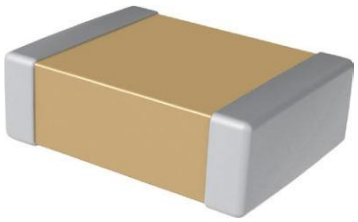
Multilayer Capacitors, SMD

RND components

Features



- Various temperature characteristics cover a wide range in small size
- Mounted either by flow or reflow soldering methods
- Excellent dielectric strength due to uniform structure of dielectric layers

Applications

- MLCC are used extensively in computers, communicative products, and the detail applications which including the followings:
- Discharge of stored energy
- Blockage of direct current
- Coupling of circuit components
- By-passing of an AC signa
- Frequency discrimination
- Transient voltage and Arc suppression
- Surge protection

Part Numbering

1206 B 102 J 500 N T

SIZE CODE

1206 = .12 X .06”

DIELECTRIC

N (COG) B (X7R)

Y (Y5V) X (X5R)

CAPACITANCE

Value in Pico farads: Two significant figures

Followed by no. of zero. 0R5=0.5pF 2R0=2pF 101=100pF.

CAPACITANCE TOLERANCE

J = ±5.0%

M = ±20%

K = ±10%

Z = -20% ~+80% Tolerances may be restricted by dielectric type.

VOLTAGE

VDC：Two significant figures followed by number of zeros

063 = 6.3 VDC 100 = 10 VDC 160 = 16 VDC 250 = 25 VDC

500 = 50 VDC 101 = 100 VDC 501 = 500VDC

102 = 1 KVDC 202 = 2 KVDC

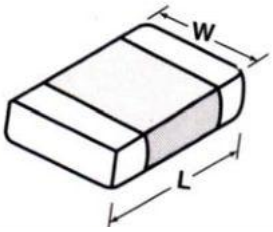
TERMINATION

N = Nickel barrier with 100% Tin

PACKING CODE

2= 2K/Reel 3= 3K/Reel (for plastic tape only)

T= 4K/Reel



Dimension : (UNIT mm)

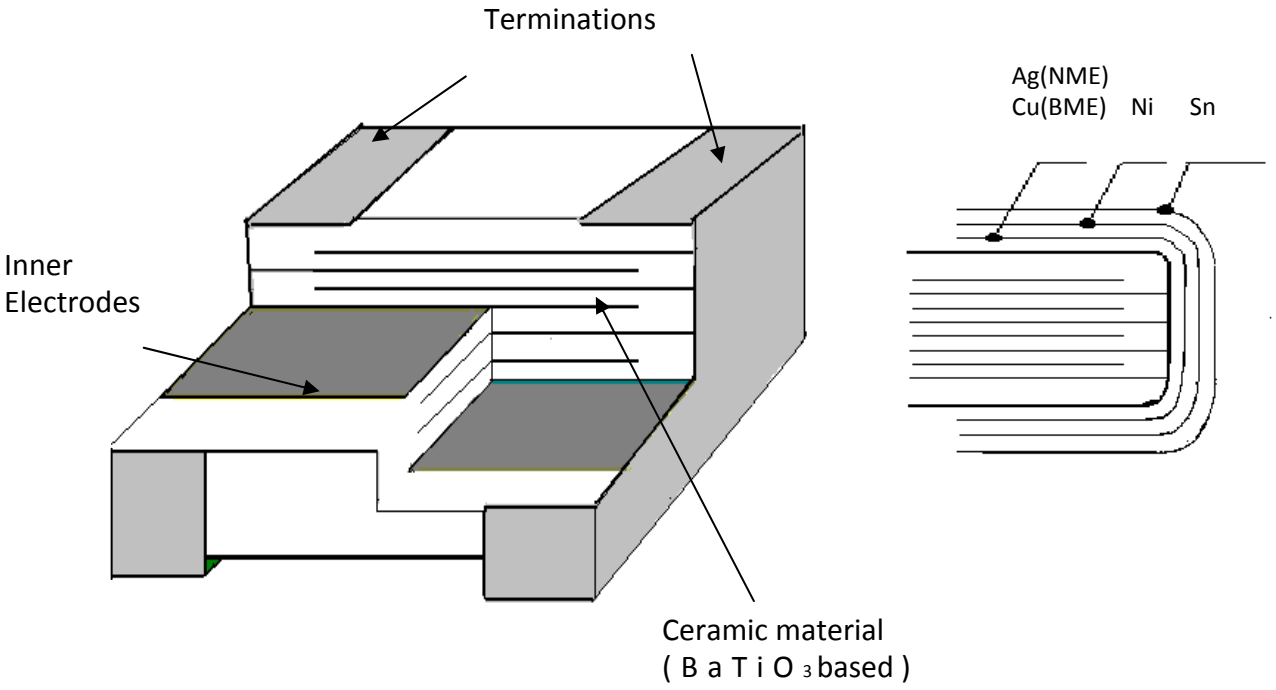
	1206
L	3.20±0.20
W	1.60±0.20

Multilayer Capacitors, SMD

Specifications

Construction form	1206
Ceramic type	X7R , Y5V , X5R , COG
Dimensions L x H x W	3.2 x 1.65 x 1.6 mm
Temperature range	-55...+125 °C
Height	1.65 mm
Length	3.2 mm
Width	1.6 mm

Construction of MLCC



Multilayer Capacitors, SMD

RND components

Specifications and Test Methods

<table>
<tr><th>No</th><th>Item</th><th>Test Method</th><th>Specification</th></tr>
<tr><td>1</td><td>Capacitance</td><td>The capacitance shall be measured at 25°C at the frequency and voltage shown below:
<table>
<tr><td>Type / Item</td><td>NPO
(≦1nF)</td><td>NPO>1nF,
Y5V,
X7R/X5R</td><td>C≧10uF</td></tr>
<tr><td>Freq..</td><td>1±0.1M z</td><td>1±0.1KHz</td><td>120H</td></tr>
<tr><td>Voltage</td><td>1±0.2Vrms</td><td>1±0.2Vrms</td><td>0.5±0.2
Vrms</td></tr>
</table></td><td>Within the specified tolerance
Remark: For ClassII(X7R/X5R,Y5V),
Before initial test, please perform
De-aging process as below:
Heat up to 150℃ for 1Hr and then set form 48±4 Hrs at room temp.</td></tr>
<tr><td>2</td><td>Q value / Dissipation Factor</td><td>D.F. shall be measured at 25°C at the frequency and voltage shown a o.1
EXCEPTION OF D.F.
X7R/X5R
<table>
<tr><td>r</td><td>D.F</td><td>Exception of D.F.</td></tr>
<tr><td>≧
50V</td><td>≦3.5%</td><td>1206≧0.47uF</td></tr>
<tr><td rowspan="2">25V</td><td>≦7%</td><td>1206≧4.7uF</td></tr>
<tr><td>≦10%</td><td>1206≧6.8uF</td></tr>
<tr><td rowspan="2">16V</td><td>≦5%</td><td>1206≧2.2uF</td></tr>
<tr><td>≦10%</td><td>1206≧4.7uF</td></tr>
<tr><td>10V</td><td>≦10%</td><td>1206≧2.2uF</td></tr>
</table>
Y5V
<table>
<tr><td>Vr</td><td>D.F</td><td>Exception O.F.</td></tr>
<tr><td>≧50V</td><td>≦7%7%</td><td>1206≧4.7uF</td></tr>
<tr><td>16V
(≧1uF)</td><td>≦12.512.5%</td><td>1206≧10uF</td></tr>
</table></td><td>NPO:
C＜30pF : Q value ≧400+20C
C≧30pF : Q value ≧ 1000

X7R/ X5R :
Vr=50V~6KV, DF≦2.5%
Vr=25V, DF≦3.5%
Vr=16V, DF≦3.5%
Vr=10V, DF≦5.0%
Vr=6.3V, DF≦10.0%

Y5V:
Vr=≧50V, DF≦5.0%
Vr =25V, DF≦7.0%
Vr=16V(C＜1.0uF), DF≦7.0%
Vr=16V(C≧1.0uF), DF≦9.0%

Vr=10V, DF≦12.5%
Vr=6.3V, DF≦20%

(see EXCEPTION at left side)</td></tr>
<tr><td>3</td><td>Insulation Resistance</td><td>Rated voltage ≦100V : Apply RV for 120 sec.
Rated voltage 200-630V : Apply RV for 60 sec.
Rated voltage 1KV-6KV : Apply 500V fo 60 sec.</td><td>NPO : ≧ 10GΩ or 500Ω-F(whichever is smaller)
X7R/X5R, Y5V : ≧ 10GΩ or 100Ω-F(whichever is smaller)</td></tr>
<tr><td>4</td><td>Dielectric Strength</td><td>Test voltage(Vt): (Duration 1～5 seconds.)
Vt= Vr X250% (Vr≦100V) Charge current: ≦ 50mA
Vt= Vr X200% For product Vr=200V/250V
Vt= Vr X150% For product Vr=500V~999V
Vt= Vr X120% For product Vr=1KV~3KV
Vt= Vr X110% For Vr≦5KV, Vt= Vr X100% For Vr＞5KV</td><td>No evidence of damage or flash over during test.</td></tr>
<tr><td>5</td><td>Solderability</td><td>*Solder temperature : 235±5°C
*Dipping time : 2±0.5 sec.</td><td>95% min. coverage of all metalized area</td></tr>
</table>

Specifications and Test Methods

No	Item	Test Method	Specification			
6	Vibration Resistance	*Vibration Frequency: 10 – 55 Hz.min. *Total amplitude: 1.5mm *Test Time: 6 hrs (Two hrs each in three mutually perpendicular direction)	No remarkable damage Cap. Change and Q/D.F.: To meet initial spec.			
7	Resistance to Soldering Heat	Preheat the capacitor at 120~150° C for 1min. Have the capacitor dip into the solder bath at 270±5°C for 10±1 sec. Set it at room temperature for 48±4hrs, then measure. Initial measurement for X7R/X5R and Y5V. Perform a heat treatment at 150 ±5°C for 1 hr and then set for 48 ±4 hrs at room temperature then measure.	Dielectric	NPO	X7R/X5R	Y5V
			Appearance	No defect		
			Capacitance change	<±2.5% or±0.25 pf	±7.5%	±20%
			DF(or Q)	C≧30pf : Q≧1000 C＜30pf : Q≧4 0+20C	Same as no.2	Same as no.2
			I.R	More than 10GΩ or 500ΩF (Whichever is Smaller)		
			Dielectric Strength	No failure		
8	High temperature Load	*Test Temp. : NPO, X7R : 125±3°C X5R, Y5V : 85±3°C *Test Voltage: (1) V＜500V : 2 X R.V. (2) 500≦V＜1000V: 1.5 X R.V. (3) V=1000V～3000V : 1.2 X R.V. (4) V＞3000V : 100% of R.V. *Test Time: 1000 hrs *Measurement to be made after keeping at room temp. for 48± hr.	Dielectric	NPO	X7R/X R	Y5V
			Appearance	No defect		
			Capacitance change	<±3% or±0.3 pF whichever is larger	≧10V: ±12.5% 6.3V : ±25%	±30%
			DF(or Q)	SAME AS NO. 2		
			I.R.	≧10V, ≧1GΩ or 50Ω-F (whichever is smaller) 6.3V: ≧10Ω-F		
			Dielectric strength	No failure		

Multilayer Capacitors, SMD

Specifications and Test Methods

<table>
<tr><th>No</th><th>Item</th><th>Test Method</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="5">9</td><td rowspan="5">Temperature Coefficient</td><td rowspan="5">(a) NPO
The temperature coefficient is determined using the capacitance measured in step 3 as a reference. When cycling the temperature sequentially from step 1 through 5. The capacitance shall be within the specified tolerance for the temperature coefficient.

<table>
<tr><th>Step</th><th>Temperature(°C)</th></tr>
<tr><td>1</td><td>+25±2°C</td></tr>
<tr><td>2</td><td>-55±3°C</td></tr>
<tr><td>3</td><td>+25±2°C</td></tr>
<tr><td>4</td><td>+125±3°C(for NPO/X7R +85 ± 3°C(for X5R/Y5V))</td></tr>
<tr><td>5</td><td>+25±2°C</td></tr>
</table>

(b) X7R/X5R,Y5V
The ranges of capacitance change compared with the 25±2°C value over the temperature range shall be within the specified ranges .</td><td>Dielectric</td><td>Temperature Range</td><td>Capacitance Change</td></tr>
<tr><td>NPO</td><td>-55°C to +125°C</td><td>0±30ppm/°C</td></tr>
<tr><td>X7R</td><td>-55°C to +125°C</td><td>Within ±15%</td></tr>
<tr><td>X5R</td><td>-55°C to +85°C</td><td>Within ±15%</td></tr>
<tr><td>Y5V</td><td>-25°C to+ 85°C</td><td>Within +30%~-80%</td></tr>
<tr><td>10</td><td>Temperature cycle</td><td>Mount the capacitor on test board, then cycling the temperature sequentially from step 1 to step 5, and perform 25 cycles.
<table>
<tr><th rowspan="2">Step.</th><th>NPO</th><th>X7R</th><th>X5R/Y5V</th></tr>
<tr><th colspan="2">Temperature (°C) / time(min)</th><th>Temperature(°C) / time(min)</th></tr>
<tr><td>1</td><td colspan="2">+25±2°C / 3±1</td><td>+25±2°C / 3±1</td></tr>
<tr><td>2</td><td colspan="2">-55±2°C / 30±3</td><td>-30±2°C / 30±3</td></tr>
<tr><td>3</td><td colspan="2">+25±2°C / 3±1</td><td>+25±2°C / 3±1</td></tr>
<tr><td>4</td><td colspan="2">+125±3°C / 30±3</td><td>+85±3°C / 30±3</td></tr>
<tr><td>5</td><td colspan="2">+25±2°C / 3±1</td><td>+25±2°C / 3±1</td></tr>
</table>

Remove and let sit for 24±2hours(NPO) or 48±4hours(X7R/X5R,Y5V) at room temperature, then measure</td><td colspan="3">*No remarkable damage.

*Cap. Change :
NPO:
±2.5% or ±0.5 pF whichever is larger

X7R, X5R: ±7.5%

Y5V: ±20%

*Q/D.F..I.R & dielectric strength : To meet initial requirement.</td></tr>
</table>

Specifications and Test Methods

<table>
<tr>
<td>11</td>
<td>Humidity
(Damp Heat)
Steady State</td>
<td>*Test temp.: 40±2°C
*Humidity: 90～95% RH
*Test time: 500 hrs
*Measurement to be made after keeping at room temperature for 48±4 hrs.
EXCEPTION OF D.F.
X7R/X5R:
<table>
<tr><th>Vr</th><th>D.F</th><th>Exception of D.F.</th></tr>
<tr><td>≧ 50V</td><td>≦6%</td><td>1206≧0.47uF</td></tr>
</table>
Y5V:
<table>
<tr><th>Vr</th><th>D.F</th><th>Exception of D.F.</th></tr>
<tr><td>25V</td><td>≦10%</td><td>1206≧1.0 uF</td></tr>
</table>
</td>
<td>*No remarkable damage

*Cap. Change :
NPO:
±5% or ±0.5 pF whichever is larger
X7R/X5R:≧10V: ±12.5%, 6.3V : ±25%
Y5V: ±30%

*Q value/D.F.
NPO : C≧30pF : Q≧350
10pF≦Cap＜, Q≧275+2.5C
Cap＜10pF, Q≧200+10C
X7R, X5R :
Vr≧50V, D.F.≦3%
Vr=16/25V, D.F.≦5%
Vr=10V, D.F.≦7.5%
Y5V :
Vr≧25/50V, D.F.≦7.5%
Vr=16V(C＜1.0uF),DF≦10%
Vr=16V(C≧1.0uF),DF≦12.5%
Vr=10V, D.F.≦15%
Vr=6.3V, D.F.≦30%
(See EXCEPTION at left side)

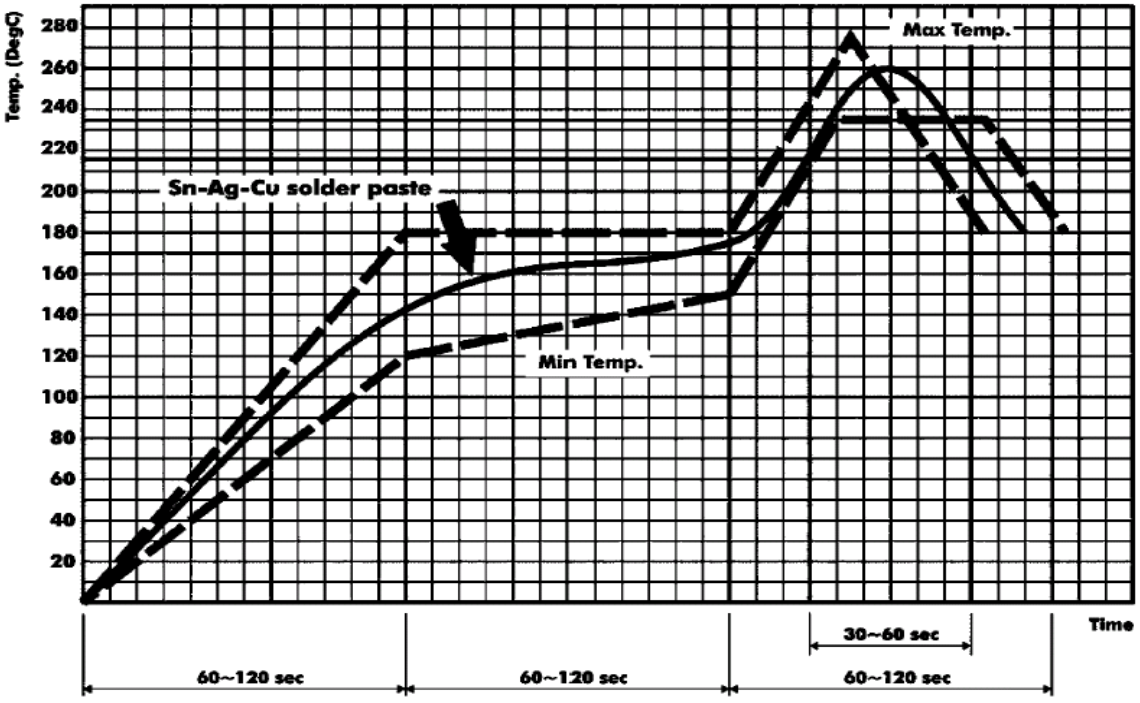
≧10V, ≧1GΩ or 50Ω-F (whichever is smaller)
6.3V: ≧10Ω-F</td>
</tr>
<tr>
<td>12</td>
<td>Humidity
(Damp Heat)
Load</td>
<td>*Test temp.: 40±2°C
*Humidity: 90～95% RH
*Test time: 500 hrs
*Test Voltage : Rated Voltage (Max 500V)
*Measurement to be made after keeping at room temperature for 48±4 hrs.</td>
<td>*No remarkable damage

*Cap. Change :
NPO: ±7.5%or±0.75 pF whichever is larger
X7R/X5R:≧10V: ±12.5%, 6.3V : ±25%Y5V: ±30%
*Q value/D.F.</td>
</tr>
</table>

Soldering & Cleaning

Recommended Soldering Profile (Prevention of thermal shock)

Figure.(I) IR reflow soldering profile for SMT process with SnAgCu series solder paste , (lead free type)



Multilayer Capacitors, SMD

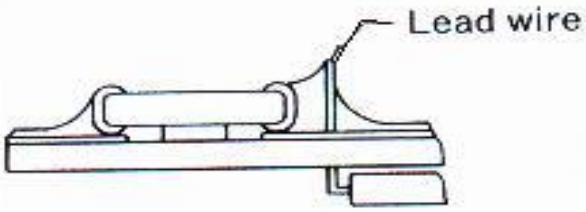
PCB design

Chip components are susceptible to board stress since the component itself is mounted directly on the board. They are also sensitive to mechanical and thermal stress when solder, which may cause chip cracked.
Please take solder form and component layout into consideration to eliminate stress.

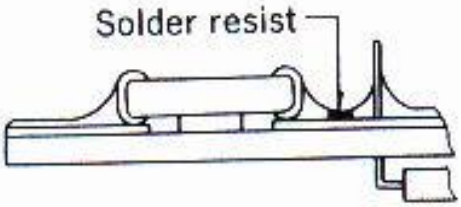
Pattern form

(1) Placing of chip components and component.

incorrect

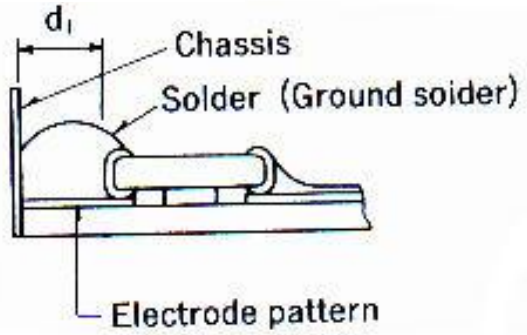


correct

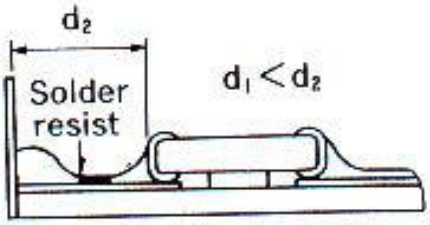


(2) Placing close to chassis.

incorrect

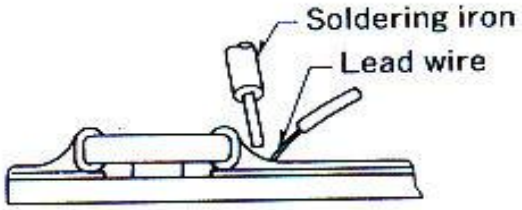


correct

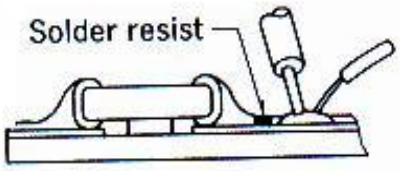


(3) Placing leaded components after chip component.

incorrect

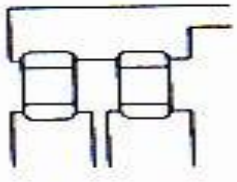


correct

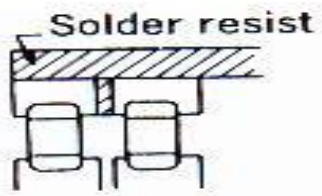


(4) Lateral mounting

incorrect



correct



Product Range:

Art. Nr.	Capacitance	Rated Voltage	Capacitance Tolerance
RND 150-1206B102K101NT	1 nF	100 VDC	±10%
RND 150-1206B102K102N3	1 nF	1000 VDC	±10%
RND 150-1206B102K201NT	1 nF	200 VDC	±10%
RND 150-1206B102K202N3	1 nF	2000 VDC	±10%
RND 150-1206B102K500NT	1 nF	50 VDC	±10%
RND 150-1206B102K501N3	1 nF	500 VDC	±10%
RND 150-1206B102K631N3	1 nF	630 VDC	±10%
RND 150-1206B103J101NT	10 nF	100 VDC	±5%
RND 150-1206B103K101NT	10 nF	100 VDC	±10%
RND 150-1206B103K102N3	10 nF	1000 VDC	±10%
RND 150-1206B103K201NT	10 nF	200 VDC	±10%
RND 150-1206B103K500NT	10 nF	50 VDC	±10%
RND 150-1206B103K501N3	10 nF	500 VDC	±10%
RND 150-1206B103K631N3	10 nF	630 VDC	±10%
RND 150-1206B104J101N3	100 nF	100 VDC	±5%
RND 150-1206B104J500NT	100 nF	50 VDC	±5%
RND 150-1206B104K101N3	100 nF	100 VDC	±10%
RND 150-1206B104K160NT	100 nF	16 VDC	±10%
RND 150-1206B104K201N2	100 nF	200 VDC	±10%
RND 150-1206B104K250NT	100 nF	25 VDC	±10%
RND 150-1206B104K500NT	100 nF	50 VDC	±10%
RND 150-1206B105J500N2	1 µF	50 VDC	±5%
RND 150-1206B105K100N3	1 µF	10 VDC	±10%
RND 150-1206B105K160N3	1 µF	16 VDC	±10%
RND 150-1206B105K250N3	1 µF	25 VDC	±10%
RND 150-1206B105K500N2	1 µF	50 VDC	±10%
RND 150-1206B106K100N2	10 µF	10 VDC	±10%
RND 150-1206B106K160N2	10 µF	16 VDC	±10%
RND 150-1206B123K500NT	12 nF	50 VDC	±10%
RND 150-1206B151K102N3	150 pF	1000 VDC	±10%
RND 150-1206B151K202N3	150 pF	2000 VDC	±10%

Art. Nr.	Capacitance	Rated Voltage	Capacitance Tolerance
RND 150-1206B152K500NT	1.5 nF	50 VDC	±10%
RND 150-1206B153K500NT	15 nF	50 VDC	±10%
RND 150-1206B154K101N3	150 nF	100 VDC	±10%
RND 150-1206B155K160N3	1.5 µF	16 VDC	±10%
RND 150-1206B182K500NT	1.8 nF	50 VDC	±10%
RND 150-1206B183K500NT	18 nF	50 VDC	±10%
RND 150-1206B221K101NT	220 pF	100 VDC	±10%
RND 150-1206B221K102N3	220 pF	1000 VDC	±10%
RND 150-1206B221K202N3	220 pF	2000 VDC	±10%
RND 150-1206B221K500NT	220 pF	50 VDC	±10%
RND 150-1206B221K631NT	220 pF	630 VDC	±10%
RND 150-1206B222K101NT	2.2 nF	100 VDC	±10%
RND 150-1206B222K102N2	2.2 nF	1000 VDC	±10%
RND 150-1206B222K201NT	2.2 nF	200 VDC	±10%
RND 150-1206B222K500NT	2.2 nF	50 VDC	±10%
RND 150-1206B222K631N3	2.2 nF	630 VDC	±10%
RND 150-1206B223K101NT	22 nF	100 VDC	±10%
RND 150-1206B223K201N3	22 nF	200 VDC	±10%
RND 150-1206B223K500NT	22 nF	50 VDC	±10%
RND 150-1206B223K631N2	22 nF	630 VDC	±10%
RND 150-1206B224J500N3	220 nF	50 VDC	±5%
RND 150-1206B224K100NT	220 nF	10 VDC	±10%
RND 150-1206B224K101N2	220 nF	100 VDC	±10%
RND 150-1206B224K160NT	220 nF	16 VDC	±10%
RND 150-1206B224K250NT	220 nF	25 VDC	±10%
RND 150-1206B224K500N3	220 nF	50 VDC	±10%
RND 150-1206B225K100N3	2.2 µF	10 VDC	±10%
RND 150-1206B225K160N3	2.2 µF	16 VDC	±10%
RND 150-1206B225K250N2	2.2 µF	25 VDC	±10%
RND 150-1206B272K500NT	2.7 nF	50 VDC	±10%
RND 150-1206B273K500NT	27 nF	50 VDC	±10%
RND 150-1206B274K250N3	270 nF	25 VDC	±10%
RND 150-1206B331K201NT	330 pF	200 VDC	±10%
RND 150-1206B331K500NT	330 pF	50 VDC	±10%
RND 150-1206B332K101NT	3.3 nF	100 VDC	±10%
RND 150-1206B332K631N3	3.3 nF	630 VDC	±10%
RND 150-1206B333K101N3	33 nF	100 VDC	±10%
RND 150-1206B333K500NT	33 nF	50 VDC	±10%
RND 150-1206B333K631N2	33 nF	630 VDC	±10%
RND 150-1206B334K160NT	330 nF	16 VDC	±10%
RND 150-1206B334K250N3	330 nF	25 VDC	±10%
RND 150-1206B334K500N3	330 nF	50 VDC	±10%
RND 150-1206B391K500NT	390 pF	50 VDC	±10%
RND 150-1206B393K500NT	39 nF	50 VDC	±10%
RND 150-1206B394K250NT	390 nF	25 VDC	±10%
RND 150-1206B471K101NT	470 pF	100 VDC	±10%
RND 150-1206B471K102N3	470 pF	1000 VDC	±10%
RND 150-1206B471K201NT	470 pF	200 VDC	±10%
RND 150-1206B471K202N3	470 pF	2000 VDC	±10%
RND 150-1206B471K500NT	470 pF	50 VDC	±10%
RND 150-1206B471K631N3	470 pF	630 VDC	±10%
RND 150-1206B472K101NT	4.7 nF	100 VDC	±10%
RND 150-1206B472K102N2	4.7 nF	1000 VDC	±10%
RND 150-1206B472K500NT	4.7 nF	50 VDC	±10%
RND 150-1206B472K501N3	4.7 nF	500 VDC	±10%
RND 150-1206B472K631N3	4.7 nF	630 VDC	±10%
RND 150-1206B473K101N3	47 nF	100 VDC	±10%
RND 150-1206B473K201N2	47 nF	200 VDC	±10%

Art. Nr.	Capacitance	Rated Voltage	Capacitance Tolerance
RND 150-1206B152K500NT	1.5 nF	50 VDC	±10%
RND 150-1206B153K500NT	15 nF	50 VDC	±10%
RND 150-1206B154K101N3	150 nF	100 VDC	±10%
RND 150-1206B155K160N3	1.5 µF	16 VDC	±10%
RND 150-1206B182K500NT	1.8 nF	50 VDC	±10%
RND 150-1206B183K500NT	18 nF	50 VDC	±10%
RND 150-1206B221K101NT	220 pF	100 VDC	±10%
RND 150-1206B221K102N3	220 pF	1000 VDC	±10%
RND 150-1206B221K202N3	220 pF	2000 VDC	±10%
RND 150-1206B221K500NT	220 pF	50 VDC	±10%
RND 150-1206B221K631NT	220 pF	630 VDC	±10%
RND 150-1206B222K101NT	2.2 nF	100 VDC	±10%
RND 150-1206B222K102N2	2.2 nF	1000 VDC	±10%
RND 150-1206B222K201NT	2.2 nF	200 VDC	±10%
RND 150-1206B222K500NT	2.2 nF	50 VDC	±10%
RND 150-1206B222K631N3	2.2 nF	630 VDC	±10%
RND 150-1206B223K101NT	22 nF	100 VDC	±10%
RND 150-1206B223K201N3	22 nF	200 VDC	±10%
RND 150-1206B223K500NT	22 nF	50 VDC	±10%
RND 150-1206B223K631N2	22 nF	630 VDC	±10%
RND 150-1206B224J500N3	220 nF	50 VDC	±5%
RND 150-1206B224K100NT	220 nF	10 VDC	±10%
RND 150-1206B224K101N2	220 nF	100 VDC	±10%
RND 150-1206B224K160NT	220 nF	16 VDC	±10%
RND 150-1206B224K250NT	220 nF	25 VDC	±10%
RND 150-1206B224K500N3	220 nF	50 VDC	±10%
RND 150-1206B225K100N3	2.2 µF	10 VDC	±10%
RND 150-1206B225K160N3	2.2 µF	16 VDC	±10%
RND 150-1206B225K250N2	2.2 µF	25 VDC	±10%
RND 150-1206B272K500NT	2.7 nF	50 VDC	±10%
RND 150-1206B273K500NT	27 nF	50 VDC	±10%
RND 150-1206B274K250N3	270 nF	25 VDC	±10%
RND 150-1206B331K201NT	330 pF	200 VDC	±10%
RND 150-1206B331K500NT	330 pF	50 VDC	±10%
RND 150-1206B332K101NT	3.3 nF	100 VDC	±10%
RND 150-1206B332K631N3	3.3 nF	630 VDC	±10%
RND 150-1206B333K101N3	33 nF	100 VDC	±10%
RND 150-1206B333K500NT	33 nF	50 VDC	±10%
RND 150-1206B333K631N2	33 nF	630 VDC	±10%
RND 150-1206B334K160NT	330 nF	16 VDC	±10%
RND 150-1206B334K250N3	330 nF	25 VDC	±10%
RND 150-1206B334K500N3	330 nF	50 VDC	±10%
RND 150-1206B391K500NT	390 pF	50 VDC	±10%
RND 150-1206B393K500NT	39 nF	50 VDC	±10%
RND 150-1206B394K250NT	390 nF	25 VDC	±10%
RND 150-1206B471K101NT	470 pF	100 VDC	±10%
RND 150-1206B471K102N3	470 pF	1000 VDC	±10%
RND 150-1206B471K201NT	470 pF	200 VDC	±10%
RND 150-1206B471K202N3	470 pF	2000 VDC	±10%
RND 150-1206B471K500NT	470 pF	50 VDC	±10%
RND 150-1206B471K631N3	470 pF	630 VDC	±10%
RND 150-1206B472K101NT	4.7 nF	100 VDC	±10%
RND 150-1206B472K102N2	4.7 nF	1000 VDC	±10%
RND 150-1206B472K500NT	4.7 nF	50 VDC	±10%
RND 150-1206B472K501N3	4.7 nF	500 VDC	±10%
RND 150-1206B472K631N3	4.7 nF	630 VDC	±10%
RND 150-1206B473K101N3	47 nF	100 VDC	±10%
RND 150-1206B473K201N2	47 nF	200 VDC	±10%

Art. Nr.	Capacitance	Rated Voltage	Capacitance Tolerance
RND 150-1206B473K500NT	47 nF	50 VDC	±10%
RND 150-1206B474J500N2	470 nF	50 VDC	±5%
RND 150-1206B474K100N3	470 nF	10 VDC	±10%
RND 150-1206B474K160N3	470 nF	16 VDC	±10%
RND 150-1206B474K250N3	470 nF	25 VDC	±10%
RND 150-1206B474K500N2	470 nF	50 VDC	±10%
RND 150-1206B475K250N2	4.7 µF	25 VDC	±10%
RND 150-1206B475K500N2	4.7 µF	50 VDC	±10%
RND 150-1206B561K500NT	560 pF	50 VDC	±10%
RND 150-1206B564K250N3	560 nF	25 VDC	±10%
RND 150-1206B681K102N3	680 pF	1000 VDC	±10%
RND 150-1206B681K202N3	680 pF	2000 VDC	±10%
RND 150-1206B681K500NT	680 pF	50 VDC	±10%
RND 150-1206B681K631N3	680 pF	630 VDC	±10%
RND 150-1206B682K500NT	6.8 nF	50 VDC	±10%
RND 150-1206B683K500NT	68 nF	50 VDC	±10%
RND 150-1206B684K160N3	680 nF	16 VDC	±10%
RND 150-1206B684K250N3	680 nF	25 VDC	±10%
RND 150-1206B684K500N2	680 nF	50 VDC	±10%
RND 150-1206N100J202N2	10 pF	2000 VDC	±5%
RND 150-1206N100J500NT	10 pF	50 VDC	±5%
RND 150-1206N101J101NT	100 pF	100 VDC	±5%
RND 150-1206N101J202N3	100 pF	2000 VDC	±5%
RND 150-1206N101J500NT	100 pF	50 VDC	±5%
RND 150-1206N101J501NT	100 pF	500 VDC	±5%
RND 150-1206N101J631NT	100 pF	630 VDC	±5%
RND 150-1206N102J101NT	1.0 nF	100 VDC	±5%
RND 150-1206N102J201N3	1.0 nF	200 VDC	±5%
RND 150-1206N102J631N2	1.0 nF	630 VDC	±5%
RND 150-1206N150J201NT	15 pF	200 VDC	±5%
RND 150-1206N150J631NT	15 pF	630 VDC	±5%
RND 150-1206N151J102N3	150 pF	1000 VDC	±5%
RND 150-1206N1R5C201NT	1.5 pF	200 VDC	±0.25%
RND 150-1206N1R5C631NT	1.5 pF	630 VDC	±0.25%
RND 150-1206N220J101NT	22 pF	100 VDC	±5%
RND 150-1206N220J102N3	22 pF	1000 VDC	±5%
RND 150-1206N220J201NT	22 pF	200 VDC	±5%
RND 150-1206N220J202N3	22 pF	2000 VDC	±5%
RND 150-1206N220J500NT	22 pF	50 VDC	±5%
RND 150-1206N220J631NT	22 pF	630 VDC	±5%
RND 150-1206N221J101NT	220 pF	100 VDC	±5%
RND 150-1206N221J201NT	220 pF	200 VDC	±5%
RND 150-1206N221J202N2	220 pF	2000 VDC	±5%
RND 150-1206N221J500NT	220 pF	50 VDC	±5%
RND 150-1206N221J631N3	220 pF	630 VDC	±5%
RND 150-1206N222J201N3	2.2 nF	200 VDC	±5%
RND 150-1206N330J101NT	33 pF	100 VDC	±5%
RND 150-1206N330J102N2	33 pF	1000 VDC	±5%
RND 150-1206N330J201NT	33 pF	200 VDC	±5%
RND 150-1206N330J202N3	33 pF	2000 VDC	±5%

Art. Nr.	Capacitance	Rated Voltage	Capacitance Tolerance
RND 1501206F105Z160	1 µF	16 VDC	-20/+80%
RND 1501206F105Z250	1 µF	25 VDC	-20/+80%
RND 1501206F105Z500	1 µF	50 VDC	-20/+80%
RND 1501206F106Z100	10 µF	10 VDC	-20/+80%
RND 1501206F106Z160	10 µF	16 VDC	-20/+80%
RND 1501206F106Z250	10 µF	25 VDC	-20/+80%
RND 1501206F225Z160	2.2 µF	16 VDC	-20/+80%
RND 1501206F226Z100	22 µF	10 VDC	-20/+80%
RND 1501206F335Z160	3.3 µF	16 VDC	-20/+80%
RND 1501206F474Z250	470 nF	25 VDC	-20/+80%
RND 1501206F475Z160	4.7 µF	16 VDC	-20/+80%
RND 1501206F475Z250	4.7 µF	25 VDC	-20/+80%
RND 1501206X475K250	4.7 µF	25 VDC	±10%
RND 1501206X106K6R3	10 µF	6.3 VDC	±10%
RND 1501206X106K100	10 µF	10 VDC	±10%
RND 1501206X106K160	10 µF	16 VDC	±10%
RND 1501206X106K250	10 µF	25 VDC	±10%
RND 1501206X226K6R3	22 µF	6.3 VDC	±10%
RND 1501206X226M6R3	22 µF	6.3 VDC	±20%
RND 1501206X226M100	22 µF	10 VDC	±20%
RND 1501206X226K160	22 µF	16 VDC	±10%
RND150TT31F106Z100	10 µF	10 VDC	-20/+80%
RND150TT31X106M6R3	10 µF	6.3 VDC	±20%
RND 150-1206X106K063N2	10 µF	6.3 VDC	±10%
RND 150-1206X106K100N2	10 µF	10 VDC	±10%
RND 150-1206X106K160N2	10 µF	16 VDC	±10%
RND 150-1206X106K250N2	10 µF	25 VDC	±10%
RND 150-1206X226K063N2	22 µF	6.3 VDC	±10%
RND 150-1206X226K160N2	22 µF	16 VDC	±10%
RND 150-1206X226M063N2	22 µF	6.3 VDC	±20%
RND 150-1206X226M100N2	22 µF	10 VDC	±20%
RND 150-1206X475K250N2	4.7 µF	25 VDC	±10%
RND 1501206Y105Z160N3	1.0 µF	16 VDC	-20/+80%
RND 1501206Y105Z250N3	1.0 µF	25 VDC	-20/+80%
RND 1501206Y105Z500N3	1.0 µF	50 VDC	-20/+80%
RND 1501206Y106Z100N3	10 µF	10 VDC	-20/+80%
RND 1501206Y106Z160N3	10 µF	16 VDC	-20/+80%
RND 1501206Y106Z250N2	10 µF	25 VDC	-20/+80%
RND 1501206Y225Z160N3	2.2 µF	16 VDC	-20/+80%
RND 1501206Y226Z100N2	22 µF	10 VDC	-20/+80%
RND 1501206Y335Z160N3	3.3 µF	16 VDC	-20/+80%
RND 1501206Y474Z250NT	470 nF	25 VDC	-20/+80%
RND 1501206Y475Z160N3	4.7 µF	16 VDC	-20/+80%
RND 1501206Y475Z250N3	4.7 µF	25 VDC	-20/+80%
RND 150C1206X106K100N2	10 µF	10 VDC	-20/+80%