# Multilayer SMD Ceramic Capacitor

**General Purpose Series (10V to 100V) NP0 & X7R Dielectric**

RoHS Compliant

## Description

MLCC consists of a conducting material and electrodes. To manufacture a chip-type SMT and achieve miniaturization, high density and high efficiency, ceramic condensers are used. WTC's MLCC is made by NP0 and X7R dielectric material and which provides product with high electrical precision, stability and reliability.

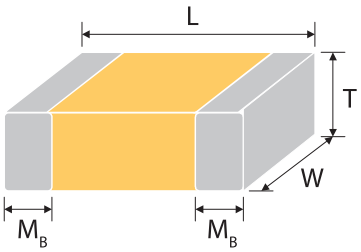
## Features:

- A wide selection of sizes is available (0402 to 1210)
- High capacitance in given case size
- Capacitor with lead-free termination (pure Tin)

## Applications:

- For general digital circuit
- For power supply bypass capacitors
- For consumer electronics
- For telecommunication

## External Dimensions:




**The outline of MLCC**

| Size Inch (mm) | L (mm) | W (mm) | T (mm)/Symbol | | Remark | MB (mm) |
|---|---|---|---|---|---|---|
| 0402 (1005) | 1 ±0.05 | 0.5 ±0.05 | 0.5 ±0.05 | N | # | 0.25 +0.05/-0.1 |
| 0603 (1608) | 1.6 ±0.1 | 0.8 ±0.1 | 0.8 ±0.07 | S | - | 0.4 ±0.15 |
| | 1.6 +0.15/-0.1 | 0.8 +0.15/-0.1 | 0.8 +0.15/-0.1 | X | - | |
| 0805 (2012) | 2 ±0.15 | 1.25 ±0.1 | 0.6 ±0.1 | A | - | 0.5 ±0.2 |
| | | | 0.8 ±0.1 | B | - | |
| | | | 1.25 ±0.1 | D | # | |
| | 2 ±0.2 | 1.25 ±0.2 | 1.25 ±0.2 | I | # | |
| 1206 (3216) | 3.2 ±0.15 | 1.6 ±0.15 | 0.8 ±0.1 | B | - | 0.6 ±0.2 |
| | | | 0.95 ±0.1 | C | - | |
| | | | 1.15 ±0.15 | J | # | |
| | | | 1.25 ±0.1 | D | # | |
| | | | 1.6 ±0.2 | G | # | |
| | 3.2 +0.3/-0.1 | 1.6 +0.3/0.1 | 1.6 +0.3/-0.1 | P | # | |
| 1210 (3225) | 3.2 ±0.3 | 2.5 ±0.2 | 0.95 ±0.1 | C | # | 0.75 ±0.25 |
| | | | 1.25 ±0.1 | D | # | |
| | 3.2 ±0.4 | 2.5 ±0.3 | 1.6 ±0.2 | G | # | |
| | | | 2 ±0.2 | K | # | |
| | | | 2.5 ±0.3 | M | # | |

# Reflow soldering only is recommended.

## General Electrical Data:

| **Dielectric** | C0G / NP0 | X7R |
|---|---|---|
| **Size** | 0402, 0603, 0805, 1206, 1210 | |
| **Capacitance*** | 0.5pF to 0.1μF | 100pF to 0.82μF |
| **Capacitance tolerance**** | Cap≤5pF: B (±0.1pF), C (±0.25pF)<br>5pF<Cap<10pF: C (±0.25pF), D (±0.5pF)<br>Cap≥10pF: F (±1%), G (±2%), J (±5%),<br>K (±10%) | J (±5%), K (±10%), M (±20%) |
| **Rated voltage (WVDC)** | 10V, 16V, 25V, 50V, 100V | 10V, 16V, 25V, 50V, 100V |
| **DF (Tan δ)*** | Cap<30pF: Q≥400+20C<br>Cap≥30pF: Q≥1,000 | Note 1 |
| **Operating temperature** | -55°C to +125°C | |
| **Capacitance change** | ±30ppm | ±15% |
| **Termination** | Ni/Sn (lead-free termination) | |

* Measured at the condition of 30~70% related humidity.
NP0: Apply 1 ±0.2Vrms, 1MHz ±10% for Cap≤1,000pF and 1 ±0.2Vrms, 1kHz ±10% for Cap>1,000pF, 25°C at ambient temperature
X7R: Apply 1.0±0.2Vrms, 1.0kHz±10%, at 25°C ambient temperature.

** Preconditioning for Class II MLCC : Perform a heat treatment at 150 ±10°C for 1 hour, then leave in ambient condition for 24±2 hours before measurement.

## Note 1:

**X7R**

| **Rated vol.** | **D.F.≦** | **Exception of D.F. ≦** | |
|---|---|---|---|
| ≧50V | ≦2.5% | ≦3% | 0201(50V); 0603≧0.047μF; 0805≧0.18μF;1206≧0.47μF |
| | | ≦5% | 1210≧4.7μF |
| | | ≦10% | 0603≧1μF; 0805≧1μF;1206≧4.7μF; 1210≧10μF |
| 35V | ≦3.5% | ≦10% | 0805≥2.2μF; 1210≧10μF |
| 25V | ≦3.5% | ≦5% | 0201≧0.01μF;0805≧1μF; 1210≧10μF |
| | | ≦7% | 0603≧0.33μF; 1206≧4.7μF |
| | | ≦10% | 0402≧0.10μF;0603≧0.47μF; 0805≧2.2μF; 1206≧6.8μF ; 1210≧22μF |
| 16V | ≦3.5% | ≦5% | 0201≧0.01μF; 0402≧0.033μF; 0805≧0.68μF;1206≧2.2μF;1210≧4.7μF |
| | | ≦10% | 0402≧0.47μF; 0603≧0.68μF;0805≧2.2μF; 1206≧4.7μF; 1210≧22μF; TT series |
| 10V | ≦5% | ≦10% | 0402≧0.33μF; 0603≧0.33μF; 0805≧2.2μF; 1206≧2.2μF; 1210≧22μF; TT series |
| | | ≦15% | 0201≧0.1μF; 0402≧1μF |

## Capacitance Range (C0G / NP0 Dielectric)

| Dielectric | | C0G / NP0 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 0402 | | | | | 0603 | | | | | 0805 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 0.1pF (0R1) | N | N | N | N | | | | | | | | | | | |
| | 0.2pF (0R2) | N | N | N | N | | | | | | | | | | | |
| | 0.3pF (0R3) | N | N | N | N | | | | | | | | | | | |
| | 0.4pF (0R4) | N | N | N | N | | | | | | | | | | | |
| | 0.5pF (0R5) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 0.6pF (0R6) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 0.7pF (0R7) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 0.8pF (0R8) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 0.9pF (0R9) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 1.0pF (1R0) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 1.2pF (1R2) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 1.5pF (1R5) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 1.8pF (1R8) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 2.2pF (2R2) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 2.7pF (2R7) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 3.3pF (3R3) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 3.9pF (3R9) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 4.7pF (4R7) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 5.6pF (5R6) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 6.8pF (6R8) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 8.2pF (8R2) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 10pF (100) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 12pF (120) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 15pF (150) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 18pF (180) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 22pF (220) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 27pF (270) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 33pF (330) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 39pF (390) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 47pF (470) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 56pF (560) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 68pF (680) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 82pF (820) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 100pF (101) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 120pF (121) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |

| Dielectric | | C0G / NP0 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 0402 | | | | | 0603 | | | | | 0805 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 150pF (151) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 180pF (181) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 220pF (221) | N | N | N | N | N | S | S | S | S | S | A | A | A | A | A |
| | 270pF (271) | N | N | N | N | | S | S | S | S | S | A | A | A | A | A |
| | 330pF (331) | N | N | N | N | | S | S | S | S | S | A | A | A | A | A |
| | 390pF (391) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 470pF (471) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 560pF (561) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 680pF (681) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 820pF (821) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 1,000pF (102) | N | N | N | N | | S | S | S | S | S | B | B | B | B | B |
| | 1,200pF (122) | | | | | | X | X | X | X | X | B | B | B | B | B |
| | 1,500pF (152) | | | | | | X | X | X | X | X | B | B | B | B | B |
| | 1,800pF (182) | | | | | | X | X | X | X | | B | B | B | B | B |
| | 2,200pF (222) | | | | | | X | X | X | X | | B | B | B | B | B |
| | 2,700pF (272) | | | | | | X | X | X | X | | D | D | D | D | D |
| | 3,300pF (332) | | | | | | X | X | X | X | | D | D | D | D | D |
| | 3,900pF (392) | | | | | | X | X | X | X | | D | D | D | D | D |
| | 4,700pF (472) | | | | | | X | X | X | X | | D | D | D | D | D |
| | 5,600pF (562) | | | | | | X | X | X | X | | D | D | D | D | |
| | 6,800pF (682) | | | | | | X | X | X | X | | D | D | D | D | |
| | 8,200pF (822) | | | | | | X | X | X | X | | D | D | D | D | |
| | 0.010µF (103) | | | | | | X | X | X | X | | D | D | D | D | |
| | 0.012µF (123) | | | | | | | | | | | D^ | D^ | | | |
| | 0.018µF (183) | | | | | | | | | | | D | D | D | D | D |
| | 0.022µF (223) | | | | | | | | | | | D | D | D | D | D |

1. The letter in cell is expressed the symbol of product thickness.
2. The letter in cell with “A” mark is expressed product with Ag/Ni/Sn terminations

| Dielectric | | C0G / NP0 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 1206 | | | | | 1210 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 1.0pF (1R0) | | | | | | | | | | |
| | 1.2pF (1R2) | B | B | B | B | B | | | | | |
| | 1.5pF (1R5) | B | B | B | B | B | | | | | |
| | 1.8pF (1R8) | B | B | B | B | B | | | | | |

| Dielectric | | C0G / NP0 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 1206 | | | | | 1210 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 2.2pF (2R2) | B | B | B | B | B | | | | | |
| | 2.7pF (2R7) | B | B | B | B | B | | | | | |
| | 3.3pF (3R3) | B | B | B | B | B | | | | | |
| | 3.9pF (3R9) | B | B | B | B | B | | | | | |
| | 4.7pF (4R7) | B | B | B | B | B | | | | | |
| | 5.6pF (5R6) | B | B | B | B | B | | | | | |
| | 6.8pF (6R8) | B | B | B | B | B | | | | | |
| | 8.2pF (8R2) | B | B | B | B | B | | | | | |
| | 10pF (100) | B | B | B | B | B | C | C | C | C | C |
| | 12pF (120) | B | B | B | B | B | C | C | C | C | C |
| | 15pF (150) | B | B | B | B | B | C | C | C | C | C |
| | 18pF (180) | B | B | B | B | B | C | C | C | C | C |
| | 22pF (220) | B | B | B | B | B | C | C | C | C | C |
| | 27pF (270) | B | B | B | B | B | C | C | C | C | C |
| | 33pF (330) | B | B | B | B | B | C | C | C | C | C |
| | 39pF (390) | B | B | B | B | B | C | C | C | C | C |
| | 47pF (470) | B | B | B | B | B | C | C | C | C | C |
| | 56pF (560) | B | B | B | B | B | C | C | C | C | C |
| | 68pF (680) | B | B | B | B | B | C | C | C | C | C |
| | 82pF (820) | B | B | B | B | B | C | C | C | C | C |
| | 100pF (101) | B | B | B | B | B | C | C | C | C | C |
| | 120pF (121) | B | B | B | B | B | C | C | C | C | C |
| | 150pF (151) | B | B | B | B | B | C | C | C | C | C |
| | 180pF (181) | B | B | B | B | B | C | C | C | C | C |
| | 220pF (221) | B | B | B | B | B | C | C | C | C | C |
| | 270pF (271) | B | B | B | B | B | C | C | C | C | C |
| | 330pF (331) | B | B | B | B | B | C | C | C | C | C |
| | 390pF (391) | B | B | B | B | B | C | C | C | C | C |
| | 470pF (471) | B | B | B | B | B | C | C | C | C | C |
| | 560pF (561) | B | B | B | B | B | C | C | C | C | C |
| | 680pF (681) | B | B | B | B | B | C | C | C | C | C |
| | 820pF (821) | B | B | B | B | B | C | C | C | C | C |
| | 1,000pF (102) | B | B | B | B | B | C | C | C | C | C |
| | 1,200pF (122) | B | B | B | B | B | C | C | C | C | C |
| | 1,500pF (152) | B | B | B | B | B | C | C | C | C | C |

| Dielectric | | C0G / NP0 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 1206 | | | | | 1210 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 1,800pF (182) | B | B | B | B | B | C | C | C | C | C |
| | 2,200pF (222) | B | B | B | B | B | C | C | C | C | C |
| | 2,700pF (272) | B | B | B | B | B | C | C | C | C | C |
| | 3,300pF (332) | B | B | B | B | B | C | C | C | C | C |
| | 3,900pF (392) | B | B | B | B | B | C | C | C | C | C |
| | 4,700pF (472) | B | B | B | B | B | C | C | C | C | C |
| | 5,600pF (562) | B | B | B | B | B | C | C | C | C | C |
| | 6,800pF (682) | C | C | C | C | C | C | C | C | C | C |
| | 8,200pF (822) | D | D | D | D | D | C | C | C | C | C |
| | 0.010µF (103) | D | D | D | D | D | C | C | C | C | C |
| | 0.012µF (123) | T | T | T | T | | C | C | D | D | D |
| | 0.015µF (153) | T | T | T | T | | C | C | D | D | D |
| | 0.018µF (183) | T | T | T | T | | | | | | |
| | 0.022µF (223) | T | T | T | T | | | | | | |
| | 0.027µF (273) | T | T | T | T | | | | | | |
| | 0.033µF (333) | T | T | T | T | | | | | | |
| | 0.039µF (393) | J | J | J | J | | | | | | |
| | 0.047µF (473) | J | J | J | J | | | | | | |
| | 0.056µF (563) | J | J | J | J | | | | | | |
| | 0.068µF (683) | G | G | G | G | | | | | | |
| | 0.082µF (823) | G | G | G | G | | | | | | |
| | 0.1µF (104) | G | G | G | G | | | | | | |

1. The letter in cell is expressed the symbol of product thickness.

## Capacitance Range (X7R Dielectric)

| Dielectric | | X7R | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 0402 | | | | 0603 | | | | | 0805 | | | | |
| Rated Voltage (V DC) | | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 100pF (101) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 120pF (121) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 150pF (151) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 180pF (181) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 220pF (221) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 270pF (271) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 330pF (331) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |

| Dielectric | | X7R | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 0402 | | | | 0603 | | | | | 0805 | | | | |
| Rated Voltage (V DC) | | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 390pF (391) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 470pF (471) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 560pF (561) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 680pF (681) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 820pF (821) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 1,000pF (102) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 1,200pF (122) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 1,500pF (152) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 1,800pF (182) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 2,200pF (222) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 2,700pF (272) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 3,300pF (332) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 3,900pF (392) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 4,700pF (472) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 5,600pF (562) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 6,800pF (682) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 8,200pF (822) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 0.010µF (103) | N | N | N | N | S | S | S | S | S | B | B | B | B | B |
| | 0.012µF (123) | N | N | N | | S | S | S | S | | B | B | B | B | B |
| | 0.015µF (153) | N | N | N | | S | S | S | S | | B | B | B | B | B |
| | 0.018µF (183) | N | N | N | | S | S | S | S | | B | B | B | B | B |
| | 0.022µF (223) | N | N | N | | S | S | S | S | | B | B | B | B | B |
| | 0.027µF (273) | N | N | N | | S | S | S | S | | B | B | B | B | D |
| | 0.033µF (333) | N | N | N | | S | S | S | X | | B | B | B | B | D |
| | 0.039µF (393) | N | N | N | | S | S | S | X | | B | B | B | B | D |
| | 0.047µF (473) | N | N | N | | S | S | S | X | | B | B | B | B | D |
| | 0.056µF (563) | N | N | | | S | S | S | X | | B | B | B | B | D |
| | 0.068µF (683) | N | N | | | S | S | S | X | | B | B | B | B | D |
| | 0.082µF (823) | N | N | | | S | S | S | X | | B | B | B | B | D |
| | 0.10µF (104) | N | N | N | N | S | S | S | X | | B | B | B | B | D |
| | 0.12µF (124) | | | | | S | S | X | | | B | B | B | D | |
| | 0.15µF (154) | | | | | S | S | X | | | D | D | D | D | |
| | 0.18µF (184) | | | | | S | S | X | | | D | D | D | D | |
| | 0.22µF (224) | | N | | | S | S | X | | | D | D | D | D | |
| | 0.27µF (274) | | | | | X | X | X | | | D | D | D | I | |

| Dielectric | | X7R | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 0402 | | | | 0603 | | | | | 0805 | | | | |
| Rated Voltage (V DC) | | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 0.33µF (334) | | | | | X | X | X | | | D | D | D | I | |
| | 0.39µF (394) | | | | | X | X | X | | | D | D | D | I | |
| | 0.47µF (474) | | | | | X | X | X | | | D | D | D | I | |
| | 0.56µF (564) | | | | | | | | | | D | D | D | | |
| | 0.68µF (684) | | | | | | | | | | D | D | D | | |
| | 0.82µF (824) | | | | | | | | | | D | D | D | | |

1. The letter in cell is expressed the symbol of product thickness.

## Capacitance Range (X7R Dielectric)

| Dielectric | | X7R | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 1206 | | | | | 1210 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 100pF (101) | | | | | | | | | | |
| | 120pF (121) | | | | | | | | | | |
| | 150pF (151) | B | B | B | B | B | | | | | |
| | 180pF (181) | B | B | B | B | B | | | | | |
| | 220pF (221) | B | B | B | B | B | | | | | |
| | 270pF (271) | B | B | B | B | B | | | | | |
| | 330pF (331) | B | B | B | B | B | | | | | |
| | 390pF (391) | B | B | B | B | B | | | | | |
| | 470pF (471) | B | B | B | B | B | | | | | |
| | 560pF (561) | B | B | B | B | B | | | | | |
| | 680pF (681) | B | B | B | B | B | | | | | |
| | 820pF (821) | B | B | B | B | B | | | | | |
| | 1,000pF (102) | B | B | B | B | B | C | C | C | C | C |
| | 1,200pF (122) | B | B | B | B | B | C | C | C | C | C |
| | 1,500pF (152) | B | B | B | B | B | C | C | C | C | C |
| | 1,800pF (182) | B | B | B | B | B | C | C | C | C | C |
| | 2,200pF (222) | B | B | B | B | B | C | C | C | C | C |
| | 2,700pF (272) | B | B | B | B | B | C | C | C | C | C |
| | 3,300pF (332) | B | B | B | B | B | C | C | C | C | C |
| | 3,900pF (392) | B | B | B | B | B | C | C | C | C | C |
| | 4,700pF (472) | B | B | B | B | B | C | C | C | C | C |

| Dielectric | | X7R | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | 1206 | | | | | 1210 | | | | |
| Rated Voltage | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 |
| Capacitance | 5,600pF (562) | B | B | B | B | B | C | C | C | C | C |
| | 6,800pF (682) | B | B | B | B | B | C | C | C | C | C |
| | 8,200pF (822) | B | B | B | B | B | C | C | C | C | C |
| | 0.010µF (103) | B | B | B | B | B | C | C | C | C | C |
| | 0.012µF (123) | B | B | B | B | B | C | C | C | C | C |
| | 0.015µF (153) | B | B | B | B | B | C | C | C | C | C |
| | 0.018µF (183) | B | B | B | B | B | C | C | C | C | C |
| | 0.022µF (223) | B | B | B | B | B | C | C | C | C | C |
| | 0.027µF (273) | B | B | B | B | B | C | C | C | C | C |
| | 0.033µF (333) | B | B | B | B | B | C | C | C | C | C |
| | 0.039µF (393) | B | B | B | B | B | C | C | C | C | C |
| | 0.047µF (473) | B | B | B | B | B | C | C | C | C | C |
| | 0.056µF (563) | B | B | B | B | B | C | C | C | C | C |
| | 0.068µF (683) | B | B | B | B | B | C | C | C | C | C |
| | 0.082µF (823) | B | B | B | B | D | C | C | C | C | C |
| | 0.10µF (104) | B | B | B | B | D | C | C | C | C | C |
| | 0.12µF (124) | B | B | B | B | D | C | C | C | C | C |
| | 0.15µF (154) | C | C | C | C | G | C | C | C | C | D |
| | 0.18µF (184) | C | C | C | C | G | C | C | C | C | D |
| | 0.22µF (224) | C | C | C | C | G | C | C | C | C | D |
| | 0.27µF (274) | C | C | C | D | G | C | C | C | C | G |
| | 0.33µF (334) | C | C | C | D | G | C | C | C | D | G |
| | 0.39µF (394) | C | C | J | P | G | C | C | C | D | M |
| | 0.47µF (474) | J | J | J | P | G | C | C | C | D | M |
| | 0.56µF (564) | J | J | J | P | P | D | D | D | D | M |
| | 0.68µF (684) | J | J | J | P | P | D | D | D | D | K |
| | 0.82µF (824) | J | J | J | P | P | D | D | D | D | K |

1. The letter in cell is expressed the symbol of product thickness.

## Packaging Dimension And Quantity:

| Size | Thickness (mm)/Symbol | | Paper tape | | Plastic tape | |
|---|---|---|---|---|---|---|
| | | | 7" reel | 13" reel | 7" reel | 13" reel |
| 0402 (1005) | 0.5 ±0.05 | N | 10k | 50k | - | - |
| 0603 (1608) | 0.8 ±0.07 | S | 4k | 15k | - | - |
| | 0.8 +0.15/-0.1 | X | 4k | 15k | - | - |
| 0805 (2012) | 0.6 ±0.1 | A | 4k | 15k | - | - |
| | 0.8 ±0.1 | B | 4k | 15k | - | - |
| | 1.25 ±0.1 | D | - | - | 3k | 10k |
| | 1.25 ±0.2 | I | - | - | 3k | 10k |
| 1206 (3216) | 0.8 ±0.1 | B | 4k | 15k | - | - |
| | 0.95 ±0.1 | C | - | - | 3k | 10k |
| | 1.15 ±0.15 | J | - | - | 3k | 10k |
| | 1.25 ±0.1 | D | - | - | 3k | 10k |
| | 1.6 ±0.2 | G | - | - | 2k | 10k |
| | 1.6 +0.3/-0.1 | P | - | - | 2k | 9k |
| 1210 (3225) | 0.95 ±0.1 | C | - | - | 3k | 10k |
| | 1.25 ±0.1 | D | - | - | 3k | 10k |
| | 1.6 ±0.2 | G | - | - | 2k | - |
| | 2 ±0.2 | K | - | - | 1k | 6k |
| | 2.5 ±0.3 | M | - | - | 1k | 6k |

Unit : pieces

## Reliability Test Conditions and Requirements:

| No | Item | Test Condition | Requirements |
|---|---|---|---|
| 1 | Visual and Mechanical | - | No remarkable defect.<br>Dimensions to conForm to individual specification sheet. |

<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>2</td><td>Capacitance</td><td rowspan="2">Class I: NP0<br>Cap≤1,000pF 1 ±0.2Vrms, 1MHz±10%<br>Cap>1,000pF 1 ±0.2Vrms, 1KHz±10%<br>Class II: X7R<br>Cap≤10μF, 1 ±0.2Vrms, 1kHz ±10% **<br>Cap>10μF, 0.5 ±0.2Vrms, 120Hz ±20%<br><br>** Test condition: 0.5±0.2Vrms, 1KHz±10%<br>X7R: 0603≧225(10V),<br>0805=106(6.3V&10V)<br>TT18X≧475(10V) , TT15X series</td><td>Shall not exceed the limits given in the detailed spec.</td></tr>
<tr><td>3</td><td>Q/ D.F.<br>(Dissipation Factor)</td><td>NP0: Cap≥30pF, Q≥1000; Cap<30pF,Q≥400+20C<br>X7R:
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F. ≦</th></tr>
<tr><td rowspan="3">≧50V</td><td rowspan="3">≦2.5%</td><td>≦3%</td><td>0201(50V); 0603≧0.047μF;<br>0805≧0.18μF;1206≧0.47μF</td></tr>
<tr><td>≦5%</td><td>1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0603≧1μF;<br>0805≧1μF;1206≧4.7μF;<br>1210≧10μF</td></tr>
<tr><td>35V</td><td>≦3.5%</td><td>≦10%</td><td>0805≥2.2μF; 1210≧10μF</td></tr>
<tr><td rowspan="3">25V</td><td rowspan="3">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF;0805≧1μF;<br>1210≧10μF</td></tr>
<tr><td>≦7%</td><td>0603≧0.33μF; 1206≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.10μF;0603≧0.47μF;<br>0805≧2.2μF; 1206≧6.8μF ;<br>1210≧22μF; TT series</td></tr>
<tr><td rowspan="2">16V</td><td rowspan="2">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF; 0402≧0.033μF;<br>0805≧0.68μF;1206≧2.2μF;<br>1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.47μF; 0603≧0.68μF;<br>0805≧2.2μF; 1206≧4.7μF;<br>1210≧22μF; TT series</td></tr>
<tr><td rowspan="2">10V</td><td rowspan="2">≦5%</td><td>≦10%</td><td>0402≧0.33μF; 0603≧0.33μF;<br>0805≧2.2μF; 1206≧2.2μF;<br>1210≧22μF; TT series</td></tr>
<tr><td>≦15%</td><td>0201≧0.1μF; 0402≧1μF</td></tr>
</table></td></tr>
<tr><td>4</td><td>Dielectric Strength</td><td>To apply voltage (≤100V) 250%.<br>Duration: 1 to 5 sec.<br>Charge and discharge current less than 50mA.</td><td>No evidence of damage or flash over during test.</td></tr>
</table>

<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>5</td><td>Insulation Resistance</td><td>To apply rated voltage for max. 120 sec</td><td>10G or RxC≧500-F whichever is smaller<br>Class II (X7R)
<table>
<tr><th>Rated voltage</th><th>Insulation Resistance</th></tr>
<tr><td>100V: X7R</td><td rowspan="6">10G or RxC≧100ΩF whichever is smaller.</td></tr>
<tr><td>50V:0603≥1μF;0805≥1μF;1206≥4.7μF;<br>1210≥4.7μF</td></tr>
<tr><td>35V:0805≥2.2μF;1210≧10μF</td></tr>
<tr><td>25V:0402≥1μF;0603≥2.2μF;0805≥2.2μF;<br>1206≥10μF;1210≥10μF</td></tr>
<tr><td>16V:0402≥0.22μF;0603≥1μF;0805≥2.2μF;<br>1206≥10μF;1210≥47μF</td></tr>
<tr><td>10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF;<br>0805≥2.2μF; 1206≥4.7μF;1210≥47μF</td></tr>
</table></td></tr>
<tr><td>6</td><td>Temperature Coefficient</td><td>With no electrical load.
<table>
<tr><td>T.C.</td><td>Operating Temp</td></tr>
<tr><td>NPO</td><td>-55~125°C at 25°C</td></tr>
<tr><td>X7R</td><td>-55~125°C at 25°C</td></tr>
</table></td><td>
<table>
<tr><td>T.C.</td><td>Capacitance Change</td></tr>
<tr><td>NPO</td><td>Within ±30ppm/°C</td></tr>
<tr><td>X7R</td><td>Within ±15%</td></tr>
</table></td></tr>
<tr><td>7</td><td>Adhesive Strength of Termination</td><td>Pressurizing force:<br>5N (≤0603) and 10N (>0603)<br>Test time: 10±1 sec.</td><td>No remarkable damage or removal of the terminations</td></tr>
<tr><td>8</td><td>Vibration Resistance</td><td>Vibration frequency: 10~55 Hz/min.<br>Total amplitude: 1.5mm<br>Test time: 6 hrs. (Two hrs each in three mutually perpendicular directions.)<br>Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>No remarkable damage.<br>Cap change and Q/D.F.: To meet initial spec.</td></tr>
<tr><td>9</td><td>Solderability</td><td>Solder temperature : 235 ±5°C<br>Dipping time : 2 ±0.5 sec.</td><td>95% min. coverage of all metalized area.</td></tr>
<tr><td>10</td><td>Bending Test</td><td>The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm per second until the deflection becomes 1mm and then the pressure shall be maintained for 5 ±1 sec.<br>Measurement to be made after keeping at room temp. for 24 ±2 hrs.</td><td>No remarkable damage.<br>Cap change:<br>NP0: within ±5% or 0.5pF whichever is larger<br>X7R: within ±12.5%<br>(This capacitance change means the change of capacitance under specified flexure of substrate from the capacitance measured before the test.)</td></tr>
<tr><td>11</td><td>Temperature Cycle</td><td>Conduct the five cycles according to the temperatures and time.
<table>
<tr><th>Step</th><th>Temp. (°C)</th><th>Time (min.)</th></tr>
<tr><td>1</td><td>Min. operating temp. +0/-3</td><td>30±3</td></tr>
<tr><td>2</td><td>Room temp.</td><td>2~3</td></tr>
<tr><td>3</td><td>Max. operating temp. +3/-0</td><td>30±3</td></tr>
<tr><td>4</td><td>Room temp.</td><td>2~3</td></tr>
</table></td><td>No remarkable damage.<br>Cap change:<br>NP0: within ±2.5% or 0.25pF whichever is larger<br>X7R: within ±7.5%<br>Q/D.F., I.R. and dielectric strength: To meet initial requirements.</td></tr>
</table>

<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>11</td><td>Temperature Cycle</td><td>Before initial measurement (Class II only): Perform 150 +0/-10°C for 1 hour and then set for 24 ±2hrs at room temp.<br>Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td></td></tr>
<tr><td>12</td><td>Resistance to Soldering Heat</td><td>Solder temperature: 260 ±5°C<br>Dipping time: 10 ±1sec<br>Preheating: 120 to 150°C for 1 minute before immerse the capacitor in a eutectic solder.<br>Before initial measurement (Class II only): Perform 150+0/-10°C for 1 hr and then set for 24 ±2hrs at room temp.<br>Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>No remarkable damage.<br>Cap change:<br>NP0: within ±2.5% or 0.25pF whichever is larger<br>X7R: within ±7.5%<br>Q/D.F., I.R. and dielectric strength: To meet initial requirements<br>25% max. leaching on each edge.</td></tr>
<tr><td>13</td><td>Humidity (Damp Heat) Steady State</td><td>Test temp.: 40±2°C<br>Humidity: 90~95% RH<br>Test time: 500+24/-0hrs.<br>Before initial measurement (Class II only): Perform 150+0/-10°C for 1 hour and then set for 24 ±2 hrs at room temp.<br>Measurement to be made after<br>keeping at room temp. for 24 ±2 hrs.</td><td>No remarkable damage.<br>Cap change: NP0 : within ±5% or 0.5pF whichever is larger<br>X7R : ≥10V**,within ±12.5%;6.3V within ±25%;<br>Q/D.F. value: NP0: More than 30pF Q≥350, 10pF≤C≤30pF, Q≥275+2.5C. Less than 10pF Q≥200+10C<br>X7R:
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F. ≦</th></tr>
<tr><td rowspan="3">≧50V</td><td rowspan="3">≦2.5%</td><td>≦3%</td><td>0201(50V); 0603≧0.047μF; 0805≧0.18μF;1206≧0.47μF</td></tr>
<tr><td>≦5%</td><td>1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0603≧1μF; 0805≧1μF;1206≧4.7μF; 1210≧10μF</td></tr>
<tr><td>35V</td><td>≦3.5%</td><td>≦10%</td><td>0805≥2.2μF; 1210≧10μF</td></tr>
<tr><td rowspan="3">25V</td><td rowspan="3">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF;0805≧1μF; 1210≧10μF</td></tr>
<tr><td>≦7%</td><td>0603≧0.33μF; 1206≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.10μF;0603≧0.47μF; 0805≧2.2μF; 1206≧6.8μF ; 1210≧22μF</td></tr>
<tr><td rowspan="2">16V</td><td rowspan="2">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF; 0402≧0.033μF; 0805≧0.68μF;1206≧2.2μF ;1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.47μF; 0603≧0.68μF;0805≧2.2μF; 1206≧4.7μF; 1210≧22μF; TT series</td></tr>
<tr><td rowspan="2">10V</td><td rowspan="2">≦5%</td><td>≦10%</td><td>0402≧0.33μF; 0603≧0.33μF; 0805≧2.2μF; 1206≧2.2μF; 1210≧22μF; TT series</td></tr>
<tr><td>≦15%</td><td>0201≧0.1μF; 0402≧1μF</td></tr>
</table></td></tr>
</table>

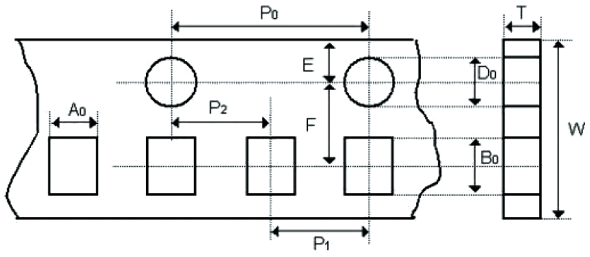
<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>13</td><td>Humidity (Damp Heat) Steady State</td><td></td><td>*I.R.: ≥10V, 1GΩ or 50Ω-F whichever is smaller.<br>Class II (X7R)
<table>
<tr><th>Rated voltage</th><th>Insulation Resistance</th></tr>
<tr><td>100V: X7R</td><td rowspan="6">1GΩ or RxC≧ 10Ω-F whichever is smaller.</td></tr>
<tr><td>50V:0603≥1μF;0805≥1μF;1206≥4.7μF; 1210≥4.7μF</td></tr>
<tr><td>35V:0805≥2.2μF;1210≧10μF</td></tr>
<tr><td>25V:0402≥1μF;0603≥2.2μF;0805≥2.2μF; 1206≥10μF;1210≥10μF</td></tr>
<tr><td>16V:0402≥0.22μF;0603≥1μF;0805≥2.2μF; 1206≥10μF;1210≥47μF</td></tr>
<tr><td>10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF;1210≥47μF</td></tr>
</table></td></tr>
<tr><td>14</td><td>Humidity (Damp Heat) Load</td><td>Test temp.: 40±2°C<br>Humidity: 90~95%RH<br>Test time: 500+24/-0 hrs.<br>To apply voltage : rated voltage.<br>Before initial measure-ment (Class II only): To apply test voltage for 1hr at 40°C and then set for 24±2 hrs at room temp.<br>Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>No remarkable damage.<br>Cap change: NP0 : within ±7.5% or 0.75pF whichever is larger<br>X7R : ≥10V**,within ±12.5%;6.3V within ±25%;<br>Q/D.F. value: NP0: C≥30pF, Q≥200; C<30pF, Q≥100+10/3C<br>X7R:
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F. ≦</th></tr>
<tr><td rowspan="3">≧50V</td><td rowspan="3">≦2.5%</td><td>≦3%</td><td>0201(50V); 0603≧0.047μF; 0805≧0.18μF;1206≧0.47μF</td></tr>
<tr><td>≦5%</td><td>1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0603≧1μF; 0805≧1μF;1206≧4.7μF; 1210≧10μF</td></tr>
<tr><td>35V</td><td>≦3.5%</td><td>≦10%</td><td>0805≥2.2μF; 1210≧10μF</td></tr>
<tr><td rowspan="3">25V</td><td rowspan="3">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF;0805≧1μF; 1210≧10μF</td></tr>
<tr><td>≦7%</td><td>0603≧0.33μF; 1206≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.10μF;0603≧0.47μF; 0805≧2.2μF; 1206≧6.8μF ; 1210≧22μF</td></tr>
<tr><td rowspan="2">16V</td><td rowspan="2">≦3.5%</td><td>≦5%</td><td>0201≧0.01μF; 0402≧0.033μF; 0805≧0.68μF;1206≧2.2μF ;1210≧4.7μF</td></tr>
<tr><td>≦10%</td><td>0402≧0.47μF; 0603≧0.68μF;0805≧2.2μF; 1206≧4.7μF; 1210≧22μF; TT series</td></tr>
<tr><td rowspan="2">10V</td><td rowspan="2">≦5%</td><td>≦10%</td><td>0402≧0.33μF; 0603≧0.33μF; 0805≧2.2μF; 1206≧2.2μF; 1210≧22μF; TT series</td></tr>
<tr><td>≦15%</td><td>0201≧0.1μF; 0402≧1μF</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>14</td><td>Humidity (Damp Heat) Load</td><td></td><td>I.R.: ≥10V, 500MΩ or 25Ω-F whichever is smaller.<br>Class II (X7R)
<table>
<tr><th>Rated voltage</th><th>Insulation Resistance</th></tr>
<tr><td>100V: X7R</td><td rowspan="6">500MΩ or RxC≧ 5Ω-F whichever is smaller.</td></tr>
<tr><td>50V:0603≥1μF;0805≥1μF;1206≥4.7μF; 1210≥4.7μF</td></tr>
<tr><td>35V:0805≥2.2μF;1210≧10μF</td></tr>
<tr><td>25V:0402≥1μF;0603≥2.2μF;0805≥2.2μF;<br>1206≥10μF;1210≥10μF</td></tr>
<tr><td>16V:0402≥0.22μF;0603≥1μF;0805≥2.2μF;<br>1206≥10μF;1210≥47μF</td></tr>
<tr><td>10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF;<br>0805≥2.2μF; 1206≥4.7μF;1210≥47μF</td></tr>
</table></td></tr>
<tr><td>15</td><td>High Temperature Load (Endurance)</td><td>Test temp.:<br>NP0, X7R : 125 ±3°C<br>Test time: 1000+24/-0 hrs.<br>To apply voltage<br>(1) 6.3V or C≧10μF or TT series: 150% of rated voltage.<br>(2) 10V ≦ Ur<500V: 200% of rated voltage.<br>(3) 500V: 150% of rated voltage.<br>(4) Ur≧630V: 120% of rated voltage.</td><td>No remarkable damage.<br>Cap change: NP0 : ±3.0% or ±0.3pF whichever is larger<br>X7R : ≥10V**,within ±12.5%;6.3V within ±25%;<br>Q/D.F. value: NP0: More than 30pF, Q≥350; 10pF≤C<30pF, Q≥275+2.5C;<br>Less than 10pF, Q≥200+10C</td></tr>
</table>

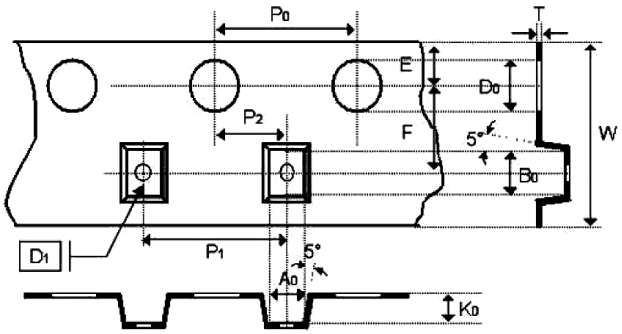
<table>
<tr><th>No</th><th>Item</th><th>Test Condition</th><th>Requirements</th></tr>
<tr><td>15</td><td>High Temperature Load (Endurance)</td><td>
(5) 100% of rated voltage for below range.
<table>
<tr><th>Size</th><th>Dielectric</th><th>Rated voltage</th><th>Capaci-tance range</th></tr>
<tr><td>0201</td><td>X7R</td><td>6.3V,10V</td><td>C≧0.1μF</td></tr>
<tr><td>0402</td><td>X7R</td><td>6.3V,10V</td><td>C≧1.0μF</td></tr>
<tr><td>0603</td><td>X7R</td><td>6.3V,10V</td><td>C≧4.7μF</td></tr>
<tr><td>0805</td><td>X7R</td><td>6.3V</td><td>C≧22μF</td></tr>
<tr><td rowspan="2">1206</td><td>X7R</td><td>6.3V</td><td>C≧47μF</td></tr>
<tr><td>NP0</td><td>3000V</td><td>C≧1.5pF</td></tr>
</table>
(6) 150% of rated voltage for below range.
<table>
<tr><th>Size</th><th>Dielectric</th><th>Rated voltage</th><th>Capaci-tance range</th></tr>
<tr><td>0402</td><td>X7R</td><td>10V,16V, 25V</td><td>C≧0.22μF</td></tr>
<tr><td>0603</td><td>X7R</td><td>10V,16V</td><td>C≧1μF</td></tr>
<tr><td>1206</td><td>X7R</td><td>10V</td><td>C≧4.7μF</td></tr>
</table>
Before initial measurement (Class II only): To apply test voltage for 1hr at test temp. and then set for 24 ±2 hrs at room temp<br><br>Measurement to be made after keeping at room temp. for 24 ±2hrs
</td><td>
X7R:
<table>
<tr><th>Rated vol.</th><th>D.F.≦</th><th colspan="2">Exception of D.F. ≦</th></tr>
<tr><td rowspan="3">≧50V</td><td rowspan="3">≦3%</td><td>≦6%</td><td>0201(50V); 0603≧0.047μF; 0805≧0.18μF;1206≧0.47μF</td></tr>
<tr><td>≦10%</td><td>1210≧4.7μF</td></tr>
<tr><td>≦20%</td><td>0603≧1μF; 0805≧1μF;1206≧4.7μF; 1210≧10μF</td></tr>
<tr><td>35V</td><td>≦5%</td><td>≦20%</td><td>0805≥2.2μF; 1210≧10μF</td></tr>
<tr><td rowspan="3">25V</td><td rowspan="3">≦5%</td><td>≦10%</td><td>0201≧0.01μF;0805≧1μF; 1210≧10μF</td></tr>
<tr><td>≦14%</td><td>0603≧0.33μF; 1206≧4.7μF</td></tr>
<tr><td>≦15%</td><td>0402≧0.10μF;0603≧0.47μF; 0805≧2.2μF;1206≧6.8μF; 1210≧22μF</td></tr>
<tr><td rowspan="2">16V</td><td rowspan="2">≦5%</td><td>≦10%</td><td>0603≧0.15μF;0805≧0.68μF; 1206≧2.2μF;1210≧4.7μF</td></tr>
<tr><td>≦15%</td><td>0201≧0.01μF;0402≧0.033μF; 0603≧0.68μF;0805≧2.2μF; 1206≧4.7μF; 1210≧22μF</td></tr>
<tr><td rowspan="2">10V</td><td rowspan="2">≦75%</td><td>≦15%</td><td>0201≧0.012μF;0402≧0.33μF; 0603≧0.33μF; 0805≧2.2μF; 1206≧2.2μF; 1210≧22μF</td></tr>
<tr><td>≦20%</td><td>0201≧0.1μF; 0402≧1μF</td></tr>
</table>
I.R.: ≥10V, 1GΩ or 50Ω -F whichever is smaller<br>Class II (X7R)
<table>
<tr><th>Rated voltage</th><th>Insulation Resistance</th></tr>
<tr><td>100V: X7R</td><td rowspan="6">1GΩ or RxC≧ 10ΩF whichever is smaller.</td></tr>
<tr><td>50V:0603≥1μF;0805≥1μF;1206≥4.7μF; 1210≥4.7μF</td></tr>
<tr><td>35V:0805≥2.2μF;1210≧10μF</td></tr>
<tr><td>25V:0402≥1μF;0603≥2.2μF;0805≥2.2μF; 1206≥10μF;1210≥10μF</td></tr>
<tr><td>16V:0402≥0.22μF;0603≥1μF;0805≥2.2μF; 1206≥10μF;1210≥47μF</td></tr>
<tr><td>10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF;1210≥47μF</td></tr>
</table>
</td></tr>
</table>

## Appendixes

### Tape & Reel Dimensions

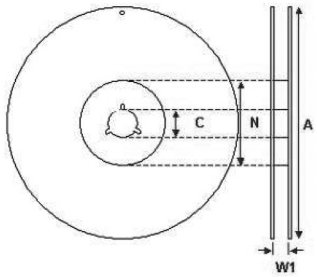



The dimension of paper tape




The dimension of plastic tape

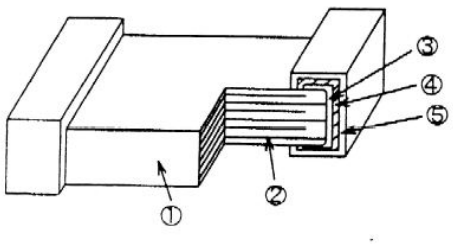
| Size | 0402 | 0603 | 0805 | | | 1206 | | | 1210 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Thickness | N | S, X | A | B | C, D, I | B | C, J, D | G | C, D, G | M |
| $A_0$ | 0.62±0.05 | 1.02 ±0.05 | 1.5 ±0.10 | 1.5 ±0.1 | <1.57 | 2 ±0.1 | <1.85 | <1.95 | <2.97 | <2.97 |
| $B_0$ | 1.12±0.05 | 1.80 ±0.05 | 2.3 ±0.10 | 2.3 ±0.1 | <2.40 | 3.5 ±0.1 | <3.46 | <3.67 | <3.73 | <3.73 |
| T | 0.60±0.05 | 0.95 ±0.05 | 0.75 ±0.05 | 0.95 ±0.05 | 0.23 ±0.05 | 0.95 ±0.05 | 0.23±0.05 | 0.23 ±0.05 | 0.23 ±0.05 | 0.23 ±0.05 |
| $K_0$ | - | - | - | - | <2.50 | - | <2.5 | <2.5 | <2.5 | <3 |
| W | 8 ±0.1 | 8 ±0.1 | 8 ±0.1 | 8 ±0.10 | 8 ±0.1 | 8 ±0.1 | 8 ±0.1 | 8 ±0.1 | 8 ±0.1 | 8 ±0.1 |
| $P_0$ | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.10 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 |
| 10x$P_0$ | 40 ±0.1 | 40 ±0.1 | 40 ±0.1 | 40 ±0.10 | 40 ±0.1 | 40 ±0.1 | 40 ±0.1 | 40 ±0.1 | 40 ±0.1 | 40 ±0.1 |
| $P_1$ | 2 ±0.05 | 4 ±0.1 | 4 ±0.1 | 4 ±0.10 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 | 4 ±0.1 |
| $P_2$ | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 | 2 ±0.05 |
| $D_0$ | 1.55±0.05 | 1.55 ±0.05 | 1.55 ±0.05 | 1.55±0.05 | 1.5 ±0.05 | 1.5 ±0.05 | 1.5 ±0.05 | 1.5 ±0.05 | 1.5 ±0.05 | 1.5 ±0.05 |
| $D_1$ | - | - | - | - | 1 ±0.1 | - | 1 ±0.1 | 1 ±0.1 | 1 ±0.1 | 1 ±0.1 |
| E | 1.75±0.05 | 1.75 ±0.05 | 1.75 ±0.05 | 1.75 ±0.05 | 1.75 ±0.1 | 1.75 ±0.1 | 1.75 ±0.1 | 1.75 ±0.1 | 1.75 ±0.1 | 1.75 ±0.1 |
| F | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 | 3.5 ±0.05 |




The dimension of reel

| Size | 0402, 0603, 0805, 1206, 1210 | | |
|---|---|---|---|
| Reel size | 7” | 10” | 13” |
| C | 13 +0.5/-0.2 | 13 +0.5/-0.2 | 13 +0.5/-0.2 |
| $W_1$ | 8.4 +1.5/-0 | 8.4 +1.5/-0 | 8.4 +1.5/-0 |
| A | 178 ±0.10 | 250 ±1 | 330 ±1 |
| N | 60 +1/-0 | 100 ±1 | 100 ±1 |

## Constructions:




| No. | Name | | NP0* | NP0 |
|---|---|---|---|---|
| 1 | Ceramic material | | $BaTiO_3$ based | |
| 2 | Inner electrode | | AgPd alloy | Ni |
| 3 | Termination | Inner layer | Ag | Cu |
| 4 | | Middle layer | Ni | |
| 5 | | Outer layer | Sn | |

* Partial NPO items are with Ag/Ni/Sn terminations, please ref to product range of NPO dielectric for detail.

**Storage and handling conditions**

(1) To store products at 5°C to 40°C ambient temperature and 20 to 70%. related humidity conditions.

(2) The product is recommended to be used within one year after shipment. Check solderability in case of shelf life extension is needed.

**Cautions:**

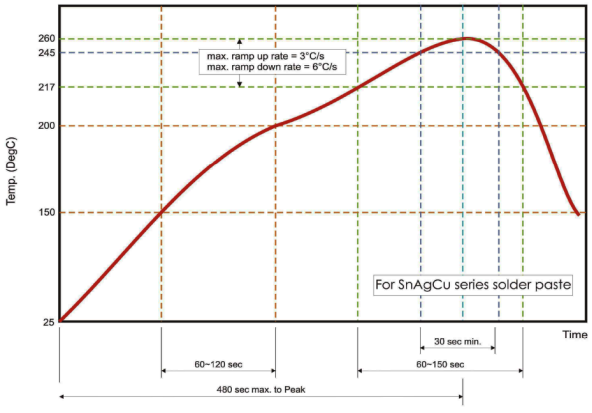
a. The corrosive gas reacts on the terminal electrodes of capacitors, and results in the poor solderability. Do not store the capacitors in the ambience of corrosive gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas etc.)

b. In corrosive atmosphere, solderability might be degraded, and silver migration might occur to cause low reliability.

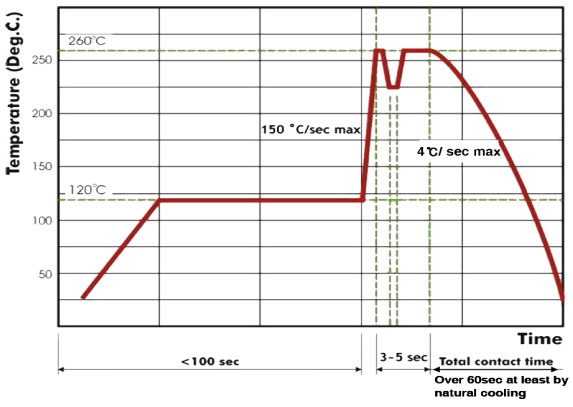
c. Due to the dewing by rapid humidity change, or the photochemical change of the terminal electrode by direct sunlight,the solderability and electrical performance may deteriorate. Do not store capacitors under direct sunlight or dewing condition. To store products on the shelf and avoid exposure to moisture.

## Recommended Soldering Conditions:

The lead-free termination MLCCs are not only to be used on SMT against lead-free solder paste, but also suitable against lead-containing solder paste. If the optimized solder joint is requested, increasing soldering time, temperature and concentration of $N_2$ within oven are recommended.




Recommended reflow soldering profile for SMT process with SnAgCu series solder paste.




Recommended wave soldering profile for SMT process with SnAgCu series solder.

## Part Number Table

| Description | Part Number |
|---|---|
| CAP, MLCC, X7R, 1NF, 50V, 0402 | MC0402B102J500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0402, REEL | MC0402B102J500CT |
| CAP, MLCC, X7R, 1NF, 16V, 0402, REEL | MC0402B102K160CT |
| CAP, MLCC, X7R, 1NF, 16V, 0402 | MC0402B102K160CT |
| CAP, MLCC, X7R, 1NF, 50V, 0402 | MC0402B102K500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0402, REEL | MC0402B102K500CT |
| CAP, MLCC, X7R, 10NF, 16V, 0402, REEL | MC0402B103J160CT |
| CAP, MLCC, X7R, 10NF, 16V, 0402 | MC0402B103J160CT |
| CAP, MLCC, X7R, 10NF, 25V, 0402 | MC0402B103K250CT |
| CAP, MLCC, X7R, 10NF, 25V, 0402, REEL | MC0402B103K250CT |
| CAP, MLCC, X7R, 100NF, 16V, 0402 | MC0402B104K160CT |
| CAP, MLCC, X7R, 100NF, 16V, 0402, REEL | MC0402B104K160CT |
| CAP, MLCC, X7R, 100NF, 25V, 0402 | MC0402B104K250CT |
| CAP, MLCC, X7R, 100NF, 25V, 0402, REEL | MC0402B104K250CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0402 | MC0402B152J500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0402, REEL | MC0402B152J500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0402, REEL | MC0402B152K500CT |
| CAP, MLCC, X7R, 220PF, 50V, 0402, REEL | MC0402B221K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0402 | MC0402B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0402, REEL | MC0402B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0402 | MC0402B222K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0402, REEL | MC0402B222K500CT |
| CAP, MLCC, X7R, 22NF, 16V, 0402 | MC0402B223K160CT |
| CAP, MLCC, X7R, 22NF, 16V, 0402, REEL | MC0402B223K160CT |
| CAP, MLCC, X7R, 330PF, 50V, 0402, REEL | MC0402B331J500CT |
| CAP, MLCC, X7R, 330PF, 50V, 0402 | MC0402B331J500CT |
| CAP, MLCC, X7R, 330PF, 50V, 0402, REEL | MC0402B331K500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0402, REEL | MC0402B332K500CT |
| CAP, MLCC, X7R, 470PF, 50V, 0402 | MC0402B471J500CT |
| CAP, MLCC, X7R, 470PF, 50V, 0402, REEL | MC0402B471J500CT |
| CAP, MLCC, X7R, 470PF, 50V, 0402, REEL | MC0402B471K500CT |
| CAP, MLCC, X7R, 4.7NF, 25V, 0402 | MC0402B472K250CT |
| CAP, MLCC, X7R, 4.7NF, 25V, 0402, REEL | MC0402B472K250CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0402 | MC0402B472K500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0402, REEL | MC0402B472K500CT |
| CAP, MLCC, X7R, 560PF, 50V, 0402, REEL | MC0402B561K500CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V, 0402 | MC0402N100J500CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V,0402, REEL | MC0402N100J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 25V,0402,REEL | MC0402N101J250CT |
| CAP, MLCC, C0G/NP0, 100PF, 25V, 0402 | MC0402N101J250CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V, 0402 | MC0402N101J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V,0402,REEL | MC0402N101J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V, 0402 | MC0402N101K500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V,0402,REEL | MC0402N101K500CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V, 0402 | MC0402N120J500CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V,0402, REEL | MC0402N120J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V, 0402 | MC0402N150J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V,0402, REEL | MC0402N150J500CT |
| CAP, MLCC, C0G/NP0, 150PF, 50V,0402,REEL | MC0402N151J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V, 0402 | MC0402N180J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V,0402, REEL | MC0402N180J500CT |
| CAP, MLCC, C0G/NP0, 20PF, 50V, 0402 | MC0402N200J500CT |
| CAP, MLCC, C0G/NP0, 20PF, 50V,0402, REEL | MC0402N200J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V, 0402 | MC0402N220J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V,0402, REEL | MC0402N220J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V, 0402 | MC0402N221J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V,0402,REEL | MC0402N221J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V, 0402 | MC0402N270J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V,0402, REEL | MC0402N270J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V, 0402 | MC0402N330J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V,0402, REEL | MC0402N330J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V, 0402 | MC0402N331J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V,0402,REEL | MC0402N331J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V, 0402 | MC0402N470J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V,0402, REEL | MC0402N470J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V, 0402 | MC0402N471J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V,0402,REEL | MC0402N471J500CT |
| CAP, MLCC, C0G/NP0, 56PF, 50V,0402, REEL | MC0402N560J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V, 0402 | MC0402N680J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V,0402, REEL | MC0402N680J500CT |
| CAP, MLCC, X7R, 1NF, 100V, 0603, REEL | MC0603B102J101CT |
| CAP, MLCC, X7R, 1NF, 100V, 0603 | MC0603B102J101CT |
| CAP, MLCC, X7R, 1NF, 50V, 0603 | MC0603B102J500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0603, REEL | MC0603B102J500CT |
| CAP, MLCC, X7R, 1NF, 100V, 0603 | MC0603B102K101CT |
| CAP, MLCC, X7R, 1NF, 100V, 0603, REEL | MC0603B102K101CT |
| CAP, MLCC, X7R, 1NF, 50V, 0603 | MC0603B102K500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0603, REEL | MC0603B102K500CT |
| CAP, MLCC, X7R, 10NF, 100V, 0603 | MC0603B103J101CT |
| CAP, MLCC, X7R, 10NF, 100V, 0603, REEL | MC0603B103J101CT |
| CAP, MLCC, X7R, 10NF, 50V, 0603 | MC0603B103J500CT |
| CAP, MLCC, X7R, 10NF, 50V, 0603, REEL | MC0603B103J500CT |
| CAP, MLCC, X7R, 10NF, 100V, 0603 | MC0603B103K101CT |

| | |
|---|---|
| CAP, MLCC, X7R, 10NF, 100V, 0603, REEL | MC0603B103K101CT |
| CAP, MLCC, X7R, 10NF, 16V, 0603, REEL | MC0603B103K160CT |
| CAP, MLCC, X7R, 10NF, 16V, 0603 | MC0603B103K160CT |
| CAP, MLCC, X7R, 10NF, 25V, 0603, REEL | MC0603B103K250CT |
| CAP, MLCC, X7R, 10NF, 25V, 0603 | MC0603B103K250CT |
| CAP, MLCC, X7R, 10NF, 50V, 0603 | MC0603B103K500CT |
| CAP, MLCC, X7R, 10NF, 50V, 0603, REEL | MC0603B103K500CT |
| CAP, MLCC, X7R, 100NF, 16V, 0603 | MC0603B104J160CT |
| CAP, MLCC, X7R, 100NF, 16V, 0603, REEL | MC0603B104J160CT |
| CAP, MLCC, X7R, 100NF, 25V, 0603 | MC0603B104J250CT |
| CAP, MLCC, X7R, 100NF, 25V, 0603, REEL | MC0603B104J250CT |
| CAP, MLCC, X7R, 100NF, 50V, 0603 | MC0603B104J500CT |
| CAP, MLCC, X7R, 100NF, 50V, 0603, REEL | MC0603B104J500CT |
| CAP, MLCC, X7R, 100NF, 16V, 0603 | MC0603B104K160CT |
| CAP, MLCC, X7R, 100NF, 16V, 0603, REEL | MC0603B104K160CT |
| CAP, MLCC, X7R, 100NF, 25V, 0603 | MC0603B104K250CT |
| CAP, MLCC, X7R, 100NF, 25V, 0603, REEL | MC0603B104K250CT |
| CAP, MLCC, X7R, 100NF, 50V, 0603 | MC0603B104K500CT |
| CAP, MLCC, X7R, 100NF, 50V, 0603, REEL | MC0603B104K500CT |
| CAP, MLCC, X7R, 1UF, 16V, 0603 | MC0603B105K160CT |
| CAP, MLCC, X7R, 1UF, 16V, 0603, REEL | MC0603B105K160CT |
| CAP, MLCC, X7R, 1.5NF, 100V, 0603 | MC0603B152J101CT |
| CAP, MLCC, X7R, 1.5NF, 100V, 0603, REEL | MC0603B152J101CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0603 | MC0603B152J500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0603, REEL | MC0603B152J500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0603 | MC0603B152K500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0603, REEL | MC0603B152K500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0603 | MC0603B153J500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0603, REEL | MC0603B153J500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0603 | MC0603B153K500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0603, REEL | MC0603B153K500CT |
| CAP, MLCC, X7R, 150NF, 10V, 0603 | MC0603B154K100CT |
| CAP, MLCC, X7R, 150NF, 10V, 0603, REEL | MC0603B154K100CT |
| CAP, MLCC, X7R, 220PF, 50V, 0603 | MC0603B221K500CT |
| CAP, MLCC, X7R, 220PF, 50V, 0603, REEL | MC0603B221K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0603, REEL | MC0603B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0603 | MC0603B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 0603 | MC0603B222K101CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 0603, REEL | MC0603B222K101CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0603 | MC0603B222K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0603, REEL | MC0603B222K500CT |
| CAP, MLCC, X7R, 22NF, 25V, 0603 | MC0603B223K250CT |
| CAP, MLCC, X7R, 22NF, 25V, 0603, REEL | MC0603B223K250CT |
| CAP, MLCC, X7R, 22NF, 50V, 0603 | MC0603B223K500CT |
| CAP, MLCC, X7R, 22NF, 50V, 0603, REEL | MC0603B223K500CT |
| CAP, MLCC, X7R, 220NF, 10V, 0603 | MC0603B224K100CT |
| CAP, MLCC, X7R, 220NF, 10V, 0603, REEL | MC0603B224K100CT |
| CAP, MLCC, X7R, 220NF, 25V, 0603 | MC0603B224K250CT |
| CAP, MLCC, X7R, 220NF, 25V, 0603, REEL | MC0603B224K250CT |
| CAP, MLCC, X7R, 330PF, 100V, 0603, REEL | MC0603B331K101CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0603, REEL | MC0603B332J500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0603 | MC0603B332J500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0603 | MC0603B332K500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0603, REEL | MC0603B332K500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0603 | MC0603B333J500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0603, REEL | MC0603B333J500CT |
| CAP, MLCC, X7R, 33NF, 25V, 0603 | MC0603B333K250CT |
| CAP, MLCC, X7R, 33NF, 25V, 0603, REEL | MC0603B333K250CT |
| CAP, MLCC, X7R, 33NF, 50V, 0603 | MC0603B333K500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0603, REEL | MC0603B333K500CT |
| CAP, MLCC, X7R, 470PF, 100V, 0603, REEL | MC0603B471J101CT |
| CAP, MLCC, X7R, 470PF, 100V, 0603 | MC0603B471J101CT |
| CAP, MLCC, X7R, 470PF, 100V, 0603, REEL | MC0603B471K101CT |
| CAP, MLCC, X7R, 470PF, 50V, 0603, REEL | MC0603B471K500CT |
| CAP, MLCC, X7R, 470PF, 50V, 0603 | MC0603B471K500CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 0603 | MC0603B472J101CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 0603, REEL | MC0603B472J101CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0603, REEL | MC0603B472J500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0603 | MC0603B472J500CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 0603 | MC0603B472K101CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 0603, REEL | MC0603B472K101CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0603 | MC0603B472K500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0603, REEL | MC0603B472K500CT |
| CAP, MLCC, X7R, 47NF, 25V, 0603 | MC0603B473J250CT |
| CAP, MLCC, X7R, 47NF, 25V, 0603, REEL | MC0603B473J250CT |
| CAP, MLCC, X7R, 47NF, 16V, 0603, REEL | MC0603B473K160CT |
| CAP, MLCC, X7R, 47NF, 25V, 0603 | MC0603B473K250CT |
| CAP, MLCC, X7R, 47NF, 25V, 0603, REEL | MC0603B473K250CT |
| CAP, MLCC, X7R, 47NF, 50V, 0603 | MC0603B473K500CT |
| CAP, MLCC, X7R, 47NF, 50V, 0603, REEL | MC0603B473K500CT |
| CAP, MLCC, X7R, 470NF, 25V, 0603 | MC0603B474K250CT |
| CAP, MLCC, X7R, 470NF, 25V, 0603, REEL | MC0603B474K250CT |
| CAP, MLCC, X7R, 680PF, 50V, 0603, REEL | MC0603B681K500CT |
| CAP, MLCC, X7R, 680PF, 50V, 0603 | MC0603B681K500CT |

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| CAP, MLCC, X7R, 6.8NF, 50V, 0603 | MC0603B682K500CT |
| CAP, MLCC, X7R, 6.8NF, 50V, 0603, REEL | MC0603B682K500CT |
| CAP, MLCC, X7R, 68NF, 50V, 0603 | MC0603B683K500CT |
| CAP, MLCC, X7R, 68NF, 50V, 0603, REEL | MC0603B683K500CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V, 0603 | MC0603N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V,0603,REEL | MC0603N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V, 0603 | MC0603N100J500CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V,0603, REEL | MC0603N100J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 100V, 0603 | MC0603N101J101CT |
| CAP, MLCC,C0G/NP0, 100PF,100V,0603,REEL | MC0603N101J101CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V, 0603 | MC0603N101J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V,0603,REEL | MC0603N101J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 0603 | MC0603N102J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 0603, REEL | MC0603N102J500CT |
| CAP, MLCC, C0G/NP0, 12PF, 100V, 0603 | MC0603N120J101CT |
| CAP, MLCC, C0G/NP0, 12PF, 100V,0603,REEL | MC0603N120J101CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V, 0603 | MC0603N120J500CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V,0603, REEL | MC0603N120J500CT |
| CAP, MLCC, C0G/NP0, 120PF, 50V, 0603 | MC0603N121J500CT |
| CAP, MLCC, C0G/NP0, 120PF, 50V,0603,REEL | MC0603N121J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 100V,0603,REEL | MC0603N150J101CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V, 0603 | MC0603N150J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V,0603, REEL | MC0603N150J500CT |
| CAP, MLCC, C0G/NP0, 150PF, 50V,0603,REEL | MC0603N151J500CT |
| CAP, MLCC, C0G/NP0, 150PF, 50V, 0603 | MC0603N151J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 100V, 0603 | MC0603N180J101CT |
| CAP, MLCC, C0G/NP0, 18PF, 100V,0603,REEL | MC0603N180J101CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V, 0603 | MC0603N180J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V,0603, REEL | MC0603N180J500CT |
| CAP, MLCC, C0G/NP0, 180PF, 50V,0603,REEL | MC0603N181J500CT |
| CAP, MLCC, C0G/NP0, 180PF, 50V, 0603 | MC0603N181J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V, 0603 | MC0603N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V,0603,REEL | MC0603N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V, 0603 | MC0603N220J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V,0603, REEL | MC0603N220J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V, 0603 | MC0603N220K500CT |
| CAP, MLCC,C0G/NP0, 220PF,100V,0603,REEL | MC0603N221J101CT |
| CAP, MLCC, C0G/NP0, 220PF, 100V, 0603 | MC0603N221J101CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V,0603,REEL | MC0603N221J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V, 0603 | MC0603N221J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 100V,0603,REEL | MC0603N270J101CT |
| CAP, MLCC, C0G/NP0, 27PF, 100V, 0603 | MC0603N270J101CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V,0603, REEL | MC0603N270J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V, 0603 | MC0603N270J500CT |
| CAP, MLCC, C0G/NP0, 270PF, 50V, 0603 | MC0603N271J500CT |
| CAP, MLCC, C0G/NP0, 270PF, 50V,0603,REEL | MC0603N271J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 100V,0603,REEL | MC0603N330J101CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V,0603, REEL | MC0603N330J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V, 0603 | MC0603N330J500CT |
| CAP, MLCC,C0G/NP0, 330PF,100V,0603,REEL | MC0603N331J101CT |
| CAP, MLCC, C0G/NP0, 330PF, 100V, 0603 | MC0603N331J101CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V,0603,REEL | MC0603N331J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V, 0603 | MC0603N331J500CT |
| CAP, MLCC, C0G/NP0, 39PF, 50V,0603, REEL | MC0603N390J500CT |
| CAP, MLCC, C0G/NP0, 39PF, 50V, 0603 | MC0603N390J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 100V,0603,REEL | MC0603N470J101CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V, 0603 | MC0603N470J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V,0603, REEL | MC0603N470J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V, 0603 | MC0603N471J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V,0603,REEL | MC0603N471J500CT |
| CAP, MLCC, C0G/NP0, 56PF, 50V, 0603 | MC0603N560J500CT |
| CAP, MLCC, C0G/NP0, 56PF, 50V,0603, REEL | MC0603N560J500CT |
| CAP, MLCC, C0G/NP0, 560PF, 50V, 0603 | MC0603N561J500CT |
| CAP, MLCC, C0G/NP0, 560PF, 50V,0603,REEL | MC0603N561J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 100V,0603,REEL | MC0603N680J101CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V, 0603 | MC0603N680J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V,0603, REEL | MC0603N680J500CT |
| CAP, MLCC, C0G/NP0, 680PF, 50V, 0603 | MC0603N681J500CT |
| CAP, MLCC, C0G/NP0, 680PF, 50V,0603,REEL | MC0603N681J500CT |
| CAP, MLCC, C0G/NP0, 82PF, 50V, 0603 | MC0603N820J500CT |
| CAP, MLCC, C0G/NP0, 82PF, 50V,0603, REEL | MC0603N820J500CT |
| CAP, MLCC, C0G/NP0, 820PF, 50V,0603,REEL | MC0603N821J500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0805, REEL | MC0805B102J500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0805 | MC0805B102J500CT |
| CAP, MLCC, X7R, 1NF, 100V, 0805, REEL | MC0805B102K101CT |
| CAP, MLCC, X7R, 1NF, 100V, 0805 | MC0805B102K101CT |
| CAP, MLCC, X7R, 1NF, 50V, 0805, REEL | MC0805B102K500CT |
| CAP, MLCC, X7R, 1NF, 50V, 0805 | MC0805B102K500CT |
| CAP, MLCC, X7R, 10NF, 50V, 0805 | MC0805B103J500CT |
| CAP, MLCC, X7R, 10NF, 50V, 0805, REEL | MC0805B103J500CT |
| CAP, MLCC, X7R, 10NF, 100V, 0805 | MC0805B103K101CT |
| CAP, MLCC, X7R, 10NF, 100V, 0805, REEL | MC0805B103K101CT |
| CAP, MLCC, X7R, 10NF, 50V, 0805, REEL | MC0805B103K500CT |
| CAP, MLCC, X7R, 10NF, 50V, 0805 | MC0805B103K500CT |

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| CAP, MLCC, X7R, 100NF, 50V, 0805 | MC0805B104J500CT |
| CAP, MLCC, X7R, 100NF, 50V, 0805, REEL | MC0805B104J500CT |
| CAP, MLCC, X7R, 100NF, 100V, 0805 | MC0805B104K101CT |
| CAP, MLCC, X7R, 100NF, 100V, 0805, REEL | MC0805B104K101CT |
| CAP, MLCC, X7R, 100NF, 25V, 0805 | MC0805B104K250CT |
| CAP, MLCC, X7R, 100NF, 25V, 0805, REEL | MC0805B104K250CT |
| CAP, MLCC, X7R, 100NF, 50V, 0805 | MC0805B104K500CT |
| CAP, MLCC, X7R, 100NF, 50V, 0805, REEL | MC0805B104K500CT |
| CAP, MLCC, X7R, 1UF, 10V, 0805, REEL | MC0805B105K100CT |
| CAP, MLCC, X7R, 1UF, 10V, 0805 | MC0805B105K100CT |
| CAP, MLCC, X7R, 1UF, 16V, 0805, REEL | MC0805B105K160CT |
| CAP, MLCC, X7R, 1UF, 16V, 0805 | MC0805B105K160CT |
| CAP, MLCC, X7R, 1UF, 25V, 0805, REEL | MC0805B105K250CT |
| CAP, MLCC, X7R, 1UF, 25V, 0805 | MC0805B105K250CT |
| CAP, MLCC, X7R, 1.5NF, 100V, 0805, REEL | MC0805B152K101CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0805 | MC0805B152K500CT |
| CAP, MLCC, X7R, 1.5NF, 50V, 0805, REEL | MC0805B152K500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0805 | MC0805B153K500CT |
| CAP, MLCC, X7R, 15NF, 50V, 0805, REEL | MC0805B153K500CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 0805, REEL | MC0805B222J101CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 0805 | MC0805B222J101CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0805, REEL | MC0805B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0805 | MC0805B222J500CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 0805, REEL | MC0805B222K101CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0805, REEL | MC0805B222K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 0805 | MC0805B222K500CT |
| CAP, MLCC, X7R, 22NF, 50V, 0805 | MC0805B223J500CT |
| CAP, MLCC, X7R, 22NF, 50V, 0805, REEL | MC0805B223J500CT |
| CAP, MLCC, X7R, 22NF, 100V, 0805 | MC0805B223K101CT |
| CAP, MLCC, X7R, 22NF, 100V, 0805, REEL | MC0805B223K101CT |
| CAP, MLCC, X7R, 22NF, 50V, 0805 | MC0805B223K500CT |
| CAP, MLCC, X7R, 22NF, 50V, 0805, REEL | MC0805B223K500CT |
| CAP, MLCC, X7R, 220NF, 25V, 0805 | MC0805B224J250CT |
| CAP, MLCC, X7R, 220NF, 25V, 0805, REEL | MC0805B224J250CT |
| CAP, MLCC, X7R, 220NF, 16V, 0805 | MC0805B224K160CT |
| CAP, MLCC, X7R, 220NF, 16V, 0805, REEL | MC0805B224K160CT |
| CAP, MLCC, X7R, 220NF, 25V, 0805 | MC0805B224K250CT |
| CAP, MLCC, X7R, 220NF, 25V, 0805, REEL | MC0805B224K250CT |
| CAP, MLCC, X7R, 220NF, 50V, 0805 | MC0805B224K500CT |
| CAP, MLCC, X7R, 220NF, 50V, 0805, REEL | MC0805B224K500CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 0805, REEL | MC0805B225K250CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 0805 | MC0805B225K250CT |

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| CAP, MLCC, X7R, 3.3NF, 100V, 0805, REEL | MC0805B332K101CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0805, REEL | MC0805B332K500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 0805 | MC0805B332K500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0805 | MC0805B333J500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0805, REEL | MC0805B333J500CT |
| CAP, MLCC, X7R, 33NF, 100V, 0805 | MC0805B333K101CT |
| CAP, MLCC, X7R, 33NF, 100V, 0805, REEL | MC0805B333K101CT |
| CAP, MLCC, X7R, 33NF, 50V, 0805 | MC0805B333K500CT |
| CAP, MLCC, X7R, 33NF, 50V, 0805, REEL | MC0805B333K500CT |
| CAP, MLCC, X7R, 330NF, 16V, 0805 | MC0805B334K160CT |
| CAP, MLCC, X7R, 330NF, 16V, 0805, REEL | MC0805B334K160CT |
| CAP, MLCC, X7R, 330NF, 25V, 0805 | MC0805B334K250CT |
| CAP, MLCC, X7R, 330NF, 25V, 0805, REEL | MC0805B334K250CT |
| CAP, MLCC, X7R, 330NF, 50V, 0805 | MC0805B334K500CT |
| CAP, MLCC, X7R, 330NF, 50V, 0805, REEL | MC0805B334K500CT |
| CAP, MLCC, X7R, 39NF, 50V, 0805, REEL | MC0805B393K500CT |
| CAP, MLCC, X7R, 470PF, 100V, 0805, REEL | MC0805B471K101CT |
| CAP, MLCC, X7R, 470PF, 50V, 0805, REEL | MC0805B471K500CT |
| CAP, MLCC, X7R, 470PF, 50V, 0805 | MC0805B471K500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0805 | MC0805B472J500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0805, REEL | MC0805B472J500CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 0805, REEL | MC0805B472K101CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0805 | MC0805B472K500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 0805, REEL | MC0805B472K500CT |
| CAP, MLCC, X7R, 47NF, 50V, 0805 | MC0805B473J500CT |
| CAP, MLCC, X7R, 47NF, 50V, 0805, REEL | MC0805B473J500CT |
| CAP, MLCC, X7R, 47NF, 100V, 0805 | MC0805B473K101CT |
| CAP, MLCC, X7R, 47NF, 100V, 0805, REEL | MC0805B473K101CT |
| CAP, MLCC, X7R, 47NF, 50V, 0805 | MC0805B473K500CT |
| CAP, MLCC, X7R, 47NF, 50V, 0805, REEL | MC0805B473K500CT |
| CAP, MLCC, X7R, 470NF, 16V, 0805 | MC0805B474K160CT |
| CAP, MLCC, X7R, 470NF, 16V, 0805, REEL | MC0805B474K160CT |
| CAP, MLCC, X7R, 470NF, 25V, 0805 | MC0805B474K250CT |
| CAP, MLCC, X7R, 470NF, 25V, 0805, REEL | MC0805B474K250CT |
| CAP, MLCC, X7R, 470NF, 50V, 0805 | MC0805B474K500CT |
| CAP, MLCC, X7R, 470NF, 50V, 0805, REEL | MC0805B474K500CT |
| CAP, MLCC, X7R, 4.7UF, 10V, 0805, REEL | MC0805B475K100CT |
| CAP, MLCC, X7R, 4.7UF, 10V, 0805 | MC0805B475K100CT |
| CAP, MLCC, X7R, 4.7UF, 16V, 0805, REEL | MC0805B475K160CT |
| CAP, MLCC, X7R, 4.7UF, 16V, 0805 | MC0805B475K160CT |
| CAP, MLCC, X7R, 6.8NF, 100V, 0805, REEL | MC0805B682K101CT |
| CAP, MLCC, X7R, 6.8NF, 50V, 0805, REEL | MC0805B682K500CT |

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| CAP, MLCC, X7R, 6.8NF, 50V, 0805 | MC0805B682K500CT |
| CAP, MLCC, X7R, 68NF, 50V, 0805 | MC0805B683K500CT |
| CAP, MLCC, X7R, 68NF, 50V, 0805, REEL | MC0805B683K500CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V, 0805 | MC0805N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V,0805,REEL | MC0805N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V,0805, REEL | MC0805N100J500CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V, 0805 | MC0805N100J500CT |
| CAP, MLCC, C0G/NP0,100PF,100V,0805,REEL | MC0805N101J101CT |
| CAP, MLCC, C0G/NP0, 100PF, 100V, 0805 | MC0805N101J101CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V,0805,REEL | MC0805N101J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V, 0805 | MC0805N101J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 100V,0805, REEL | MC0805N102J101CT |
| CAP, MLCC, C0G/NP0, 1NF, 100V, 0805 | MC0805N102J101CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 0805, REEL | MC0805N102J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 0805 | MC0805N102J500CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V, 0805 | MC0805N120J500CT |
| CAP, MLCC, C0G/NP0, 12PF, 50V,0805, REEL | MC0805N120J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 100V, 0805 | MC0805N150J101A2.54MM |
| CAP, MLCC, C0G/NP0, 15PF, 100V,0805,REEL | MC0805N150J101CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V,0805, REEL | MC0805N150J500CT |
| CAP, MLCC, C0G/NP0, 15PF, 50V, 0805 | MC0805N150J500CT |
| CAP, MLCC, C0G/NP0,150PF,100V,0805,REEL | MC0805N151J101CT |
| CAP, MLCC, C0G/NP0, 150PF, 50V,0805,REEL | MC0805N151J500CT |
| CAP, MLCC, C0G/NP0, 150PF, 50V, 0805 | MC0805N151J500CT |
| CAP, MLCC, C0G/NP0, 1.5NF, 50V, 0805 | MC0805N152J500CT |
| CAP, MLCC, C0G/NP0, 1.5NF, 50V,0805,REEL | MC0805N152J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 100V, 0805 | MC0805N180J101CT |
| CAP, MLCC, C0G/NP0, 18PF, 100V,0805,REEL | MC0805N180J101CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V, 0805 | MC0805N180J500CT |
| CAP, MLCC, C0G/NP0, 18PF, 50V,0805, REEL | MC0805N180J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V, 0805 | MC0805N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V,0805,REEL | MC0805N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V,0805, REEL | MC0805N220J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V, 0805 | MC0805N220J500CT |
| CAP, MLCC, C0G/NP0,220PF,100V,0805,REEL | MC0805N221J101CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V,0805,REEL | MC0805N221J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V, 0805 | MC0805N221J500CT |
| CAP, MLCC, C0G/NP0, 2.2NF, 50V, 0805 | MC0805N222J500CT |
| CAP, MLCC, C0G/NP0, 2.2NF, 50V,0805,REEL | MC0805N222J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V, 0805 | MC0805N270J500CT |
| CAP, MLCC, C0G/NP0, 27PF, 50V,0805, REEL | MC0805N270J500CT |
| CAP, MLCC, C0G/NP0, 270PF, 50V,0805,REEL | MC0805N271J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 100V,0805,REEL | MC0805N330J101CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V,0805, REEL | MC0805N330J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V, 0805 | MC0805N330J500CT |
| CAP, MLCC, C0G/NP0,330PF,100V,0805,REEL | MC0805N331J101CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V,0805,REEL | MC0805N331J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V, 0805 | MC0805N331J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 100V,0805,REEL | MC0805N470J101CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V, 0805 | MC0805N470J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V,0805, REEL | MC0805N470J500CT |
| CAP, MLCC, C0G/NP0,470PF,100V,0805,REEL | MC0805N471J101CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V, 0805 | MC0805N471J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V,0805,REEL | MC0805N471J500CT |
| CAP, MLCC, C0G/NP0, 510PF, 50V, 0805 | MC0805N511J500CT |
| CAP, MLCC, C0G/NP0, 510PF, 50V,0805,REEL | MC0805N511J500CT |
| CAP, MLCC, C0G/NP0, 560PF, 50V,0805,REEL | MC0805N561J500CT |
| CAP, MLCC, C0G/NP0, 560PF, 50V, 0805 | MC0805N561J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V, 0805 | MC0805N680J500CT |
| CAP, MLCC, C0G/NP0, 68PF, 50V,0805, REEL | MC0805N680J500CT |
| CAP, MLCC, C0G/NP0,680PF,100V,0805,REEL | MC0805N681J101CT |
| CAP, MLCC, C0G/NP0, 680PF, 50V,0805,REEL | MC0805N681J500CT |
| CAP, MLCC, C0G/NP0, 82PF, 50V,0805, REEL | MC0805N820J500CT |
| CAP, MLCC, C0G/NP0, 82PF, 50V, 0805 | MC0805N820J500CT |
| CAP, MLCC, C0G/NP0, 820PF, 50V,0805,REEL | MC0805N821J500CT |
| CAP, MLCC, X7R, 1NF, 100V, 1206, REEL | MC1206B102K101CT |
| CAP, MLCC, X7R, 1NF, 100V, 1206 | MC1206B102K101CT |
| CAP, MLCC, X7R, 1NF, 50V, 1206, REEL | MC1206B102K500CT |
| CAP, MLCC, X7R, 1NF, 50V, 1206 | MC1206B102K500CT |
| CAP, MLCC, X7R, 10NF, 100V, 1206, REEL | MC1206B103J101CT |
| CAP, MLCC, X7R, 10NF, 100V, 1206 | MC1206B103J101CT |
| CAP, MLCC, X7R, 10NF, 100V, 1206, REEL | MC1206B103K101CT |
| CAP, MLCC, X7R, 10NF, 100V, 1206 | MC1206B103K101CT |
| CAP, MLCC, X7R, 10NF, 50V, 1206, REEL | MC1206B103K500CT |
| CAP, MLCC, X7R, 10NF, 50V, 1206 | MC1206B103K500CT |
| CAP, MLCC, X7R, 100NF, 100V, 1206 | MC1206B104J101CT |
| CAP, MLCC, X7R, 100NF, 100V, 1206, REEL | MC1206B104J101CT |
| CAP, MLCC, X7R, 100NF, 50V, 1206 | MC1206B104J500CT |
| CAP, MLCC, X7R, 100NF, 50V, 1206, REEL | MC1206B104J500CT |
| CAP, MLCC, X7R, 100NF, 100V, 1206 | MC1206B104K101CT |
| CAP, MLCC, X7R, 100NF, 100V, 1206, REEL | MC1206B104K101CT |
| CAP, MLCC, X7R, 100NF, 50V, 1206 | MC1206B104K500CT |
| CAP, MLCC, X7R, 100NF, 50V, 1206, REEL | MC1206B104K500CT |
| CAP, MLCC, X7R, 1UF, 50V, 1206 | MC1206B105J500CT |

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| CAP, MLCC, X7R, 1UF, 50V, 1206, REEL | MC1206B105J500CT |
| CAP, MLCC, X7R, 1UF, 100V, 1206 | MC1206B105K101CT |
| CAP, MLCC, X7R, 1UF, 100V, 1206, REEL | MC1206B105K101CT |
| CAP, MLCC, X7R, 1UF, 16V, 1206, REEL | MC1206B105K160CT |
| CAP, MLCC, X7R, 1UF, 16V, 1206 | MC1206B105K160CT |
| CAP, MLCC, X7R, 1UF, 25V, 1206 | MC1206B105K250CT |
| CAP, MLCC, X7R, 1UF, 25V, 1206, REEL | MC1206B105K250CT |
| CAP, MLCC, X7R, 1UF, 50V, 1206 | MC1206B105K500CT |
| CAP, MLCC, X7R, 1UF, 50V, 1206, REEL | MC1206B105K500CT |
| CAP, MLCC, X7R, 10UF, 16V, 1206, REEL | MC1206B106K160CT |
| CAP, MLCC, X7R, 10UF, 16V, 1206 | MC1206B106K160CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 1206 | MC1206B222K101CT |
| CAP, MLCC, X7R, 2.2NF, 100V, 1206, REEL | MC1206B222K101CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 1206, REEL | MC1206B222K500CT |
| CAP, MLCC, X7R, 2.2NF, 50V, 1206 | MC1206B222K500CT |
| CAP, MLCC, X7R, 22NF, 100V, 1206 | MC1206B223K101CT |
| CAP, MLCC, X7R, 22NF, 100V, 1206, REEL | MC1206B223K101CT |
| CAP, MLCC, X7R, 22NF, 50V, 1206 | MC1206B223K500CT |
| CAP, MLCC, X7R, 22NF, 50V, 1206, REEL | MC1206B223K500CT |
| CAP, MLCC, X7R, 220NF, 50V, 1206 | MC1206B224J500CT |
| CAP, MLCC, X7R, 220NF, 50V, 1206, REEL | MC1206B224J500CT |
| CAP, MLCC, X7R, 220NF, 100V, 1206 | MC1206B224K101CT |
| CAP, MLCC, X7R, 220NF, 100V, 1206, REEL | MC1206B224K101CT |
| CAP, MLCC, X7R, 220NF, 25V, 1206 | MC1206B224K250CT |
| CAP, MLCC, X7R, 220NF, 25V, 1206, REEL | MC1206B224K250CT |
| CAP, MLCC, X7R, 220NF, 50V, 1206 | MC1206B224K500CT |
| CAP, MLCC, X7R, 220NF, 50V, 1206, REEL | MC1206B224K500CT |
| CAP, MLCC, X7R, 2.2UF, 10V, 1206, REEL | MC1206B225K100CT |
| CAP, MLCC, X7R, 2.2UF, 10V, 1206 | MC1206B225K100CT |
| CAP, MLCC, X7R, 2.2UF, 16V, 1206 | MC1206B225K160CT |
| CAP, MLCC, X7R, 2.2UF, 16V, 1206, REEL | MC1206B225K160CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 1206, REEL | MC1206B225K250CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 1206 | MC1206B225K250CT |
| CAP, MLCC, X7R, 3.3NF, 100V, 1206 | MC1206B332K101CT |
| CAP, MLCC, X7R, 3.3NF, 100V, 1206, REEL | MC1206B332K101CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 1206 | MC1206B332K500CT |
| CAP, MLCC, X7R, 3.3NF, 50V, 1206, REEL | MC1206B332K500CT |
| CAP, MLCC, X7R, 33NF, 100V, 1206, REEL | MC1206B333K101CT |
| CAP, MLCC, X7R, 33NF, 50V, 1206 | MC1206B333K500CT |
| CAP, MLCC, X7R, 33NF, 50V, 1206, REEL | MC1206B333K500CT |
| CAP, MLCC, X7R, 330NF, 25V, 1206 | MC1206B334K250CT |
| CAP, MLCC, X7R, 330NF, 25V, 1206, REEL | MC1206B334K250CT |
| CAP, MLCC, X7R, 330NF, 50V, 1206 | MC1206B334K500CT |
| CAP, MLCC, X7R, 330NF, 50V, 1206, REEL | MC1206B334K500CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 1206, REEL | MC1206B472K101CT |
| CAP, MLCC, X7R, 4.7NF, 100V, 1206 | MC1206B472K101CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 1206 | MC1206B472K500CT |
| CAP, MLCC, X7R, 4.7NF, 50V, 1206, REEL | MC1206B472K500CT |
| CAP, MLCC, X7R, 47NF, 100V, 1206 | MC1206B473K101CT |
| CAP, MLCC, X7R, 47NF, 100V, 1206, REEL | MC1206B473K101CT |
| CAP, MLCC, X7R, 47NF, 50V, 1206 | MC1206B473K500CT |
| CAP, MLCC, X7R, 47NF, 50V, 1206, REEL | MC1206B473K500CT |
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| CAP, MLCC, X7R, 470NF, 50V, 1206, REEL | MC1206B474J500CT |
| CAP, MLCC, X7R, 470NF, 100V, 1206 | MC1206B474K101CT |
| CAP, MLCC, X7R, 470NF, 100V, 1206, REEL | MC1206B474K101CT |
| CAP, MLCC, X7R, 470NF, 16V, 1206 | MC1206B474K160CT |
| CAP, MLCC, X7R, 470NF, 16V, 1206, REEL | MC1206B474K160CT |
| CAP, MLCC, X7R, 470NF, 25V, 1206 | MC1206B474K250CT |
| CAP, MLCC, X7R, 470NF, 25V, 1206, REEL | MC1206B474K250CT |
| CAP, MLCC, X7R, 470NF, 50V, 1206 | MC1206B474K500CT |
| CAP, MLCC, X7R, 470NF, 50V, 1206, REEL | MC1206B474K500CT |
| CAP, MLCC, X7R, 4.7UF, 25V, 1206, REEL | MC1206B475K250CT |
| CAP, MLCC, X7R, 4.7UF, 25V, 1206 | MC1206B475K250CT |
| CAP, MLCC, X7R, 4.7UF, 50V, 1206 | MC1206B475K500CT |
| CAP, MLCC, X7R, 4.7UF, 50V, 1206, REEL | MC1206B475K500CT |
| CAP, MLCC, X7R, 68NF, 100V, 1206 | MC1206B683K101CT |
| CAP, MLCC, X7R, 68NF, 100V, 1206, REEL | MC1206B683K101CT |
| CAP, MLCC, X7R, 68NF, 50V, 1206 | MC1206B683K500CT |
| CAP, MLCC, X7R, 68NF, 50V, 1206, REEL | MC1206B683K500CT |
| CAP, MLCC, X7R, 680NF, 25V, 1206, REEL | MC1206B684K250CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V, 1206 | MC1206N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 100V,1206,REEL | MC1206N100J101CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V,1206, REEL | MC1206N100J500CT |
| CAP, MLCC, C0G/NP0, 10PF, 50V, 1206 | MC1206N100J500CT |
| CAP, MLCC, C0G/NP0,100PF,100V,1206,REEL | MC1206N101J101CT |
| CAP, MLCC, C0G/NP0, 100PF, 100V, 1206 | MC1206N101J101CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V, 1206 | MC1206N101J500CT |
| CAP, MLCC, C0G/NP0, 100PF, 50V,1206,REEL | MC1206N101J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 100V, 1206 | MC1206N102J101CT |
| CAP, MLCC, C0G/NP0, 1NF, 100V,1206, REEL | MC1206N102J101CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 1206 | MC1206N102J500CT |
| CAP, MLCC, C0G/NP0, 1NF, 50V, 1206, REEL | MC1206N102J500CT |
| CAP, MLCC, C0G/NP0, 10NF, 25V,1206, REEL | MC1206N103J250CT |

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| CAP, MLCC, C0G/NP0, 10NF, 25V, 1206 | MC1206N103J250CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V, 1206 | MC1206N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 100V,1206,REEL | MC1206N220J101CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V, 1206 | MC1206N220J500CT |
| CAP, MLCC, C0G/NP0, 22PF, 50V,1206, REEL | MC1206N220J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 100V, 1206 | MC1206N221J101CT |
| CAP, MLCC, C0G/NP0,220PF,100V,1206,REEL | MC1206N221J101CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V, 1206 | MC1206N221J500CT |
| CAP, MLCC, C0G/NP0, 220PF, 50V,1206,REEL | MC1206N221J500CT |
| CAP, MLCC, C0G/NP0, 2.2NF, 100V, 1206 | MC1206N222J101CT |
| CAP, MLCC, C0G/NP0, 2.2NF,100V,1206,REEL | MC1206N222J101CT |
| CAP, MLCC, C0G/NP0, 2.2NF, 50V, 1206 | MC1206N222J500CT |
| CAP, MLCC, C0G/NP0, 2.2NF, 50V,1206,REEL | MC1206N222J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 100V, 1206 | MC1206N330J101CT |
| CAP, MLCC, C0G/NP0, 33PF, 100V,1206,REEL | MC1206N330J101CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V, 1206 | MC1206N330J500CT |
| CAP, MLCC, C0G/NP0, 33PF, 50V,1206, REEL | MC1206N330J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 100V, 1206 | MC1206N331J101CT |
| CAP, MLCC, C0G/NP0,330PF,100V,1206,REEL | MC1206N331J101CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V,1206,REEL | MC1206N331J500CT |
| CAP, MLCC, C0G/NP0, 330PF, 50V, 1206 | MC1206N331J500CT |
| CAP, MLCC, C0G/NP0, 3.3NF, 50V, 1206 | MC1206N332J500CT |
| CAP, MLCC, C0G/NP0, 3.3NF, 50V,1206,REEL | MC1206N332J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 100V, 1206 | MC1206N470J101CT |
| CAP, MLCC, C0G/NP0, 47PF, 100V,1206,REEL | MC1206N470J101CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V, 1206 | MC1206N470J500CT |
| CAP, MLCC, C0G/NP0, 47PF, 50V,1206, REEL | MC1206N470J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 100V, 1206 | MC1206N471J101CT |
| CAP, MLCC, C0G/NP0,470PF,100V,1206,REEL | MC1206N471J101CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V,1206,REEL | MC1206N471J500CT |
| CAP, MLCC, C0G/NP0, 470PF, 50V, 1206 | MC1206N471J500CT |
| CAP, MLCC, C0G/NP0, 680PF, 50V,1206,REEL | MC1206N681J500CT |
| CAP, MLCC, C0G/NP0, 680PF, 50V, 1206 | MC1206N681J500CT |
| CAP, MLCC, X7R, 100NF, 100V, 1210 | MC1210B104K101CT |
| CAP, MLCC, X7R, 100NF, 100V, 1210, REEL | MC1210B104K101CT |
| CAP, MLCC, X7R, 100NF, 50V, 1210 | MC1210B104K500CT |
| CAP, MLCC, X7R, 100NF, 50V, 1210, REEL | MC1210B104K500CT |
| CAP, MLCC, X7R, 1UF, 100V, 1210 | MC1210B105K101CT |
| CAP, MLCC, X7R, 1UF, 100V, 1210, REEL | MC1210B105K101CT |
| CAP, MLCC, X7R, 1UF, 25V, 1210, REEL | MC1210B105K250CT |
| CAP, MLCC, X7R, 1UF, 25V, 1210 | MC1210B105K250CT |
| CAP, MLCC, X7R, 1UF, 50V, 1210 | MC1210B105K500CT |
| CAP, MLCC, X7R, 1UF, 50V, 1210, REEL | MC1210B105K500CT |
| CAP, MLCC, X7R, 10UF, 25V, 1210, REEL | MC1210B106K250CT |
| CAP, MLCC, X7R, 10UF, 25V, 1210 | MC1210B106K250CT |
| CAP, MLCC, X7R, 220NF, 100V, 1210, REEL | MC1210B224K101CT |
| CAP, MLCC, X7R, 220NF, 50V, 1210 | MC1210B224K500CT |
| CAP, MLCC, X7R, 220NF, 50V, 1210, REEL | MC1210B224K500CT |
| CAP, MLCC, X7R, 2.2UF, 100V, 1210 | MC1210B225K101CT |
| CAP, MLCC, X7R, 2.2UF, 100V, 1210, REEL | MC1210B225K101CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 1210, REEL | MC1210B225K250CT |
| CAP, MLCC, X7R, 2.2UF, 25V, 1210 | MC1210B225K250CT |
| CAP, MLCC, X7R, 22UF, 10V, 1210, REEL | MC1210B226K100CT |
| CAP, MLCC, X7R, 22UF, 10V, 1210 | MC1210B226K100CT |
| CAP, MLCC, X7R, 22UF, 16V, 1210, REEL | MC1210B226M160CT |
| CAP, MLCC, X7R, 22UF, 16V, 1210 | MC1210B226M160CT |
| CAP, MLCC, X7R, 330NF, 50V, 1210 | MC1210B334K500CT |
| CAP, MLCC, X7R, 330NF, 50V, 1210, REEL | MC1210B334K500CT |
| CAP, MLCC, X7R, 470NF, 100V, 1210 | MC1210B474K101CT |
| CAP, MLCC, X7R, 470NF, 100V, 1210, REEL | MC1210B474K101CT |
| CAP, MLCC, X7R, 470NF, 25V, 1210 | MC1210B474K250CT |
| CAP, MLCC, X7R, 470NF, 25V, 1210, REEL | MC1210B474K250CT |
| CAP, MLCC, X7R, 470NF, 50V, 1210 | MC1210B474K500CT |
| CAP, MLCC, X7R, 470NF, 50V, 1210, REEL | MC1210B474K500CT |
| CAP, MLCC, X7R, 4.7UF, 16V, 1210, REEL | MC1210B475K160CT |
| CAP, MLCC, X7R, 4.7UF, 16V, 1210 | MC1210B475K160CT |
| CAP, MLCC, X7R, 4.7UF, 50V, 1210 | MC1210B475K500CT |
| CAP, MLCC, X7R, 4.7UF, 50V, 1210, REEL | MC1210B475K500CT |