	B	B^	B^	B^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	D^									D^	D^	K^		
562	5600	S	B	D^	D^	D^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	D^									D^	D^	D^		
682	6800	S	B	D^	D^	D^	B	B^	B^	B^	B^	G^	G^	C^	C^	C^	C^	K^									D^	D^	D^		
822	8200	S	B	D^	D^	D^	B	B^	B^	B^	C^	C^	C^					K^									D^	D^	D^		
103	0.01μF	S	B	D^	D^	D^	B	B^	B^	B^	C^	C^	C^					K^									D^	D^	D^		
123	0.012		B				B	B^	B^	B^	B^	B^	B^	C	C^	C^	C^	C^										D^	D^	K^	
153	0.015		B				B	C^	C^	C^	C^	C^	C^	C	C^	C^	C^	C^										D^	D^	K^	
183	0.018		B				B	C^	C^	C^	C^	C^	C^	C	C^	C^	C^	C^										D^	D^	D^	
223	0.022		B				B	C^	C^	C^	C^	C^	C^	C	C^	C^	C^	D^										D^	D^	D^	
273	0.027		D				B	C^	C^	C^	C^	C^	C^	C	C^	C^	C^	C^										D^	D^	D^	
333	0.033		D				B	G^	G^	G^	G^	G^	G^	C	C^	C^	C^	C^										D^	D^	D^	
393	0.039						B	G^	G^	G^	G^	G^	G^	C	C^	C^	C^	C^										D^	D^	D^	
473	0.047						B	G^	G^	G^	G^	G^	G^	C	D^	D^	D^	D^										D^	D^	D^	
563	0.056						B							C	D^	D^	D^	D^										D^	D^	K^	
683	0.068						B							C														D^	D^	K^	
823	0.082						D							C														D	D^	K^	
104	0.1μF						D							C														D	D^	K^	
124	0.12													C														D	D^	D^	
154	0.15													D														D	K^	K^	
184	0.18													D														D	K^	K^	
224	0.22													D														D	K^	K^	
274	0.27																											D			
334	0.33																											D			
394	0.39																											D			
474	0.47																											K			
564	0.56																											K			
684	0.68																											K			
824	0.82																														
105	1μF																														

(1) [^]: The said items are made by NME (Noble Metal Electrode).

Size Unit: Inch (mm)	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1808 (4520)	1812 (4532)
A= 0.60±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
B= 0.80±0.10 mm	-	-	Paper 4Kp/reel	Paper 4Kp/reel	-	-	-
C= 0.95±0.10 mm	-	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-	-
D= 1.25±0.10 mm	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 2Kp/reel	Plastic 1Kp/reel
G= 1.60±0.20 mm	-	-	-	Plastic 2Kp/reel	Plastic 2Kp/reel	-	-
S= 0.80±0.07 mm	-	Paper 4Kp/reel	-	-	-	-	-
N= 0.50±0.05 mm	Paper 10Kp/reel	-	-	-	-	-	-
K= 2.00±0.20 mm	-	-	-	-	Plastic 2Kp/reel	Plastic 1Kp/reel	Plastic 1Kp/reel
M= 2.50±0.30 mm	-	-	-	-	Plastic 1Kp/reel	-	Plastic 1Kp/reel

**Type TYC Series**

**Capacitance & Voltage (Y5V)**

EIA	Size	0402					0603					0805					1206					1210				1812				
Code	VDCW	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	10V	16V	25V	35V	50V	10V	16V	25V	50V	10V	16V	25V	50V	
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	0.01μF	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
123	0.012	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
153	0.015	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
183	0.018	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
223	0.022	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
273	0.027	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
333	0.033	N	N	N	N		S	S	S	S		A	A	A	A	B	B	B		B										
393	0.039	N	N	N			S	S	S	S		A	A	A	A	B	B	B		B										
473	0.047	N	N	N			S	S	S	S		A	A	A	A	B	B	B		B										
563	0.056	N	N				S	S	S	S		A	A	A	A	B	B	B		B										
683	0.068	N	N				S	S	S	S		A	A	A	A	B	B	B		B										
823	0.082	N	N				S	S	S	S		A	A	A	A	B	B	B		B										
104	0.1μF	N	N				S	S	S	S		A	A	A	A	B	B	B		B	C	C	C	C	D	D	D	D		
154	0.15	N					S	S	S	S		A	A	A	A	B	B	B		B	C	C	C	C	D	D	D	D		
224	0.22	N					S	S	S	S		A	A	A	A	B	B	B		B	C	C	C	C	D	D	D	D		
334	0.33	N	N				S	S	S			B	B	B	B	B	B	B		B	C	C	C	C	D	D	D	D		
474	0.47	N	N				S	S	S			B	B	B		B	B	B		B	C	C	C	C	D	D	D	D		
684	0.68						S					B	B	D		B	B	B		B	C	C	C	C	D	D	D	D		
105	1μF	N					S	S				B	B	D	D'	C	C	C		C	C	C	C	D	D	D	D			
155	1.5											D	D			C	C	C		C	C	C		D	D	D	D			
225	2.2						S					D	D			C	C	C		D'	C	C	C		D	D	D	D		
335	3.3											D				D	D	D			C	C	C		D	D	D	D		
475	4.7						S					D	D'			D	D	D'	D'		C	C	D	G	D	D	D	D		
685	6.8															D	D'				C	C			D	D	D	D		
106	10μF										D'	D'				D	D'				D	D	G		D	D	D			
226	22μF															G'					K	K								
476	47μF																				K									

(1) [D']: The thickness spec. of said items is special defined on 1.25±0.2mm for 0805 and 1.15±0.15mm for 1206.  
 (2) [G']: The thickness spec. of said items is special defined on 1.60±0.3/-0.1mm.

Size Unit: Inch (mm)	0402 (1005)	0603 (1608)	0805 (2012)	1206 (3216)	1210 (3225)	1808 (4520)	1812 (4532)
A= 0.60±0.10 mm	-	-	Paper 4Kp/reel	-	-	-	-
B= 0.80±0.10 mm	-	-	Paper 4Kp/reel	Paper 4Kp/reel	-	-	-
C= 0.95±0.10 mm	-	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-	-
D= 1.25±0.10 mm	-	-	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 2Kp/reel	Plastic 1Kp/reel
G= 1.60±0.20 mm	-	-	-	Plastic 2Kp/reel	Plastic 2Kp/reel	-	-
S= 0.80±0.07 mm	-	Paper 4Kp/reel	-	-	-	-	-
N= 0.50±0.05 mm	Paper 10Kp/reel	-	-	-	-	-	-
K= 2.00±0.20 mm	-	-	-	-	Plastic 2Kp/reel	Plastic 1Kp/reel	Plastic 1Kp/reel

## Type TYC Series

### Capacitance & Voltage (Hi-Voltage Y5V)

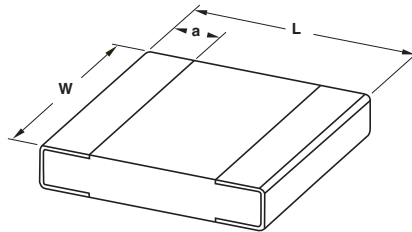
EIA Code	Size VDCW	0805			1206			1210			1812		
		100	200	250	100	200	250	100	200	250	100	200	250
103	0.01μF	B	B	B	B	B	B	C	C	C	D	D	D
153	0.015	B	B	B	B	B	B	C	C	C	D	D	D
223	0.022	B	B	B	B	B	B	C	C	C	D	D	D
333	0.033	B	B	B	B	B	B	C	C	C	D	D	D
473	0.047	B	B	B	B	B	B	C	C	C	D	D	D
683	0.068	B	B	B	B	B	B	C	C	C	D	D	D
104	0.1μF	B			B	B	B	C	C	C	D	D	D
154	0.15				C	C	C	C	C	C	D	D	D
224	0.22				C			C			D	D	D
334	0.33							C			D	D	D
474	0.47										D	D	D
684	0.68										D	D	D
105	1μF										D		

Size Unit: Inch (mm)	0805 (2012)	1206 (3216)	1210 (3225)	1812 (4532)
A= 0.60±0.10 mm	Paper 4Kp/reel	-	-	-
B= 0.80±0.10 mm	Paper 4Kp/reel	Paper 4Kp/reel	-	-
C= 0.95±0.10 mm	-	Plastic 3Kp/reel	Plastic 3Kp/reel	-
D= 1.25±0.10 mm	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 3Kp/reel	Plastic 1Kp/reel
G= 1.60±0.20 mm	-	Plastic 2Kp/reel	-	-
S= 0.80±0.07 mm	-	-	-	-
N= 0.50±0.05 mm	-	-	-	-
K= 2.00±0.20 mm	-	-	-	Plastic 1Kp/reel
M= 2.50±0.30 mm	-	-	-	-

### Packaging

Chip Size	Paper Tape			Plastic Tape			Chip Thickness
	Width (reel)	Thickness	Unit/Reel	Width (reel)	Thickness	Unit/Reel	
0402	8mm (7")	N	10Kp/Reel				A=0.50-0.70
0603	8mm (7")	S	4Kp/Reel				B=0.85+0.05/-0.15
	8mm (10")	S	10Kp/Reel				
0805	8mm (13")	S	15Kp/Reel				C=1.00+0.05/-0.13
	8mm (7")	A, B	4Kp/Reel	8mm (7")	C, D	3Kp/Reel	D=1.20±0.15
	8mm (10")	A, B	10Kp/Reel	8mm (10")	C, D	3Kp/Reel	S=0.80±0.07
1206	8mm (13")	A, B	15Kp/Reel	8mm (13")	C, D	3Kp/Reel	H=0.50-0.60
	8mm (7")	A, B	4Kp/Reel	8mm (7")	C, D	3Kp/Reel	E=0.65-0.75
	8mm (10")	A, B	10Kp/Reel	8mm (10")	C, D	3Kp/Reel	N=0.50±0.05
	8mm (13")	A, B	15Kp/Reel	8mm (13")	C, D	3Kp/Reel	F=1.40+0.05/-0.15
1210				8mm (7")	F, G	3Kp/Reel	G=1.60+0.05/-0.15
				8mm (7")	K	3Kp/Reel	
				8mm (7")	C, D	3Kp/Reel	
1808				8mm (7")	F	3Kp/Reel	
				12mm (7")	C, G	3Kp/Reel	
1812				12mm (7")	K	3Kp/Reel	K=2.00±0.10
				12mm (7")	D	3Kp/Reel	

### Dimensions

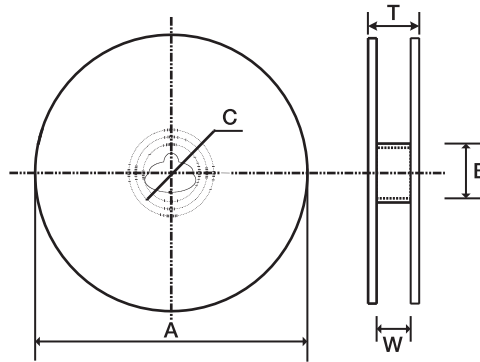


SIZE CODE	L	W	A
0402	1.00±0.05	0.50±0.05	0.25+0.05/-0.10
0603	1.60±0.10	0.80±0.07	0.40±0.15
0805	2.00±0.15	1.25±0.10	0.50±0.20
1206	3.20±0.15	1.60±0.15	0.60±0.20
1210	3.20±0.30	2.50±0.20	0.75±0.25
1808	4.50±0.40	2.03±0.25	0.75±0.25
1812	4.50±0.40	3.20±0.30	0.75±0.25

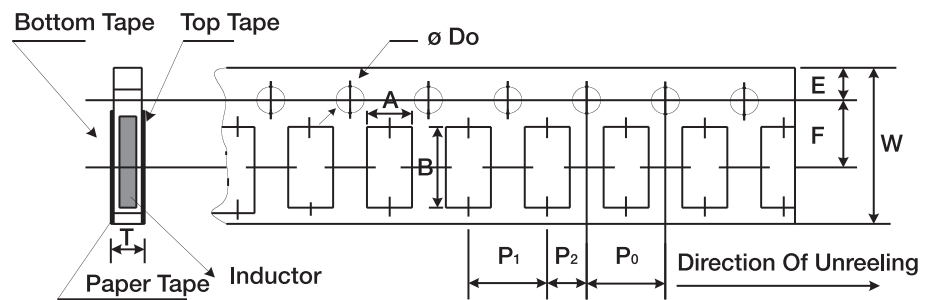


## Type TYC Series

### Packaging (continued)



$\phi A$	$\phi B$	$\phi C$	W
178±1 (7")	60.5±1		9.0±1
	80±1		13.5±1
250±1 (10")	62.5±1	13.0±1	9.0±1
330±1 (13")	100±1		9.0±1



Type	A	B	W	$\phi D_0$	E	F	$P_0$	$P_1$	$P_2$	T
0402	0.7±0.05	1.23±0.05								0.6±0.05
0603	1.0±0.1	1.84±0.1								
0805	1.55±0.2	2.35±0.2	8.0±0.32	1.55±0.05	1.70±0.1	3.50±0.1	4.0±0.1	4.0±0.1	2.0±0.1	<1.0
1206	2.0±0.2	3.5±0.2								

### How to Order

TYC	0201	A	101	B	C	T
Common Part	Size	Dielectric	Capacitance Code	Tolerance	Voltage	Packaging
TYC - Multilayer Ceramic Chip Capacitor	0201			B = 0.1pF C = 0.25pF D = 0.5pF F = +/- 1% G = +/- 2% J = +/- 5% K = +/- 10% M = +/- 20% Z = +80%/-20%	C = 6.3V D = 10V E = 16V F = 25V G = 50V H = 100V J = 200V L = 500V P = 1KV Q = 2KV R = 3KV S = 4KV	T = Paper (7")  P = Plastic (7")
	0402	A = NPO	101 - 100pF			
	0603	B = X7R	102 - 1000pF			
	0805	C = X5R	103 - 0.01uF			
	1206	D = Y5V				

TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks.  
Other logos, product and Company names mentioned herein may be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this datasheet are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.