CONTENT (MLCC)

E STANDARD NUMBER **3**

STRUCTURE **4**

ORDERING CODE **4**

STANDARD EXTERNAL DIMENSIONS **5**

MICROWAVE TYPE (F SERIES) 6

NP0 Series *6*

X8G Series *14*

TEST SPEC. 15

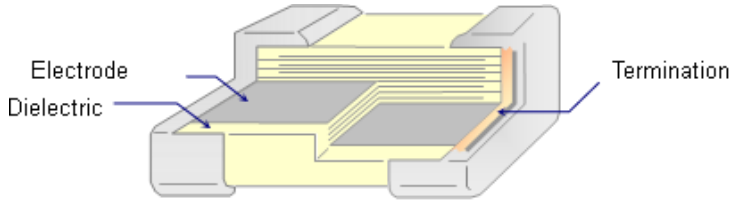
PACKAGE **17**

OTHERS **21**

E Standard Number

E3	1.0								2.2								4.7							
E6	1.0				1.5				2.2				3.3				4.7				6.8			
E12	1.0		1.2		1.5		1.8		2.2		2.7		3.3		3.9		4.7		5.6		6.8		8.2	
E24	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1

Structure



Ordering Code

C 0603 NP0 100 J F T F

PRODUCT CODE

C = MLCC

SIZE in mm (EIA CODE, in inch)

0402(01005) 0603(0201) 1005 (0402) 1608 (0603) 2012 (0805)
3216 (1206) 3225(1210) 4520 (1808) 4532 (1812)

T. C.

NP0: 0 ± 30ppm/℃ -55℃ to +125℃ X8G: 0 ± 30ppm/℃ -55℃ to +150℃

CAPACITANCE CODE

Expressed in pico-farads and identified by a three-digit number.
First two digits represent significant figures.
Last digit specifies the number of zeros.
(Use 9 for 1.0 through 9.9pF； Use 8 for 0.20 through 0.99pF)

Examples:

Code	Cap (pF)
478	0.47
229	2.2
101	100
102	1000

TOLERANCE CODE

A: ± 0.05pF B: ± 0.1pF C: ± 0.25pF D: ± 0.5pF F: ±1% G: ±2%
J: ±5% K: ±10% M: ±20% Z: +80/-20%

VOLTAGE CODE

B: 4V C: 6.3V D: 10V E: 16V F: 25V N: 35V G: 50V H: 100V
J: 200V K: 250V L: 500V M: 630V P: 1KV Q: 2KV R: 3KV S: 4KV

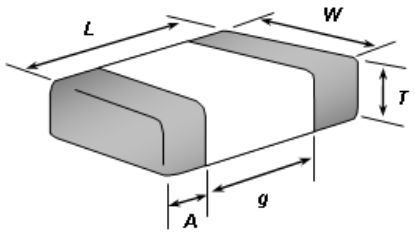
PACKAGING CODE

T: Paper tape reel Ø180mm (7”)
A: Paper tape reel Ø330mm (13”)
W: Special Packing
P: Embossed tape reel Ø180mm (7”)
E: Embossed tape reel Ø330mm (13”)

Application Code

S: Standard Q: High Q/Low ESR F: Microwave A: Automotive infotainment with AEC-Q200

Standard External Dimensions



TYPE		Dimension (mm)				
Size (EIA Size)	Kind	L (Length)	W (Width)	T (Max.)	g (Min)	A (Min/Max)
C0402 (01005)	Standard	0.4±0.02	0.2±0.02	0.22	0.13	0.07/0.14
C0603 (0201)	Standard	0.6 ± 0.03	0.30 ± 0.03	0.33	0.15	0.10 / 0.20
C1005 (0402)	Standard	1.0 ± 0.05	0.50 ± 0.05	0.55	0.30	0.15 / 0.35
C1608 (0603)	Standard	1.6 ± 0.10	0.80 ± 0.10	0.90	0.50	0.25 / 0.65
C2012 (0805)	Standard	2.0 ± 0.15	1.25 ± 0.15	1.45	0.70	0.25 / 0.75
C3216 (1206)	Standard	3.2 ± 0.15	1.60 ±0.15	1.80	1.50	0.25 / 0.75

For special parts, please see the “Part Number & Characteristic” for detail specification.

Microwave Type (F Series)

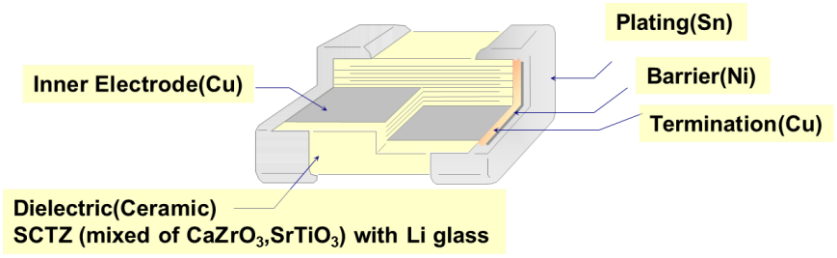
■ Feature

1. Ultra-stable
2. Tight tolerance available
3. HighQ and Low ESR
4. Good high frequency performance
5. No aging of capacitance
6. RoHS compliant
7. Halogen Free
8. MSL Class : MSL 1

■ Application

- LC and RC tuned circuit
- Filtering
- Timing
- PA Module, Wireless equipment, Smartphone

■ Structure



■ Part Number & Characteristic

■ NP0 Series

■ C0402NP0_F Series (EIA01005)

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
25V	C0402NP0208□FTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	1137	700	Paper, 20Kpcs
	C0402NP0308□FTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	758	700	
	C0402NP0408□FTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	796	500	
	C0402NP0508□FTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	637	500	
	C0402NP0608□FTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	531	500	
	C0402NP0708□FTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	455	500	
	C0402NP0808□FTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	398	500	
	C0402NP0908□FTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	354	500	
	C0402NP0109□FTF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF, ±0.05pF	0.20	±0.02	±0.02	1GHz	318	500	
	C0402NP0129□FTF	1V, 1MHz	1.2	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	332	400	
	C0402NP0159□FTF	1V, 1MHz	1.5	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	265	400	
	C0402NP0189□FTF	1V, 1MHz	1.8	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	221	400	
	C0402NP0229□FTF	1V, 1MHz	2.2	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	263	275	
	C0402NP0249□FTF	1V, 1MHz	2.4	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	241	275	
	C0402NP0279□FTF	1V, 1MHz	2.7	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	214	275	
	C0402NP0309□FTF	1V, 1MHz	3.0	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	193	275	
	C0402NP0339□FTF	1V, 1MHz	3.3	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	175	275	
	C0402NP0399□FTF	1V, 1MHz	3.9	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	148	275	
	C0402NP0479□FTF	1V, 1MHz	4.7	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	123	275	
	C0402NP0569□FTF	1V, 1MHz	5.6	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	129	220	
	C0402NP0689□FTF	1V, 1MHz	6.8	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	138	170	
	C0402NP0829□FTF	1V, 1MHz	8.2	pF	±0.25pF,±0.1pF	0.20	±0.02	±0.02	1GHz	114	170	
	C0402NP0100□FTF	1V, 1MHz	10	pF	±5%, ±2%	0.20	±0.02	±0.02	1GHz	94	170	
	C0402NP0120□FTF	1V, 1MHz	12	pF	±5%, ±2%	0.20	±0.02	±0.02	1GHz	111	120	
	C0402NP0150□FTF	1V, 1MHz	15	pF	±5%, ±2%	0.20	±0.02	±0.02	1GHz	126	84	

C0603NP0_F Series (EIA0201)

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
200V	C0603NP0208□JTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1895	420	Paper, 15Kpcs
	C0603NP0308□JTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1263	420	
	C0603NP0408□JTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	947	420	
	C0603NP0508□JTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	758	420	
	C0603NP0608□JTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	632	420	
	C0603NP0708□JTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	541	420	
	C0603NP0758□JTF	1V, 1MHz	0.75	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	505	420	
	C0603NP0808□JTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	474	420	
	C0603NP0908□JTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	421	420	
	C0603NP0109□JTF	1V, 1MHz	1.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	420	
	C0603NP0119□JTF	1V, 1MHz	1.1	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	413	350	
	C0603NP0129□JTF	1V, 1MHz	1.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	350	
	C0603NP0139□JTF	1V, 1MHz	1.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	350	350	
	C0603NP0149□JTF	1V, 1MHz	1.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	325	350	
	C0603NP0159□JTF	1V, 1MHz	1.5	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	303	350	
	C0603NP0169□JTF	1V, 1MHz	1.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	284	350	
	C0603NP0189□JTF	1V, 1MHz	1.8	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	253	350	
	C0603NP0209□JTF	1V, 1MHz	2.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	265	300	
	C0603NP0229□JTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	241	300	
	C0603NP0249□JTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	221	300	
	C0603NP0259□JTF	1V, 1MHz	2.5	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	212	300	
	C0603NP0279□JTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	196	300	
	C0603NP0309□JTF	1V, 1MHz	3.0	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	240	
	C0603NP0339□JTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	201	240	
	C0603NP0369□JTF	1V, 1MHz	3.6	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	184	240	
	C0603NP0399□JTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	170	240	
	C0603NP0439□JTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	154	240	
	C0603NP0479□JTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	141	240	
	C0603NP0509□JTF	1V, 1MHz	5.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	216	
	C0603NP0519□JTF	1V, 1MHz	5.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	144	216	
	C0603NP0569□JTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	132	216	
	C0603NP0609□JTF	1V, 1MHz	6.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	123	216	
	C0603NP0629□JTF	1V, 1MHz	6.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	119	216	
	C0603NP0689□JTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	108	216	
	C0603NP0709□JTF	1V, 1MHz	7.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	158	144	
	C0603NP0759□JTF	1V, 1MHz	7.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	144	
	C0603NP0809□JTF	1V, 1MHz	8.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	138	144	
	C0603NP0829□JTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	135	144	
	C0603NP0919□JTF	1V, 1MHz	9.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	121	144	
	C0603NP0100□JTF	1V, 1MHz	10	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	111	144	
	C0603NP0110□JTF	1V, 1MHz	11	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	115	126	

DARFON

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
100V	C0603NP0208□HTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1895	420	Paper, 15Kpcs
	C0603NP0308□HTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1263	420	
	C0603NP0408□HTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	947	420	
	C0603NP0508□HTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	758	420	
	C0603NP0608□HTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	632	420	
	C0603NP0708□HTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	541	420	
	C0603NP0758□HTF	1V, 1MHz	0.75	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	505	420	
	C0603NP0808□HTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	474	420	
	C0603NP0908□HTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	421	420	
	C0603NP0109□HTF	1V, 1MHz	1.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	420	
	C0603NP0119□HTF	1V, 1MHz	1.1	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	413	350	
	C0603NP0129□HTF	1V, 1MHz	1.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	350	
	C0603NP0139□HTF	1V, 1MHz	1.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	350	350	
	C0603NP0149□HTF	1V, 1MHz	1.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	325	350	
	C0603NP0159□HTF	1V, 1MHz	1.5	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	303	350	
	C0603NP0169□HTF	1V, 1MHz	1.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	284	350	
	C0603NP0189□HTF	1V, 1MHz	1.8	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	253	350	
	C0603NP0209□HTF	1V, 1MHz	2.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	265	300	
	C0603NP0229□HTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	241	300	
	C0603NP0249□HTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	300	
	C0603NP0259□HTF	1V, 1MHz	2.5	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	212	300	
	C0603NP0279□HTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	196	300	
	C0603NP0309□HTF	1V, 1MHz	3.0	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	240	
	C0603NP0339□HTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	201	240	
	C0603NP0369□HTF	1V, 1MHz	3.6	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	184	240	
	C0603NP0399□HTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	170	240	
	C0603NP0439□HTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	154	240	
	C0603NP0479□HTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	141	240	
	C0603NP0509□HTF	1V, 1MHz	5.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	216	
	C0603NP0519□HTF	1V, 1MHz	5.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	144	216	
	C0603NP0569□HTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	132	216	
	C0603NP0609□HTF	1V, 1MHz	6.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	123	216	
	C0603NP0629□HTF	1V, 1MHz	6.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	119	216	
	C0603NP0689□HTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	108	216	
	C0603NP0709□HTF	1V, 1MHz	7.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	158	144	
	C0603NP0759□HTF	1V, 1MHz	7.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	144	
	C0603NP0809□HTF	1V, 1MHz	8.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	138	144	
	C0603NP0829□HTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	135	144	
	C0603NP0919□HTF	1V, 1MHz	9.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	121	144	
	C0603NP0100□HTF	1V, 1MHz	10	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	111	144	
	C0603NP0110□HTF	1V, 1MHz	11	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	115	126	
	C0603NP0120□HTF	1V, 1MHz	12	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	123	108	
	C0603NP0130□HTF	1V, 1MHz	13	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	128	96	
	C0603NP0150□HTF	1V, 1MHz	15	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	126	84	
	C0603NP0160□HTF	1V, 1MHz	16	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	138	72	
	C0603NP0180□HTF	1V, 1MHz	18	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	123	72	
	C0603NP0200□HTF	1V, 1MHz	20	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	159	50	
	C0603NP0220□HTF	1V, 1MHz	22	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	181	40	
	C0603NP0240□HTF	1V, 1MHz	24	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	166	40	
	C0603NP0270□HTF	1V, 1MHz	27	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	196	30	
	C0603NP0300□HTF	1V, 1MHz	30	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	212	25	
	C0603NP0330□HTF	1V, 1MHz	33	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	241	20	

□Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

RV	DARFON P/N	Measuring Condition	Capacitance Value	Capacitance Unit	Available Tolerance	Thick. (mm)	Tolerance(mm) L/W	Tolerance(mm) Thick.	Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
50V	C0603NP0208□GTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1895	420	Paper, 15Kpcs
	C0603NP0308□GTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1263	420	
	C0603NP0408□GTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	947	420	
	C0603NP0508□GTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	758	420	
	C0603NP0608□GTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	632	420	
	C0603NP0708□GTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	541	420	
	C0603NP0758□GTF	1V, 1MHz	0.75	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	505	420	
	C0603NP0808□GTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	474	420	
	C0603NP0908□GTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	421	420	
	C0603NP0109□GTF	1V, 1MHz	1.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	420	
	C0603NP0119□GTF	1V, 1MHz	1.1	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	413	350	
	C0603NP0129□GTF	1V, 1MHz	1.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	350	
	C0603NP0139□GTF	1V, 1MHz	1.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	350	350	
	C0603NP0149□GTF	1V, 1MHz	1.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	325	350	
	C0603NP0159□GTF	1V, 1MHz	1.5	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	303	350	
	C0603NP0169□GTF	1V, 1MHz	1.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	284	350	
	C0603NP0189□GTF	1V, 1MHz	1.8	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	253	350	
	C0603NP0199□GTF	1V, 1MHz	1.9	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	279	300	
	C0603NP0209□GTF	1V, 1MHz	2.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	265	300	
	C0603NP0229□GTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	241	300	
	C0603NP0249□GTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	300	
	C0603NP0259□GTF	1V, 1MHz	2.5	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	212	300	
	C0603NP0279□GTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	196	300	
	C0603NP0309□GTF	1V, 1MHz	3.0	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	240	
	C0603NP0339□GTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	201	240	
	C0603NP0369□GTF	1V, 1MHz	3.6	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	184	240	
	C0603NP0399□GTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	170	240	
	C0603NP0439□GTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	154	240	
	C0603NP0479□GTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	141	240	
	C0603NP0509□GTF	1V, 1MHz	5.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	216	
	C0603NP0519□GTF	1V, 1MHz	5.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	144	216	
	C0603NP0569□GTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	132	216	
	C0603NP0609□GTF	1V, 1MHz	6.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	123	216	
	C0603NP0629□GTF	1V, 1MHz	6.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	119	216	
	C0603NP0689□GTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	108	216	
	C0603NP0709□GTF	1V, 1MHz	7.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	158	144	
	C0603NP0759□GTF	1V, 1MHz	7.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	144	
	C0603NP0809□GTF	1V, 1MHz	8.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	138	144	
	C0603NP0829□GTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	135	144	
	C0603NP0919□GTF	1V, 1MHz	9.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	121	144	
	C0603NP0100□GTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	111	144	
	C0603NP0110□GTF	1V, 1MHz	11	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	115	126	
	C0603NP0120□GTF	1V, 1MHz	12	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	123	108	
	C0603NP0130□GTF	1V, 1MHz	13	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	128	96	
	C0603NP0150□GTF	1V, 1MHz	15	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	126	84	
	C0603NP0160□GTF	1V, 1MHz	16	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	138	72	
	C0603NP0180□GTF	1V, 1MHz	18	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	123	72	
	C0603NP0200□GTF	1V, 1MHz	20	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	159	50	
	C0603NP0220□GTF	1V, 1MHz	22	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	181	40	
	C0603NP0240□GTF	1V, 1MHz	24	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	166	40	
	C0603NP0270□GTF	1V, 1MHz	27	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	196	30	
	C0603NP0300□GTF	1V, 1MHz	30	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	212	25	
	C0603NP0330□GTF	1V, 1MHz	33	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	241	20	

□Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

DARFON

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
25V	C0603NP0208□FTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1895	420	Paper, 15Kpcs
	C0603NP0308□FTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	1263	420	
	C0603NP0408□FTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	947	420	
	C0603NP0508□FTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	758	420	
	C0603NP0608□FTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	632	420	
	C0603NP0708□FTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	541	420	
	C0603NP0758□FTF	1V, 1MHz	0.75	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	505	420	
	C0603NP0808□FTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	474	420	
	C0603NP0908□FTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.30	±0.03	±0.03	1GHz	421	420	
	C0603NP0109□FTF	1V, 1MHz	1.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	420	
	C0603NP0119□FTF	1V, 1MHz	1.1	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	413	350	
	C0603NP0129□FTF	1V, 1MHz	1.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	379	350	
	C0603NP0139□FTF	1V, 1MHz	1.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	350	350	
	C0603NP0149□FTF	1V, 1MHz	1.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	325	350	
	C0603NP0159□FTF	1V, 1MHz	1.5	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	303	350	
	C0603NP0169□FTF	1V, 1MHz	1.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	284	350	
	C0603NP0189□FTF	1V, 1MHz	1.8	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	253	350	
	C0603NP0199□FTF	1V, 1MHz	1.9	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	279	300	
	C0603NP0209□FTF	1V, 1MHz	2.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	265	300	
	C0603NP0229□FTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	241	300	
	C0603NP0249□FTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	221	300	
	C0603NP0259□FTF	1V, 1MHz	2.5	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	212	300	
	C0603NP0279□FTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	196	300	
	C0603NP0309□FTF	1V, 1MHz	3.0	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	221	240	
	C0603NP0339□FTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	201	240	
	C0603NP0369□FTF	1V, 1MHz	3.6	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	184	240	
	C0603NP0389□FTF	1V, 1MHz	3.8	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	175	240	
	C0603NP0399□FTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	170	240	
	C0603NP0409□FTF	1V, 1MHz	4.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.30	±0.03	±0.03	1GHz	166	240	
	C0603NP0439□FTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	154	240	
	C0603NP0479□FTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	141	240	
	C0603NP0509□FTF	1V, 1MHz	5.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	216	
	C0603NP0569□FTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	132	216	
	C0603NP0609□FTF	1V, 1MHz	6.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	123	216	
	C0603NP0629□FTF	1V, 1MHz	6.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	119	216	
	C0603NP0689□FTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	108	216	
	C0603NP0709□FTF	1V, 1MHz	7.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	158	144	
	C0603NP0759□FTF	1V, 1MHz	7.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	147	144	
	C0603NP0809□FTF	1V, 1MHz	8.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	138	144	
	C0603NP0829□FTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	135	144	
	C0603NP0909□FTF	1V, 1MHz	9.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	123	144	
	C0603NP0919□FTF	1V, 1MHz	9.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.30	±0.03	±0.03	1GHz	121	144	
	C0603NP0100□FTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	111	144	
	C0603NP0120□FTF	1V, 1MHz	12	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	123	108	
	C0603NP0130□FTF	1V, 1MHz	13	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	128	96	
	C0603NP0150□FTF	1V, 1MHz	15	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	126	84	
	C0603NP0160□FTF	1V, 1MHz	16	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	138	72	
	C0603NP0180□FTF	1V, 1MHz	18	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	123	72	
	C0603NP0200□FTF	1V, 1MHz	20	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	1GHz	159	50	
	C0603NP0220□FTF	1V, 1MHz	22	pF	±5%, ±2%	0.30	±0.03	±0.03	1GHz	181	40	
	C0603NP0240□FTF	1V, 1MHz	24	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	166	40	
	C0603NP0270□FTF	1V, 1MHz	27	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	196	30	
	C0603NP0300□FTF	1V, 1MHz	30	pF	±5%, ±2%, ±1%	0.30	±0.03	±0.03	500MHz	212	25	
	C0603NP0330□FTF	1V, 1MHz	33	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	241	20	
6.3V	C0603NP0220JCTF	1V, 1MHz	22	pF	±5%	0.30	±0.03	±0.03	1GHz	181	40	Paper, 15Kpcs
	C0603NP0270□CTF	1V, 1MHz	27	pF	±5%, ±2%	0.30	±0.03	±0.03	500MHz	196	30	

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

● C1005NP0_F Series (EIA0402)

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
200V	C1005NP0208□JTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	2411	330	Paper, 10Kpcs
	C1005NP0308□JTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	1608	330	
	C1005NP0808□JTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	603	330	
	C1005NP0109□JTF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	482	330	
	C1005NP0129□JTF	1V, 1MHz	1.2	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	482	275	
	C1005NP0159□JTF	1V, 1MHz	1.5	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	386	275	
	C1005NP0189□JTF	1V, 1MHz	1.8	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	322	275	
	C1005NP0229□JTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	329	220	
	C1005NP0249□JTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	301	220	
	C1005NP0279□JTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	268	220	
	C1005NP0339□JTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	219	220	
	C1005NP0399□JTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	206	198	
	C1005NP0439□JTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	187	198	
	C1005NP0479□JTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	171	198	
	C1005NP0519□JTF	1V, 1MHz	5.1	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	189	165	
	C1005NP0569□JTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	172	165	
	C1005NP0629□JTF	1V, 1MHz	6.2	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	156	165	
	C1005NP0689□JTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	142	165	
	C1005NP0829□JTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	176	110	
	C1005NP0100□JTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	181	88	
	C1005NP0150□JTF	1V, 1MHz	15	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	241	44	
	C1005NP0180□JTF	1V, 1MHz	18	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	268	33	
	C1005NP0220□JTF	1V, 1MHz	22	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	301	24	
	C1005NP0330□JTF	1V, 1MHz	33	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	254	19	
	C1005NP0390□JTF	1V, 1MHz	39	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	255	16	
	C1005NP0470□JTF	1V, 1MHz	47	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	242	14	
	C1005NP0560□JTF	1V, 1MHz	56	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	258	11	
	C1005NP0680□JTF	1V, 1MHz	68	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	260	9	
	C1005NP0820□JTF	1V, 1MHz	82	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	243	8	
	C1005NP0101□JTF	1V, 1MHz	100	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	265	6	
100V	C1005NP0308□HTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	1608	330	Paper, 10Kpcs
	C1005NP0608□HTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	804	330	
50V	C1005NP0108□GTF	1V, 1MHz	0.1	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	4823	330	Paper, 10Kpcs
	C1005NP0208□GTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	2411	330	
	C1005NP0308□GTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	1608	330	
	C1005NP0408□GTF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	1206	330	
	C1005NP0508□GTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	965	330	
	C1005NP0608□GTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	804	330	
	C1005NP0708□GTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	689	330	
	C1005NP0808□GTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	603	330	
	C1005NP0908□GTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	536	330	
	C1005NP0109□GTF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	482	330	
	C1005NP0119□GTF	1V, 1MHz	1.1	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	526	275	
	C1005NP0129□GTF	1V, 1MHz	1.2	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	482	275	
	C1005NP0139□GTF	1V, 1MHz	1.3	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	445	275	
	C1005NP0149□GTF	1V, 1MHz	1.4	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	413	275	
	C1005NP0159□GTF	1V, 1MHz	1.5	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	386	275	
	C1005NP0169□GTF	1V, 1MHz	1.6	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	362	275	
	C1005NP0179□GTF	1V, 1MHz	1.7	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	340	275	
	C1005NP0189□GTF	1V, 1MHz	1.8	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	322	275	
	C1005NP0199□GTF	1V, 1MHz	1.9	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	335	250	
	C1005NP0209□GTF	1V, 1MHz	2.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	362	220	
	C1005NP0219□GTF	1V, 1MHz	2.1	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	344	220	
	C1005NP0229□GTF	1V, 1MHz	2.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	329	220	
	C1005NP0239□GTF	1V, 1MHz	2.3	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	315	220	
	C1005NP0249□GTF	1V, 1MHz	2.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	301	220	
	C1005NP0259□GTF	1V, 1MHz	2.5	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	289	220	
	C1005NP0269□GTF	1V, 1MHz	2.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	278	220	
	C1005NP0279□GTF	1V, 1MHz	2.7	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	268	220	
	C1005NP0289□GTF	1V, 1MHz	2.8	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	258	220	

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

DARFON

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
50V	C1005NP0299□GTF	1V, 1MHz	2.9	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	249	220	Paper, 10Kpcs
	C1005NP0309□GTF	1V, 1MHz	3.0	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	241	220	
	C1005NP0329□GTF	1V, 1MHz	3.2	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	226	220	
	C1005NP0339□GTF	1V, 1MHz	3.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	219	220	
	C1005NP0349□GTF	1V, 1MHz	3.4	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	213	220	
	C1005NP0359□GTF	1V, 1MHz	3.5	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	230	198	
	C1005NP0369□GTF	1V, 1MHz	3.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	223	198	
	C1005NP0399□GTF	1V, 1MHz	3.9	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	206	198	
	C1005NP0409□GTF	1V, 1MHz	4.0	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	201	198	
	C1005NP0429□GTF	1V, 1MHz	4.2	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	191	198	
	C1005NP0439□GTF	1V, 1MHz	4.3	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	187	198	
	C1005NP0479□GTF	1V, 1MHz	4.7	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	171	198	
	C1005NP0499□GTF	1V, 1MHz	4.9	pF	±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	186	175	
	C1005NP0509□GTF	1V, 1MHz	5.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	193	165	
	C1005NP0519□GTF	1V, 1MHz	5.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	189	165	
	C1005NP0559□GTF	1V, 1MHz	5.5	pF	±0.5pF, ±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	175	165	
	C1005NP0569□GTF	1V, 1MHz	5.6	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	172	165	
	C1005NP0609□GTF	1V, 1MHz	6.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	161	165	
	C1005NP0629□GTF	1V, 1MHz	6.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	156	165	
	C1005NP0659□GTF	1V, 1MHz	6.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	148	165	
	C1005NP0669□GTF	1V, 1MHz	6.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	146	165	
	C1005NP0689□GTF	1V, 1MHz	6.8	pF	±0.5pF, ±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	142	165	
	C1005NP0709□GTF	1V, 1MHz	7.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	165	138	
	C1005NP0759□GTF	1V, 1MHz	7.5	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	154	138	
	C1005NP0809□GTF	1V, 1MHz	8.0	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	181	110	
	C1005NP0829□GTF	1V, 1MHz	8.2	pF	±0.5pF, ±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	176	110	
	C1005NP0839□GTF	1V, 1MHz	8.3	pF	±0.5pF, ±0.25pF	0.50	±0.05	±0.05	1GHz	174	110	
	C1005NP0849□GTF	1V, 1MHz	8.4	pF	±0.5pF, ±0.25pF	0.50	±0.05	±0.05	1GHz	172	110	
	C1005NP0869□GTF	1V, 1MHz	8.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	168	110	
	C1005NP0909□GTF	1V, 1MHz	9.0	pF	±0.5pF, ±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	161	110	
	C1005NP0919□GTF	1V, 1MHz	9.1	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	159	110	
	C1005NP0929□GTF	1V, 1MHz	9.2	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	173	100	
	C1005NP0939□GTF	1V, 1MHz	9.3	pF	±0.5pF, ±0.25pF, ±0.1pF	0.50	±0.05	±0.05	1GHz	171	100	
	C1005NP0949□GTF	1V, 1MHz	9.4	pF	±0.5pF, ±0.25pF	0.50	±0.05	±0.05	1GHz	169	100	
	C1005NP0969□GTF	1V, 1MHz	9.6	pF	±0.25pF, ±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	175	95	
	C1005NP0100□GTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	181	88	
	C1005NP0110□GTF	1V, 1MHz	11	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	188	77	
	C1005NP0120□GTF	1V, 1MHz	12	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	201	66	
	C1005NP0130□GTF	1V, 1MHz	13	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	211	58	
	C1005NP0150□GTF	1V, 1MHz	15	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	241	44	
	C1005NP0160□GTF	1V, 1MHz	16	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	255	39	
	C1005NP0180□GTF	1V, 1MHz	18	pF	±5%, ±2%	0.50	±0.05	±0.05	1GHz	268	33	
	C1005NP0200□GTF	1V, 1MHz	20	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	332	24	
	C1005NP0220□GTF	1V, 1MHz	22	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	301	24	
	C1005NP0240□GTF	1V, 1MHz	24	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	276	24	
	C1005NP0270□GTF	1V, 1MHz	27	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	246	24	
	C1005NP0300□GTF	1V, 1MHz	30	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	253	21	
	C1005NP0330□GTF	1V, 1MHz	33	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	254	19	
	C1005NP0390□GTF	1V, 1MHz	39	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	255	16	
	C1005NP0470□GTF	1V, 1MHz	47	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	242	14	
	C1005NP0560□GTF	1V, 1MHz	56	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	500MHz	258	11	
	C1005NP0680□GTF	1V, 1MHz	68	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	260	9	
	C1005NP0820□GTF	1V, 1MHz	82	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	243	8	
	C1005NP0101□GTF	1V, 1MHz	100	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	265	6	
25V	C1005NP0308□FTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	1608	330	Paper, 10Kpcs
	C1005NP0508□FTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	965	330	
	C1005NP0109□FTF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	482	330	
	C1005NP0189□FTF	1V, 1MHz	1.8	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	322	275	
	C1005NP0110□FTF	1V, 1MHz	11	pF	±5%, ±2%, ±1%	0.50	±0.05	±0.05	1GHz	188	77	
	C1005NP0680□FTF	1V, 1MHz	68	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	260	9	
	C1005NP0820□FTF	1V, 1MHz	82	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	243	8	
	C1005NP0101□FTF	1V, 1MHz	100	pF	±5%, ±2%	0.50	±0.05	±0.05	500MHz	265	6	
16V	C1005NP0308□ETF	1V, 1MHz	0.30	pF	±0.25pF,±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	1608	330	Paper, 10Kpcs
	C1005NP0608□ETF	1V, 1MHz	0.60	pF	±0.25pF,±0.1pF	0.50	±0.05	±0.05	1GHz	804	330	
	C1005NP0808□ETF	1V, 1MHz	0.80	pF	±0.1pF,±0.05pF	0.50	±0.05	±0.05	1GHz	603	330	

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

● C1608NP0_F Series (EIA0603)

RV	DARFON P/N	Measuring Condition	Capacitance		Available Tolerance	Thick. (mm)	Tolerance(mm)		Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
			Value	Unit			L/W	Thick.				
250V	C1608NP0208□KTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	2274	350	Paper, 4Kpcs
	C1608NP0308□KTF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	1516	350	
	C1608NP0508□KTF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	909	350	
	C1608NP0608□KTF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	758	350	
	C1608NP0708□KTF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	650	350	
	C1608NP0808□KTF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	568	350	
	C1608NP0908□KTF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF, ±0.05pF	0.80	±0.10	±0.10	1GHz	505	350	
	C1608NP0109□KTF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	455	350	
	C1608NP0129□KTF	1V, 1MHz	1.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	442	300	
	C1608NP0159□KTF	1V, 1MHz	1.5	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	354	300	
	C1608NP0169□KTF	1V, 1MHz	1.6	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	332	300	
	C1608NP0189□KTF	1V, 1MHz	1.8	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	295	300	
	C1608NP0209□KTF	1V, 1MHz	2.0	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	318	250	
	C1608NP0229□KTF	1V, 1MHz	2.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	289	250	
	C1608NP0249□KTF	1V, 1MHz	2.4	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	265	250	
	C1608NP0279□KTF	1V, 1MHz	2.7	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	246	240	
	C1608NP0309□KTF	1V, 1MHz	3.0	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	221	240	
	C1608NP0339□KTF	1V, 1MHz	3.3	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	201	240	
	C1608NP0399□KTF	1V, 1MHz	3.9	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	185	220	
	C1608NP0439□KTF	1V, 1MHz	4.3	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	168	220	
	C1608NP0479□KTF	1V, 1MHz	4.7	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	154	220	
	C1608NP0519□KTF	1V, 1MHz	5.1	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	156	200	
	C1608NP0569□KTF	1V, 1MHz	5.6	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	158	180	
	C1608NP0609□KTF	1V, 1MHz	6.0	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	166	160	
	C1608NP0629□KTF	1V, 1MHz	6.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	160	160	
	C1608NP0689□KTF	1V, 1MHz	6.8	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	156	150	
	C1608NP0829□KTF	1V, 1MHz	8.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	139	140	
	C1608NP0919□KTF	1V, 1MHz	9.1	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	146	120	
	C1608NP0100□KTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.80	±0.10	±0.10	1GHz	159	100	
	C1608NP0120□KTF	1V, 1MHz	12	pF	±5%,±2%	0.80	±0.10	±0.10	1GHz	166	80	
	C1608NP0150□KTF	1V, 1MHz	15	pF	±5%, ±2%, ±1%	0.80	±0.10	±0.10	1GHz	212	50	
	C1608NP0180□KTF	1V, 1MHz	18	pF	±5%, ±2%, ±1%	0.80	±0.10	±0.10	1GHz	253	35	
	C1608NP0200□KTF	1V, 1MHz	20	pF	±5%, ±2%	0.80	±0.10	±0.10	1GHz	265	30	
	C1608NP0220□KTF	1V, 1MHz	22	pF	±5%, ±2%, ±1%	0.80	±0.10	±0.10	1GHz	241	30	
	C1608NP0330□KTF	1V, 1MHz	33	pF	±5%, ±2%	0.80	±0.10	±0.10	500MHz	193	25	
	C1608NP0470□KTF	1V, 1MHz	47	pF	±5%, ±2%	0.80	±0.10	±0.10	500MHz	147	23	
	C1608NP0560□KTF	1V, 1MHz	56	pF	±5%, ±2%	0.80	±0.10	±0.10	500MHz	135	21	
	C1608NP0680□KTF	1V, 1MHz	68	pF	±5%, ±2%	0.80	±0.10	±0.10	500MHz	117	20	
	C1608NP0820□KTF	1V, 1MHz	82	pF	±5%,±2%	0.80	±0.10	±0.10	500MHz	97	20	
	C1608NP0101□KTF	1V, 1MHz	100	pF	±5%,±2%	0.80	±0.10	±0.10	500MHz	88	18	
50V	C1608NP0240□GTF	1V, 1MHz	24	pF	±5%,±2%	0.80	±0.10	±0.10	500MHz	237	28	Paper, 4Kpcs
	C1608NP0101□GTF	1V, 1MHz	100	pF	±5%,±2%	0.80	±0.10	±0.10	500MHz	88	18	

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%,G=±2%, J=±5%; Special tolerance on the request.

● C2012NP0_F Series (EIA0805)

RV	DARFON P/N	Measuring Condition	Capacitance Value	Capacitance Unit	Available Tolerance	Thick. (mm)	Tolerance(mm) L/W	Tolerance(mm) Thick.	Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
250V	C2012NP0208□KTFC	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	2067	385	Paper, 4Kpcs
	C2012NP0308□KTFC	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	1378	385	
	C2012NP0408□KTFC	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	1033	385	
	C2012NP0508□KTFC	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	827	385	
	C2012NP0608□KTFC	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	689	385	
	C2012NP0708□KTFC	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	591	385	
	C2012NP0808□KTFC	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	517	385	
	C2012NP0908□KTFC	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	459	385	
	C2012NP0109□KTFC	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF	0.60	±0.2	±0.1	1GHz	413	385	
250V	C2012NP0308□KPF	1V, 1MHz	0.3	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	1378	385	Emobssed, 3Kpcs
	C2012NP0408□KPF	1V, 1MHz	0.4	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	1033	385	
	C2012NP0508□KPF	1V, 1MHz	0.5	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	827	385	
	C2012NP0608□KPF	1V, 1MHz	0.6	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	689	385	
	C2012NP0708□KPF	1V, 1MHz	0.7	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	591	385	
	C2012NP0808□KPF	1V, 1MHz	0.8	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	517	385	
	C2012NP0908□KPF	1V, 1MHz	0.9	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	459	385	
	C2012NP0109□KPF	1V, 1MHz	1.0	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	413	385	
	C2012NP0129□KPF	1V, 1MHz	1.2	pF	±0.25pF,±0.1pF, ±0.05pF	1.25	±0.15	±0.15	1GHz	402	330	
	C2012NP0159□KPF	1V, 1MHz	1.5	pF	±0.25pF,±0.1pF, ±0.05pF	1.25	±0.15	±0.15	1GHz	322	330	
	C2012NP0189□KPF	1V, 1MHz	1.8	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	268	330	
	C2012NP0209□KPF	1V, 1MHz	2.0	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	289	275	
	C2012NP0229□KPF	1V, 1MHz	2.2	pF	±0.25pF,±0.1pF, ±0.05pF	1.25	±0.15	±0.15	1GHz	263	275	
	C2012NP0249□KPF	1V, 1MHz	2.4	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	241	275	
	C2012NP0279□KPF	1V, 1MHz	2.7	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	227	260	
	C2012NP0339□KPF	1V, 1MHz	3.3	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	185	260	
	C2012NP0399□KPF	1V, 1MHz	3.9	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	170	240	
	C2012NP0439□KPF	1V, 1MHz	4.3	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	154	240	
	C2012NP0479□KPF	1V, 1MHz	4.7	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	141	240	
	C2012NP0519□KPF	1V, 1MHz	5.1	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	142	220	
	C2012NP0569□KPF	1V, 1MHz	5.6	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	142	200	
	C2012NP0609□KPF	1V, 1MHz	6.0	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	166	160	
	C2012NP0689□KPF	1V, 1MHz	6.8	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	167	140	
	C2012NP0829□KPF	1V, 1MHz	8.2	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	139	140	
	C2012NP0919□KPF	1V, 1MHz	9.1	pF	±0.25pF,±0.1pF	1.25	±0.15	±0.15	1GHz	135	130	
	C2012NP0100□KPF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	1GHz	122	130	
	C2012NP0120□KPF	1V, 1MHz	12	pF	±5%,±2%	1.25	±0.15	±0.15	1GHz	133	100	
	C2012NP0150□KPF	1V, 1MHz	15	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	1GHz	133	80	
	C2012NP0180□KPF	1V, 1MHz	18	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	1GHz	126	70	
	C2012NP0200□KPF	1V, 1MHz	20	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	1GHz	133	60	
	C2012NP0220□KPF	1V, 1MHz	22	pF	±5%,±2%	1.25	±0.15	±0.15	1GHz	145	50	
	C2012NP0330□KPF	1V, 1MHz	33	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	500MHz	107	45	
	C2012NP0390□KPF	1V, 1MHz	39	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	500MHz	102	40	
	C2012NP0560□KPF	1V, 1MHz	56	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	500MHz	81	35	
	C2012NP0680□KPF	1V, 1MHz	68	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	500MHz	78	30	
	C2012NP0820□KPF	1V, 1MHz	82	pF	±5%, ±2%	1.25	±0.15	±0.15	500MHz	65	30	
	C2012NP0101□KPF	1V, 1MHz	100	pF	±5%, ±2%	1.25	±0.15	±0.15	500MHz	64	25	
	C2012NP0151□KPF	1V, 1MHz	150	pF	±5%, ±2%, ±1%	1.25	±0.15	±0.15	500MHz	59	18	

■ X8G Series

● C1608X8G_F Series (EIA0603)

RV	DARFON P/N	Measuring Condition	Capacitance Value	Capacitance Unit	Available Tolerance	Thick. (mm)	Tolerance(mm) L/W	Tolerance(mm) Thick.	Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
250V	C1608X8G208□KTF	1V, 1MHz	0.2	pF	±0.25pF,±0.1pF, ±0.05pF	0.80	±0.10	±0.10	1GHz	2274	350	Paper, 4Kpcs
	C1608X8G229□KTF	1V, 1MHz	2.2	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	289	250	
	C1608X8G339□KTF	1V, 1MHz	3.3	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	201	240	
	C1608X8G399□KTF	1V, 1MHz	3.9	pF	±0.25pF,±0.1pF	0.80	±0.10	±0.10	1GHz	185	220	
	C1608X8G100□KTF	1V, 1MHz	10	pF	±5%, ±2%, ±1%	0.80	±0.10	±0.10	1GHz	159	100	
	C1608X8G120□KTF	1V, 1MHz	12	pF	±5%, ±2%	0.80	±0.10	±0.10	1GHz	133	100	
	C1608X8G200□KTF	1V, 1MHz	20	pF	±5%, ±2%	0.80	±0.10	±0.10	1GHz	241	33	

● C2012X8G_F Series (EIA0805)

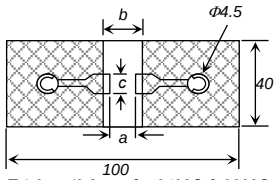
RV	DARFON P/N	Measuring Condition	Capacitance Value	Capacitance Unit	Available Tolerance	Thick. (mm)	Tolerance(mm) L/W	Tolerance(mm) Thick.	Testing Freq	ESR mΩ (max.)	Q (min.)	Standard Packing
250V	C2012X8G101JKPF	1V, 1MHz	100	pF	±5%	1.25	±0.15	±0.15	500MHz	64	25	Emobssed, 3Kpcs

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF ,D=±0.5pF, F=±1%, G=±2%, J=±5%; Special tolerance on the request.

Test Spec.

No	Item	Specification	Test Method
1	**Operating Temperature Range**	NP0: -55 to 125 ℃ X8G: -55 to 150 ℃	---
2	**Rated Voltage**	Shown in the table of "Part Number & Characteristic"	The rated voltage is defined as the maximum voltage, which may be applied continuously to the capacitor.
3	**Appearance**	No defects or abnormalities.	Visual inspection
4	**Dimensions**	Within the specified dimension.	Using calipers or Microscope.
5	**Dielectric Strength (Flash)**	No defects or abnormalities.	No failure shall be observed when 250% of the rated voltage is applied between the terminations for 1 to 5 seconds. The charge and discharge current is less than 50mA.
6	**Insulation Resistance (I.R.)**	I.R.≧10GΩ	The insulation resistance shall be measured with a DC voltage not exceeding the rated voltage at 25℃ and 75%RH max, and within 1 minute of charging.
7	**Capacitance**	Within the specified tolerance	The capacitance /Q shall be measured at 25℃ at the frequency and voltage shown in the tables. Frequency: 1.0±0.1MHz Voltage: 1.0±0.2Vrms
8	**Quality Factor (Q)**	30pF and over.: Q≧1000 30pF and below.: Q≧400+20C C: Nominal Capacitance (pF)	
9	**Capacitance Temperature Characteristics**	Capacitance change within 0±30ppm/ ℃ under operating temperature range.	The capacitance value at 25℃ and 85℃ shall be measured and calculated from the formula given below. T.C.=(C_{85}-C_{25})/C_{25}*ΔT*10^6(PPM/℃)
10	**Termination Strength**	No removal of the terminations or marking defect.	Apply a parallel force of 5N to a PCB mounted sample for 10±1sec. *2N for 0603 (EIA 0201).
11	**Deflection (Bending Strength)**	No cracking or marking defects shall occur at 1mm deflection. Capacitance change: NP0: within ±5% or ± 0.5pF. (whichever is larger)	Solder the capacitor to the test jig (glass epoxy boards) shown in Fig.a using a SAC305(Sn96.5Ag3.0Cu0.5) solder. Then apply a force in the direction shown in Fig.b. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock.
12	**Solderability of Termination**	90% of the terminations are to be soldered evenly and continuously. C0402 Series: 75% of the terminations are to be soldered evenly and continuously.	Immerse the test capacitor into a methanol solution containing rosin for 3 to 5 seconds, preheat it 150 to 180℃ for 2 to 3 minutes and immerse it into SAC305(Sn96.5Ag3.0Cu0.5) solder of 245 ± 5℃ for 3±1seconds.
13	**Resistance to Soldering Heat** — **Appearance**	No marking defects	Immerse the capacitor in a SAC305(Sn96.5Ag3.0Cu0.5) solder solution at 270±5℃ for 10±1 seconds. Let sit at room temperature for 24±2 hours, then measure. *C0402 Series is not suitable for this testing
	Cap. Change	NP0/X8G within ±2.5% or ±0.25pF (whichever is larger)	
	Q	Initial spec.	
	I.R.	Initial spec.	

(Unit in mm)



T:1.6mm(0.8 mm for 0402C & 0603C & 1005C size)

Fig. a.

Size	a	b	C
0402	0.2	0.56	0.23
0603	0.3	0.9	0.3
1005	0.4	1.5	0.5
1608	1.0	3.0	1.2

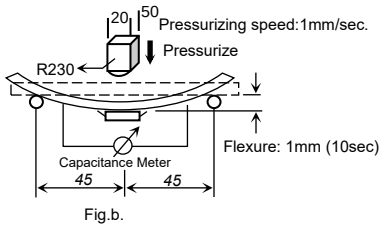


Fig.b.

No	Item		Specification	Test Method
14	Temperature cycle (Thermal shock)	Appearance	No marking defects	Solder the capacitor to supporting jig (glass epoxy board) and perform the five cycles according to the four heat treatments listed in the following table. Let sit for 24±2hrs at room temperature, then measure. Step 1: Minimum operating temperature 30±3min Step 2: Room temperature 2~3 min Step 3: Maximum operating temperature 30±3min Step 4: Room temperature 2~3min
		Cap. Change	NP0 within ±2.5% or 0.25pF (whichever is larger)	
		Q	Initial spec.	
		I.R.	Initial spec.	
15	Humidity load	Appearance	No marking defects	Apply the rated voltage at 40±2℃ and 90 to 95% humidity for 500±12 hours. Remove and let sit for 24±2 hours at room temperature, then measure. The charge / discharge current is less than 50mA.
		Cap. Change	NP0/X8G within ±5% or ±0.5pF (whichever is larger)	
		Q	200 min.	
		I.R.	I.R.≧500MΩ	
16	High temperature load life test	Appearance	No marking defects	Apply 200% of the rated voltage for 1000±12 hours at the maximum operating temperature ± 3℃. Let sit for 24± 2 hours at room temperature, then measure. The charge/discharge current is less than 50mA.
		Cap. Change	NP0/X8G within ±5% or ±0.5pF (whichever is larger)	
		Q	30pF and over : Q≧350 10pF and over, 30pF and below : Q≧275+5C/2 10pF and below : Q≧200+10C C:Nominal Capacitance(pF)	
		I.R.	I.R.≧1GΩ	
17	ESR & Q		Shown in the table of “Part Number & Characteristic”	Testing frequency is shown in the table of “Part Number & Characteristic”

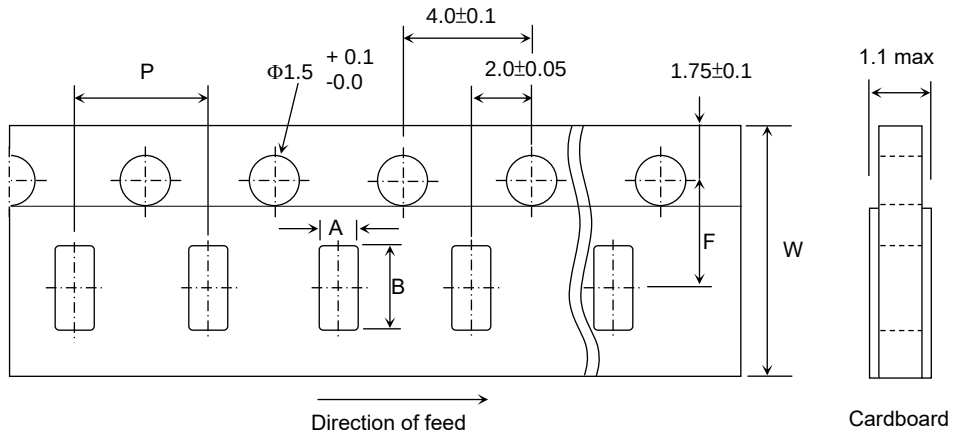
Package

- **Tape and reel packaging**

  Tape and reel packaging is currently the most promising system for high-speed production. A typical 180mm (7 inch) diameter reel contains 1,500 to 15,000 capacitors, 250mm (10 inch) contains 10,000 capacitors, and 330mm (13 inch) contains 10,000 to 50,000 capacitors. Three standard sizes are available in taped and reeled package either with paper carrier tapes or embossed tapes.

【Paper tape specifications】

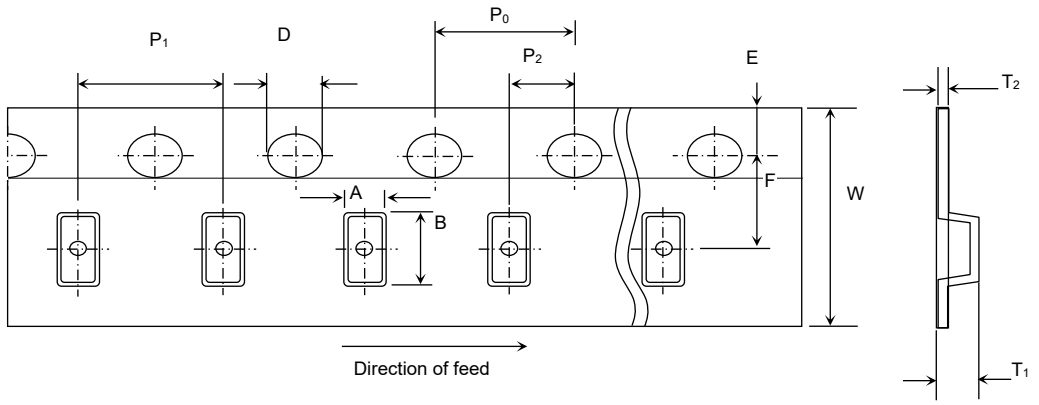
2mm and 4mm pitch tape



SYMBOL	PRODUCT SIZE CODE						UNIT
	C0603(0201)		C1005(0402)		C1608(0603)		
	SIZE	TOL.	SIZE	TOL.	SIZE	TOL.	
A	0.38	± 0.04	0.65	± 0.10	1.0	±0.2	mm
B	0.68	± 0.04	1.15	± 0.10	1.8	±0.2	mm
F	3.5	± 0.05	3.5	± 0.05	3.5	±0.05	mm
P	2	± 0.10	2	± 0.10	4	±0.1	mm
W	8	± 0.20	8	± 0.20	8	±0.2	mm

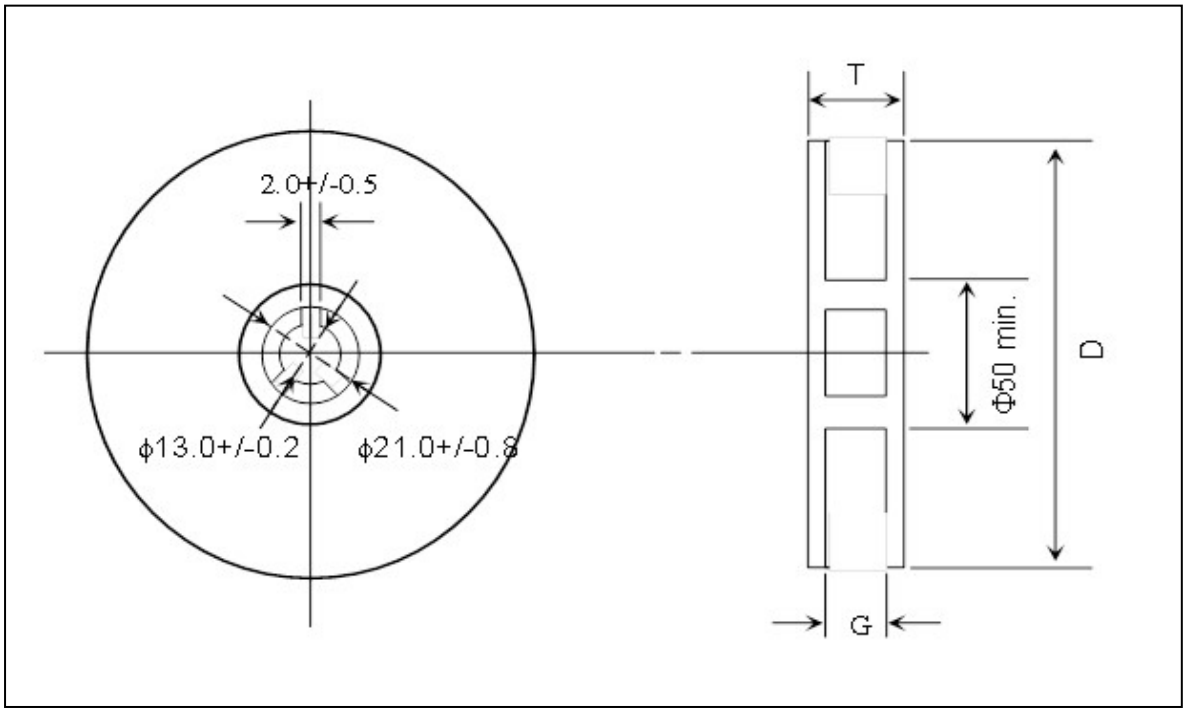
【Embossed tape specifications】

1mm and 4mm and 8mm pitch tape



DIMENSION (mm)	PRODUCT SIZE CODE		
	0402 (01005)	2012 (0805)	3216 (1206)
P_1	1±0.02	4±0.1	4±0.1
P_O	2±0.04	4±0.1	4±0.1
P_2	1±0.02	2±0.05	2±0.05
A	0.23±0.02	1.45±0.2	1.9±0.2
B	0.43±0.02	2.3±0.2	3.5±0.2
W	4±0.05	8±0.2	8±0.2
E	0.9±0.05	1.75±0.1	1.75±0.1
F	1.8±0.02	3.5±0.05	3.5±0.05
D	0.8±0.04	1.5 (+0.1/-0.0)	1.5 (+0.1/-0.0)
T_1	0.5 max	2.2 max.	2.2 max.
T_2	0.15~0.40	0.30±0.1	0.30±0.1

【Reel specifications】



TAPE WIDTH (mm)	G (mm)	T max. (mm)	D (mm)
4	5.0 ± 1.5	8.0	180
8	10.0 ± 1.5	14.5	180
8	10.0 ± 1.5	14.5	250
8	10.0 ± 1.5	14.5	330
12	14.0 ± 1.5	18.5	180

【Thickness and Packing Amount】

Thickness			Amount per reel			
			180 mm (7”)		330 mm (13”)	
Code	Spec.(mm)	Size (EIA)	Paper	Embossed	Paper	Embossed
Z	0.20	0402 (01005)	20K	40K#1		
A	0.30	0603 (0201)	15K		50K	
		1005 (0402)	15K		50K	
B	0.50	1005 (0402)	10K		50K	
Q	0.45	1005 (0402)	10K		50K	
		1608 (0603)	4K		15K	
C	0.60	2012 (0805)	4K		15K	
		3216 (1206)	4K		15K	
D	0.80	1608 (0603)	4K	4K	15K	
E	0.85	2012 (0805)	4K		15K	
		3216 (1206)	4K		15K	
I	0.95	2012 (0805)		3K		
		3216 (1206)		3K		
F	1.15	3216 (1206)		3K		10K
G	1.25	2012 (0805)		2K/3K		10K
		3216 (1206)		3K		10K
L	1.60	3216 (1206)		2K		
N	2.00	3216 (1206)		2K/3K		

#1: 4mm width 1mm pitch Embossed Taping

【Packing Rule】

EIA SIZE	Tape type	Reel Size	Max Reels/Box
0402 (01005)	Emboss	7”	16
0402 (01005)	Paper	7”	10
0603 (0201)	Paper	7"	10
1005 (0402)	Paper	7"	10
1608 (0603)	Paper/Emboss	7"	10
2012 (0805)	Paper/Emboss	7"	10
3216 (1206)	Paper/Emboss	7"	10

*Maximum 60 reels in one carton.

Others

【Storage】

1. The chip capacitors shall be packaged in carrier tapes or bulk cases.
2. Too high temperatures or humidity may deteriorate the quality of the product rapidly. Recommended products storage with temperatures from +5℃ to +35℃, humidity from 45 to 70% RH.
3. The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminations will oxidize and solderability will be affected.
4. In consideration of solderability, an allowable storage period should be within 12 months from the outgoing date of delivery. As for products in storage over 12 months, please check solderability before use.

【Circuit Design】

1. Once application and assembly environments have been checked, the capacitor may be used in conformance with the rating and performance, which are provided in both the catalog and the specifications. Exceeding the specifications listed may result in inferior performance. It may also cause a short, open, smoking, or flaming to occur, etc.
2. Please use the capacitors in conformance with the operating temperature provided in both the catalog and the specifications. Be especially cautious not to exceed the maximum temperature. In the situation the maximum temperature set forth in both the catalog and specifications is exceeded, the capacitor's insulation resistance may deteriorate, power may suddenly surge and short-circuit may occur. The loss of capacitance will occur, and may self-heat due to equivalent series resistance when alternating electric current is passed through. As this effect becomes critical in high frequency circuits, please exercise with caution. When using the capacitor in a (self-heating) circuit, please make sure the surface of the capacitor remains under the maximum temperature for usage. Also, please make certain temperature rise remain below 20℃.
3. Please keep voltage under the rated voltage, which is applied to the capacitor. Also, please make certain the peak voltage remains below the rated voltage when AC voltage is super-imposed to the DC voltage. In the situation where AC or pulse voltage is employed, ensure average peak voltage does not exceed the rated voltage. Exceeding the rated voltage provided in both catalog and specifications may lead to defective withstanding voltage or, in worse case situations, may cause the capacitor to burn out.
4. It's is a common phenomenon of high-dielectric products to have a deteriorated amount of static electricity due to the application of DC voltage.

【Handling】

Chip capacitors should be handled with care to avoid contamination or damage. The use of vacuum pick-up or plastic tweezers is recommended for manual placement. Tape and reeled packages are suitable for automatic pick and placement machine.

【Flux】

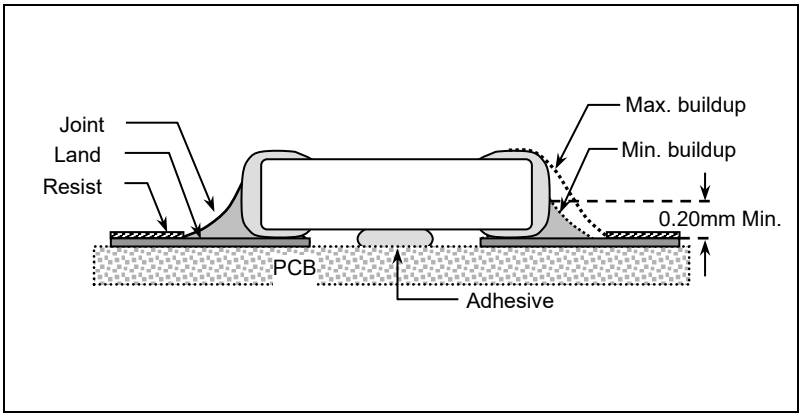
1. An excessive amount of flux or too rapid temperature rise can causes solvent burst, solder can generate a large quantity of gas. The gas can spreads small solder particles to cause solder balling effect or bridging problem.
2. Flux containing too high of a percentage of halide may cause corrosion of termination unless sufficient cleaning is applied.
3. Use rosin-type flux. Highly acidic flux (halide content less than 0.2wt%) is not recommended.
4. The water soluble flux causes deteriorated insulation resistance between outer terminations unless sufficiently cleaned.

【Component Spacing】

For wave soldering components, the spacing must be sufficient far apart to prevent bridging or shadowing. This is not so important for reflow process but enough space for rework should be considered. The suggested spacing for reflow soldering and wave soldering is 0.5mm and 1.0mm, respectively.

【Solder Fillet】

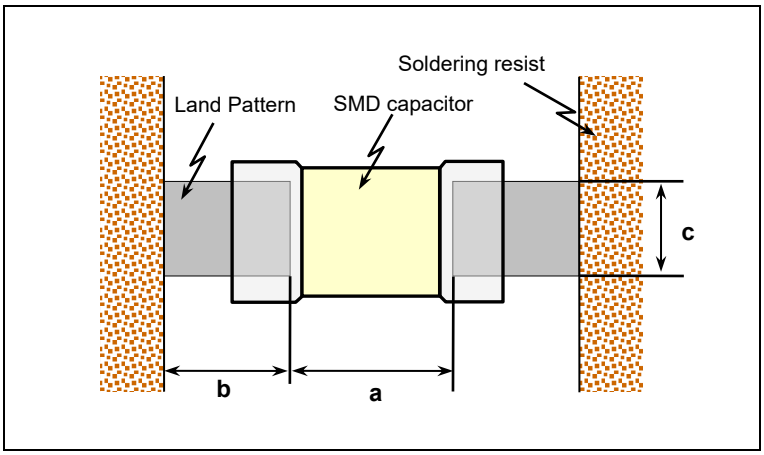
Too much solder amount may increase solder stress and cause crack risk. Insufficient solder amount may reduce adhesive Strength and cause parts falling off PCB. When soldering, confirm that the solder is placed over 0.2mm of the surface of the terminations.



【Recommended Land Pattern Dimensions】

When mounting the capacitor to substrate, it's important to consider that the amount of solder (size of fillet) used has a direct effect upon the capacitor once it's mounted.

1. The greater the amount of solder, the greater the stress to the elements, as this may cause the substrate to break or crack.
2. In the situation where two or more devices are mounted onto a common land, separate the device into exclusive pads by using soldering resist.
3. Land width equal to or less than component. It is permissible to reduce land width to 80% of component width.



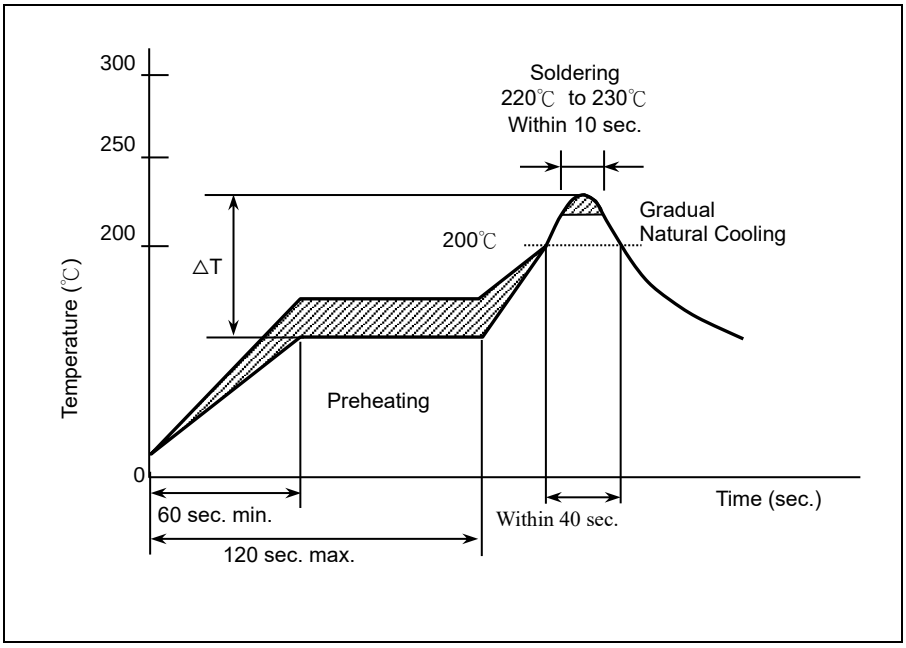
Size mm (EIA)	L x W (mm) (Dimension tolerance)	a (mm)	b (mm)	c (mm)
0402 (01005)	0.4*0.2	0.16 to 0.20	0.12 to 0.18	0.20 to 0.23
0603 (0201)	0.6*0.3 (within±0.03)	0.2 to 0.35	0.2 to 0.3	0.2 to 0.4
	0.6*0.3 (±0.05/±0.09)	0.2 to 0.35	0.2 to 0.35	0.25 to 0.4
1005 (0402)	1.0*0.5 (within±0.10)	0.3 to 0.5	0.35 to 0.45	0.4 to 0.6
	1.0*0.5 (±0.15/±0.20)	0.4 to 0.6	0.4 to 0.5	0.5 to 0.7
1608 (0603)	1.6*0.8 (within±0.10)	0.7 to 1.0	0.6 to 0.8	0.7 to 0.8
	1.6*0.8 (±0.15/±0.20/±0.25)	0.8 to 1.1	0.7 to 0.8	0.8 to 1.0
2012 (0805)	2.0*1.25	1.0 to 1.4	0.7 to 0.9	1.2 to 1.4

【Resin Mold】

If a large amount of resin is used for molding the chip, cracks may occur due to contraction stress during curing. To avoid such cracks, use a low shrinkage resin. The insulation resistance of the chip will degrade due to moisture absorption. Use a low moisture absorption resin. Check carefully that the resin does not generate a decomposition gas or reaction gas during the curing process or during normal storage. Such gases may crack the chip capacitor or damage the device itself.

【Soldering Profile for SMT Process with SnPb Solder Paste】

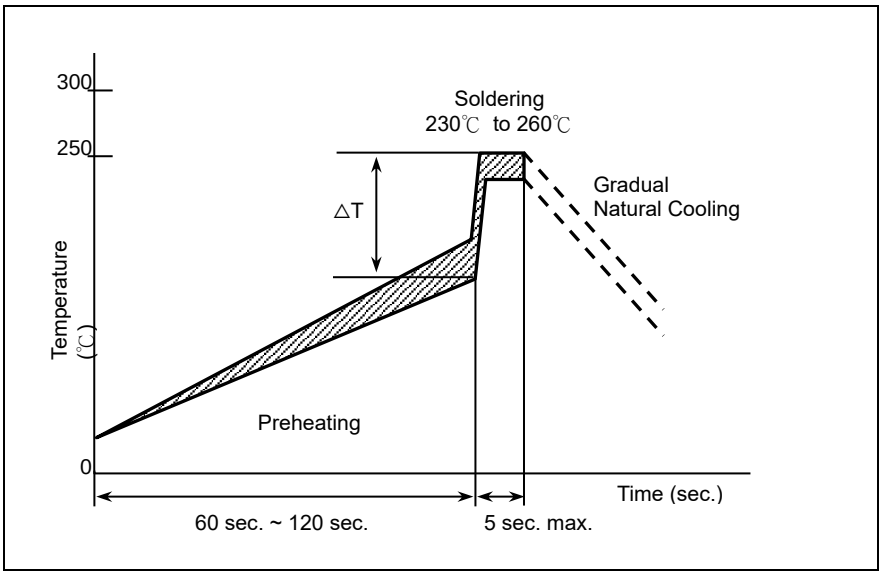
Reflow Soldering



The difference between solder and chip surface should be controlled as following table. The rate of preheat should not exceed 4℃/sec and a target of 2℃/sec is preferred.

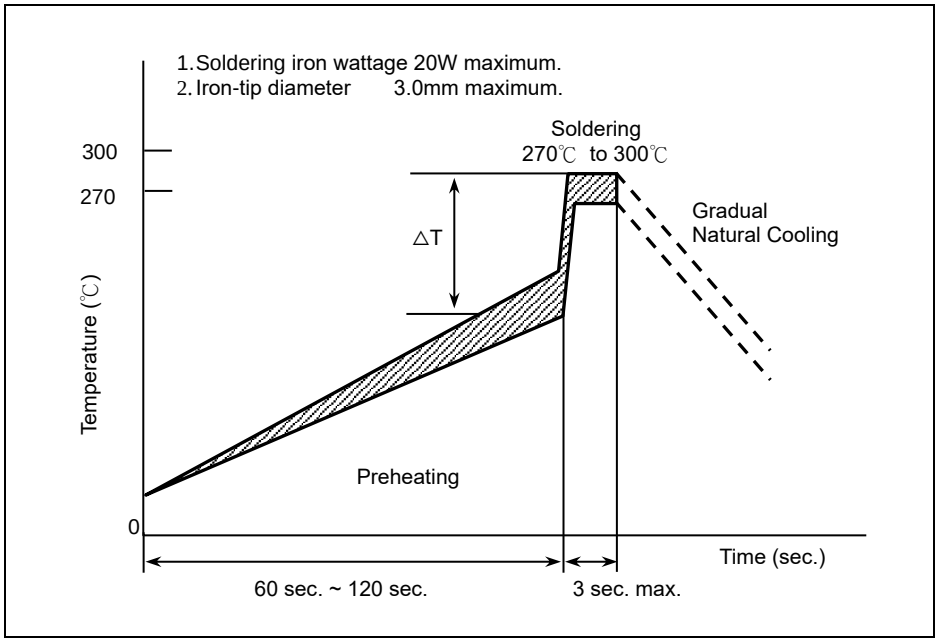
Chip Size	3216 and smaller	3225 and above
Preheating	△T≦150℃	△T≦130℃

Wave Soldering



Chip Size	1608/2012/3216	3225 and above
Preheating	△T≦150℃	-

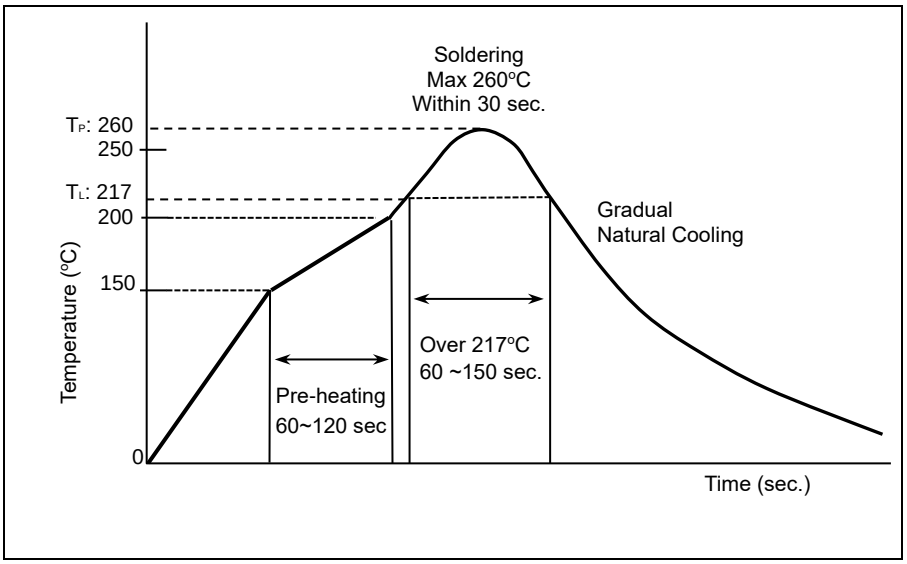
Soldering Iron



Chip Size	3216 and smaller	3225 and above
Preheating	△T≦190℃	△T≦130℃

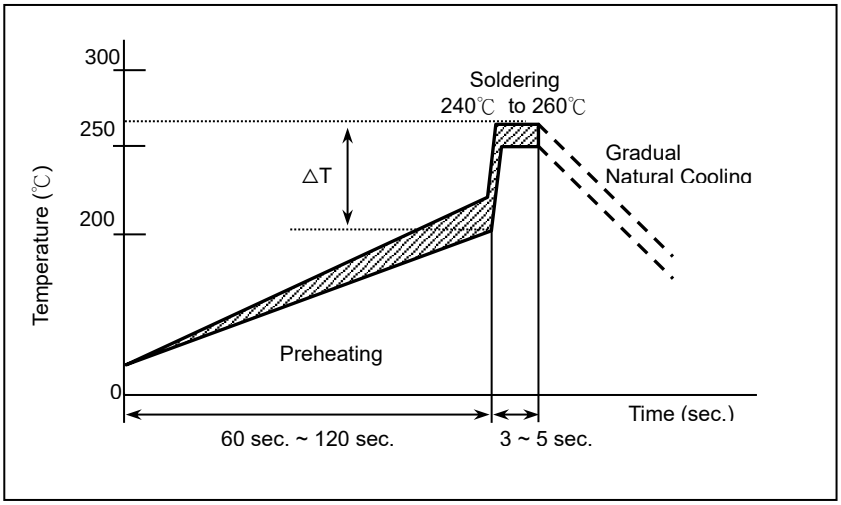
【Soldering】

Reflow Soldering for Lead free (Pb free) Termination



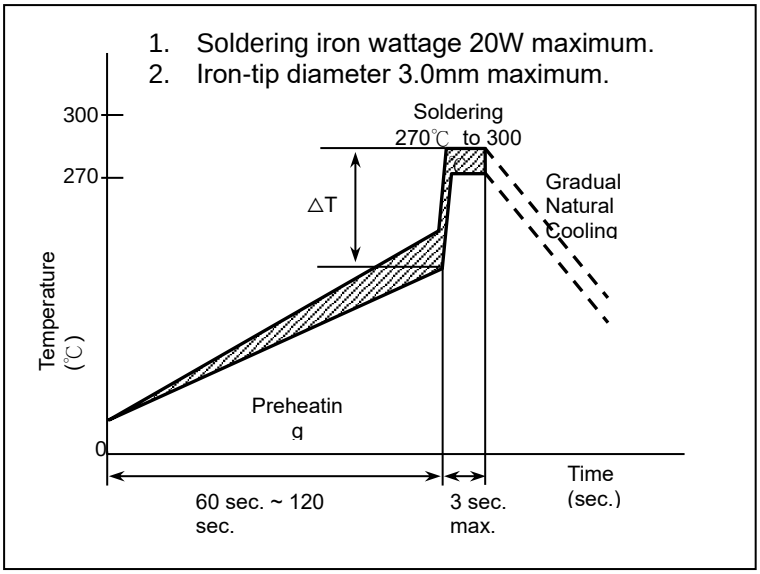
The difference between solder and chip surface should be controlled as following table.
Pre-heating is necessary for all constituents including the PCB to prevent the mechanical damages on MLCC.
The Temperature of the ramp-up rate(TL to TP) is 3□/second max and the ramp-down Rate (TP to TL) is 6□/second max.

Wave Soldering for Lead free Termination



Chip Size	1608/2012/3216	3225 and above
Preheating	△T≦150℃	-

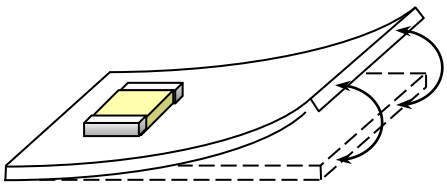
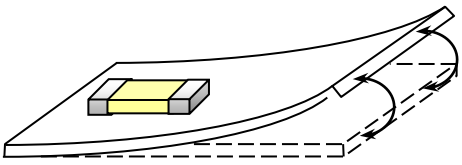
Soldering Iron



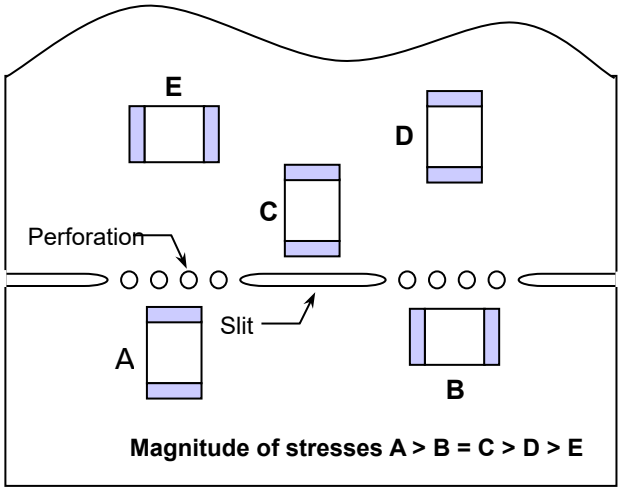
Chip Size	3216 and smaller	3225 and above
Preheating	△T≦190℃	△T≦130℃

【Chip Layout and Breaking PCB】

1. To layout the SMD capacitors for reducing bend stress from board deflection of PCB. The following are examples of Hood and bad layout.

Recommended	Not Recommended
	

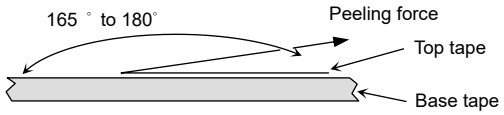
2. When breaking PCB, the layout should be noted that the mechanical stresses are depending on the position of capacitors. The following example shows recommendation for better design.



【Peeling Off Force】

Peeling off force: 0.1N to 1.0 N* in the direction shown as below.

The peeling speed: 300±10 mm/min



1. The taped tape on reel is wound clockwise. The sprocket holes are to the right as the tape is pulled toward the user.
2. There are minimum 150 mm as the leader and minimum 40 mm empty tape as the tail is attached to the end of the tape.

【Disclaimer & Limitation of Use and Applications】

Disclaimer

All product specifications, statements, information and data (collectively, the “Information”) in this spec sheet or made available on the website are subject to change. The customer is responsible for checking and verifying the extent to which the Information contained in this publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without guarantee, warranty, or responsibility of any kind, expressed or implied. ANY USE OF PRODUCT OUTSIDE OF SPECIFICATIONS OR ANY STORAGE OR INSTALLATION INCONSISTENT WITH PRODUCT GUIDANCE VOIDS ANY WARRANTY. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product–related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicted or that other measures may not be required.

Limitation

The below application conditions require especially high reliability products to prevent defects that may directly cause damages or loss to third party's life, body or property. If you have any questions regarding this 'Limitation'，you should first contact our sales personnel or application engineers.

1. Aerospace/Aviation equipment
2. 1wheeler, 2wheeler and 3wheeler vehicle
3. Automotive of Transportation equipment
4. Military equipment
5. Atomic energy-related equipment
6. Undersea equipment
7. Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2)
8. Disaster prevention/crime prevention equipment
9. Power plant control equipment
10. Traffic signal equipment
11. Data-processing equipment
12. Electric heating apparatus，burning equipment
13. Safety equipment
14. Any other applications with the same as or similar complexity or reliability to the applications