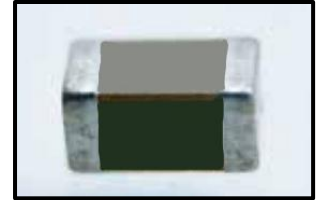


≠ Features

- Large capacitance values in small sizes
- Excellent high frequency characteristics
- All PPI Caps conform to EIA Specifications



≠ Applications

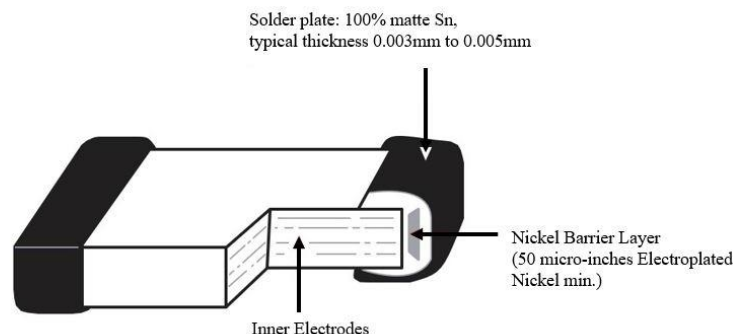
- Can be used on surface mount assembly equipment
- Our fully integrated manufacturing and total quality control systems ensure unprecedented high standards of quality and reliability.

≠ Notes

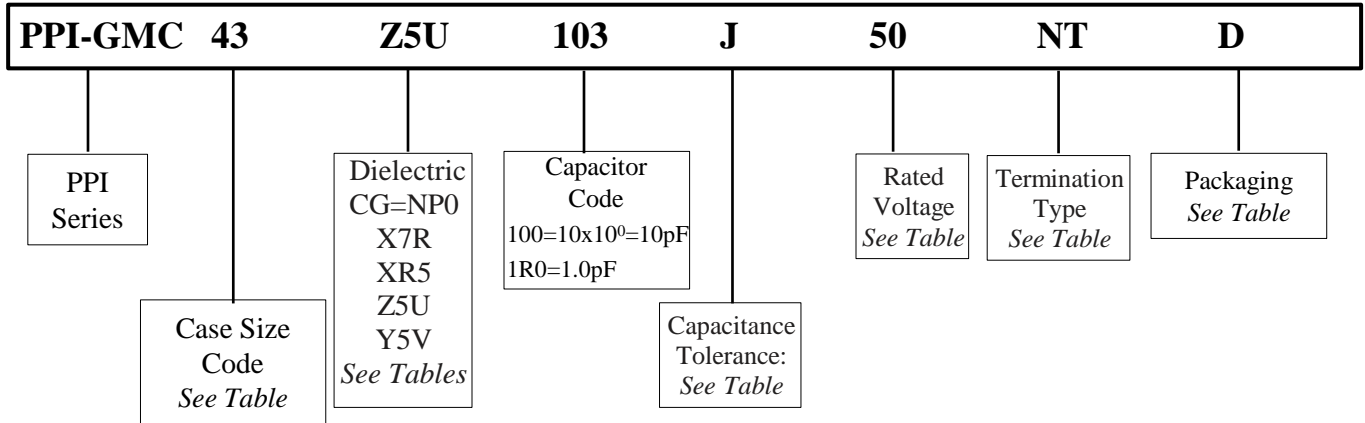
- Capacitance Value & Tolerance are determined by circuit requirements
- Voltage is determined by circuit requirements
- Capacitor Size select the smallest unit permitted by the circuit constraints that provides the required capacitance and voltage rating
- Nickel Barrier is standard and recommended for units exposed to repeated solder cycles, to minimize leaching of the termination.
- All capacitors conform to EIA specifications.

≠ Construction

Constructed by screen printing alternative layers of internal metallic electrodes onto ceramic dielectric materials and firing into a concrete monolithic body, then completed by application of metal end terminations which are fired to assure permanent bonding with the individual internal electrodes.

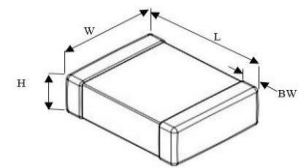


≠ Part Numbering



≠ Dimensions (mm)

Dimensions (mm)					
Code	Size	L	W	T	BW
01	01005	0.40 ± 0.02	0.20 ± 0.02	0.20 ± 0.02	0.07 ~ 0.14
02	0201	0.60 ± 0.03	0.30 ± 0.03	0.30 ± 0.03	0.15 ± 0.05
04	0402	1.00 ± 0.05	0.50 ± 0.05	0.50 ± 0.10	0.10 ~ 0.35
10	0603	1.60 ± 0.20	0.80 ± 0.20	1.0 max	0.10 ~ 0.40
21	0805	2.00 ± 0.30	1.25 ± 0.20	1.40	0.25 ~ 0.75
31	1206	3.20 ± 0.30	2.50 ± 0.20	2.20	0.25 ~ 0.75
32	1210	3.20 ± 0.30	1.60 ± 0.20	1.80	0.25 ~ 0.75
40	1808	4.50 ± 0.35	3.20 ± 0.30	2.20	0.25 ~ 0.75
43	1812	3.20 ± 0.30	1.6 ± 0.20	1.80	0.25 ~ 0.75
45	1825	5.70 ± 0.40	5.01 ± 0.40	1.80	0.25 ~ 0.75
55	2220	5.70 ± 0.40	6.30 ± 0.40	2.20	0.25 ~ 0.75
57	2225	4.50 ± 0.35	6.30 ± 0.40	2.20	0.25 ~ 0.75



≠ Capacitance Code

Cap Code	Value	Cap Code	Value	Cap Code	Value	Cap Code	Value
0R5	0.5pF	100	10pF	104	0.1uF	106	10uF
5R0	5.0pF	103	0.01uF	105	1.0uF	107	100uF

≠ Capacitance Tolerances

Code	B	C	D	F	G	J	K	M	Z
Tol.	±0.1pF	±0.25pF	±0.5pF	±1%	±2%	±5%	±10%	±20%	-20% + 80%

≠ Rated Voltages

Code	Voltage	Code	Voltage
4R0	4.0V	350	35V
6R3	6.3V	500	50V
100	10V	630	63V
160	16V	101	100V
250	25V	201	200V

≠ Terminations

Nickel barrier is standard and recommended for units exposed to repeated solder cycles to minimize leaching of the termination.

Code	Description
NT	Sn/Ni
PT	Pd/Ag



**≠ Z5U**

Despite their capacitance instability, Z5U formulations are very popular because of their small size, temperature range, low ESL, low ESR and excellent frequency response. These features are particularly important for decoupling application where only a minimum capacitance value is required.

≠ Y5V

Y5V formulations are for general purpose use in a limited temperature range. They have a wide temperature characteristic of +22% - 82% capacitance change over the operating temperature range of -30°C to +85°C. Y5Vs high dielectric constant allows the manufacture of very high capacitance values (up to 22MF) in small physical sizes.

High capacitance per unit volume: General Purpose product

≠ Electrical Specifications

Operating Temperature Range	-30°C to +85°C
Temperature Coefficient (TC)	±22% - 82%
Temperature Voltage Coefficient (ΔC_{Max} @ V_{DCW})	Not Applicable
Dissipation Factor	3.0% Max, 2.00% Typical
Insulation Resistance (IR)	10GQ or 100QF, whichever is less 25°C V_{DCW}
Dielectric Withstanding Voltage	2.5 X V_{DCW}
Aging Rate	3% per decade hour
Test Parameters	1KHz 1.0Vrms 25°C values > or = to 10uF 1.0 Vrms 120Hz



Dielectrics: Z5U & Y5V

01005: PPI-GMC01

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC
10 nF	103	M, Z	16V	27	273	M, Z	16V	68	683	M, Z	16V
12	123			33	333			82	823		
15	153			39	393			100	104		
18	183			47	473						
22	223			56	563						

0201: PPI-GMC02

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	
10 nF	103	M, Z	6.3V	68	683	M, Z	6.3V	470	474	M, Z	6.3V	
12	123			82	823			560	564			
15	153			100	104			560	564			
18	183			120	124			680	684			
22	223			150	154			820	824			
27	273			180	184			1.0 uF	105			
33	333			220	224			2.2	225			
39	393			270	274			4.7	475			
47	473			330	334							
56	563			390	394							

0402: PPI-GMC04

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC
10 nF	103	M, Z	6.3V or 10V or 16V or 25V or 50V	68	683	M, Z	6.3V or 10V or 16V or 25V or 50V	820	824	M, Z	6.3V or 10V or 16V
12	123			82	823			1.0 uF	105		6.3V or 10V or 16V or 25V
15	153			100	104			2.2	225		6.3V or 10V
18	183			150	154		3.3	335			
22	223			220	224		3.9	395			
27	273			270	274		4.7	475			
33	333			390	394		10	106			
39	393			470	474		22	226			
47	473			560	564						
56	563			680	684						



Dielectrics: Z5U & Y5V

0603: PPI-GMC10

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC			
10 nF	103	M, Z	6.3V or 10V or 16V or 25V or 50V	82	823	M, Z	6.3V or 10V or 16V or 25V or 50V	1.0 uF	105	M, Z	6.3V or 10V or 16V or 25V or 50V			
12	123			100	104			2.2	225		6.3V or 10V or 16V			
15	153			120	124			2.7	275		6.3V or 10V			
18	183			150	154			3.3	335					
22	223			220	224			3.9	395					
27	273			270	274			4.7	475		4.7	475	6.3V or 10V or 16V	
33	333			330	334			10	106		10	106		
39	393			470	474			22	226		22	226		6.3V or 10V
47	473			560	564			47	476		47	476		6.3V
56	563			680	684									
68	683			820	824									

0805: PPI-GMC21

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC		
10 nF	103	M, Z	6.3V or 10V or 16V or 25V or 50V	82	823	M, Z	6.3V or 10V or 16V or 25V or 50V	820	824	M, Z	6.3V or 10V or 16V or 25V or 50V		
12	123			100	104			1.0 uF	105				
15	153			120	124			2.2	225				
18	183			150	154			3.3	335				
22	223			180	184			4.7	475				
27	273			220	224			6.8	685		6.3V or 10V or 16V		
33	333			270	274			10	106				
39	393			330	334			22	226				
47	473			470	474			47	476				
56	563			560	564							6.3V or 10V	
68	683			680	684								

1206: PPI-GMC31

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC
10 nF	103	M, Z	6.3V or 10V or 16V or 25V or 50V	100	104	M, Z	6.3V or 10V or 16V or 25V or 50V	2.2	225	M, Z	6.3V or 10V or 16V or 25V or 50V
12	123			120	124			3.3	335		
15	153			150	154			4.7	475		
18	183			180	184			6.8	685		
22	223			220	224			10	106		
27	273			270	274			22	226		6.3V or 10V or 16V
33	333			330	334			33	336		
39	393			470	474			47	476		
47	473			560	684			68	686		
56	563			680	684			100	107		
68	683			820	824						6.3V or 10V
82	823			1.0 uF	105						





Dielectrics: Z5U & Y5V

1210: PPI-GMC32

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC
10 nF	103	M, Z	6.3V or 10V or 16V or 25V or 50V	100	104	M, Z	6.3V or 10V or 16V or 25V or 50V	2.2	225	M, Z	6.3V or 10V or 16V or 25V or 50V
12	123			120	124			3.3	335		
15	153			150	154			4.7	475		
18	183			180	184			6.8	685		
22	223			220	224			10	106		
27	273			270	274			22	226		
33	333			330	334			33	336		
39	393			470	474			47	476		
47	473			560	564			68	686		
56	563			680	684			100	107		6.3V or 10V or 16V
68	683			820	824			220	227		
82	823			1.0 uF	105						6.3V

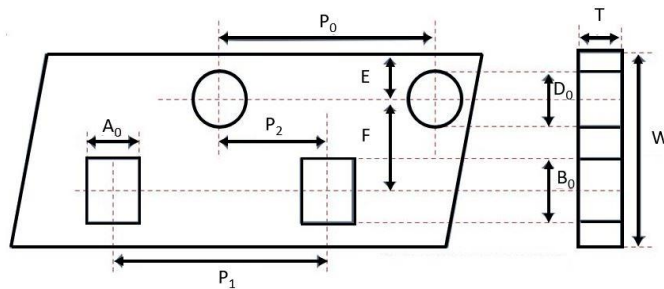
1812: PPI-GMC43

Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC	Value	Code	Tol.	Rated WVDC
47 nF	473	M, Z	6.3V or 10V or 16V or 25V or 50V	270	274	M, Z	6.3V or 10V or 16V or 25V or 50V	4.7	475	M, Z	6.3V or 10V or 16V or 25V or 50V
56	563			330	334			6.8	685		
68	683			470	474			10	106		
82	823			560	564			22	226		
100	104			680	684			33	336		6.3V or 10V or 16V or 25V
120	124			820	824			47	476		
150	154			1.0 uF	105			68	686		6.3V or 10V or 16V
180	184			2.2	225			100	107		
220	224			3.3	335						6.3V or 10V

≠ Packaging

Size	Code		Description	
	D	G	Q	
	<i>Qty per 7" Reel</i>		<i>Qty per 10/13" Reel</i>	
01005	20K	50K		
0201	10K/ 15K	50K		
0402	10K	40K	50K	
0603	4K	10K	15K	
0805	2K, 3K, 4K	10K	15K	20K
1206	2K, 3K, 4K	10K	15K	20K
1210	500, 1K, 2K, 3K	4K	8K	
1808	1K, 2K, 3K			
1812	500, 1K	3K		
1825	500, 1K			
2220	500, 1K			
2225	500, 750			

≠ Tape & Reel Specifications

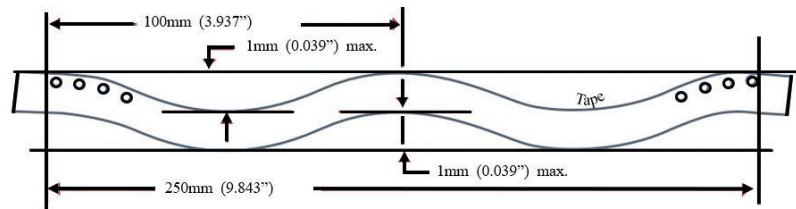
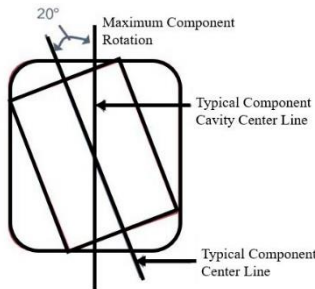
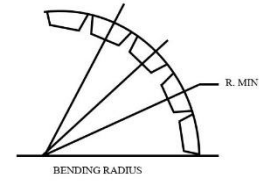
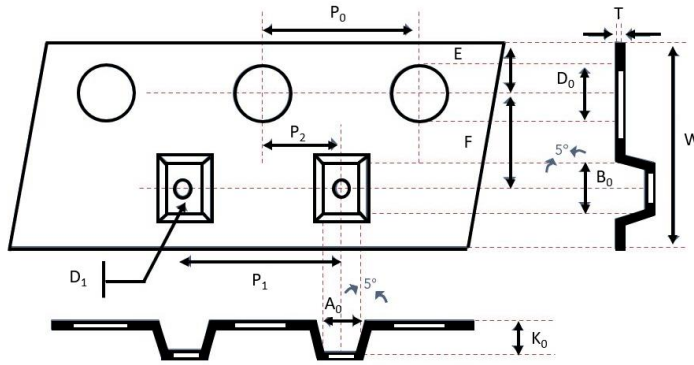


Cardboard carrier tape for EIA case sizes: 01005, 0201, 0402, 0603, 0805, 1206

Unit: mm

Size	A ₀	B ₀	T	K ₀	W	P ₀	10XP ₀	P ₁	P ₂	Do	D ₁	E	F
01005	0.25 ± 0.04	0.45 ± 0.04	0.36 ± 0.05	*	8.00 ± 0.30	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	*	1.75 ± 0.10	3.50 ± 0.05
0201	0.39 ± 0.07	0.69 ± 0.07	<0.50	*	8.00 ± 0.10	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	*	1.75 ± 0.05	3.50 ± 0.05
0402	0.70 ± 0.20	1.20 ± 0.20	<0.80	*	8.00 ± 0.10	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	*	1.75 ± 0.05	3.50 ± 0.05
0603	1.10 ± 0.20	1.90 ± 0.20	<1.20	*	8.00 ± 0.10	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	*	1.75 ± 0.05	3.50 ± 0.05
0805	1.65 ± 0.20	2.40 ± 0.20	<1.30	*	8.00 ± 0.10	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	*	1.75 ± 0.05	3.50 ± 0.05
1206	2.00 ± 0.20	3.60 ± 0.20	<1.30	*	8.00 ± 0.10	4.00 ± 0.10	40.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.05	1.55 ± 0.05	*	1.75 ± 0.05	3.50 ± 0.05

≠ Tape & Reel Specifications



Embossed plastic carrier tape for case sizes: 0805, 1206, 1210, 1808, 1812

Unit: mm

Size	A ₀	B ₀	T	K ₀	W	P ₀	10XP ₀	P ₁	P ₂	D ₀	D ₁	E	F
0805	<1.80	<2.70	0.23 ± 0.10	<2.50	8.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.00 ± 0.10	1.75 ± 0.10	3.50 ± 0.05
1206	<2.30	<4.00	0.23 ± 0.10	<2.50	8.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.00 ± 0.10	1.75 ± 0.10	3.50 ± 0.05
1210	<3.20	<3.95	0.23 ± 0.10	<3.00	8.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.00 ± 0.10	1.75 ± 0.10	3.50 ± 0.05
1808	<2.50	<5.30	0.25 ± 0.10	<2.50	12.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.00 ± 0.10	1.75 ± 0.10	5.50 ± 0.10
1812	<3.90	<5.30	0.25 ± 0.10	<3.50	12.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.10
1825	<6.80	<5.30	0.30 ± 0.10	<3.10	12.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.10
2220	<5.80	<6.50	0.30 ± 0.10	<3.10	12.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.10
2225	<6.80	<6.50	0.30 ± 0.10	<3.10	12.00 ± 0.20	4.00 ± 0.10	40.00 ± 0.20	2.00 ± 0.05	2.00 ± 0.05	1.50 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	5.50 ± 0.10