To : NANCHANG O-FILM OPTICAL TECH CO., LTD

Specification number: EQM08-1KC-E165K18

Date of issue: 20 June, 2016

Multilayer ceramic Chip capacitor specification

Product Part No

CM02,03 series (Refer to [Part No])

(Recipient stamp column)

Please send back with recipient stamp or signature here.

This specification would be invalidated unlesse sent back within a year after issue date of this specification.

RoHS Compliant

Kyocera Corporation
Capacitor Division

KYOCERA

[Part No]

Characteristic	K/C Supplier Part No	Remarks
X5R	CM02X5R221K06AH	
X5R	CM02X5R104K06AH	
X5R	CM02X5R104M06AH	
X5R	CM02X5R224M06AH	
X5R	CM03X5R102K25AH	
X5R	CM03X5R224K06AH	
X5R	CM03X5R224M06AH	
X5R	CM03X5R474K06AH	
X5R	CM03X5R474M06AH	
X5R	CM03X5R105M06AH	
X5R	CM03X5R105M10AH	
X5R	CM03X5R105M16AH	
X5R	CM03X5R225M06AH	
X5R	CM03X5R225M10AH	
X5R	CM03X5R225M06AH035	

Contents

1. Application

This specification is applied to the multilayer ceramic Chip capacitor supplied from KYOCERA.

2. Nomenclature

(Ex)	CM	02	X5R	221	K	06	A	H
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

(1)Series CM

(2)Size

Code	Size[mm×mm]
02	0.4×0.2
03	0.6×0.3

(3)Temperature Characteristics
High Dielectric Constant Type

Code	Capacitance Change[%]
X5R	±15

(4)Nominal capacitance(Ex)

Code	Capacitance
151	150pF
182	1,800pF
223	22,000pF
474	470,000pF
225	2,200,000pF

(5)Tolerance

Code	Tolerance
K	±10%
M	±20%

(6)Voltage

Code	Voltage[V]
06	6.3
10	10
16	16
2 25	25

(7)Termination

A:Nickel barrier / Tin

(8)Packaging type

Code	Packaging type	Pitch	Tape width
H	Taping Reel(φ180mm)	2mm	8mm

(9)Option (Thickness)

ex) 035 : 0.3±0.05mm

3. Structure

(1) Size

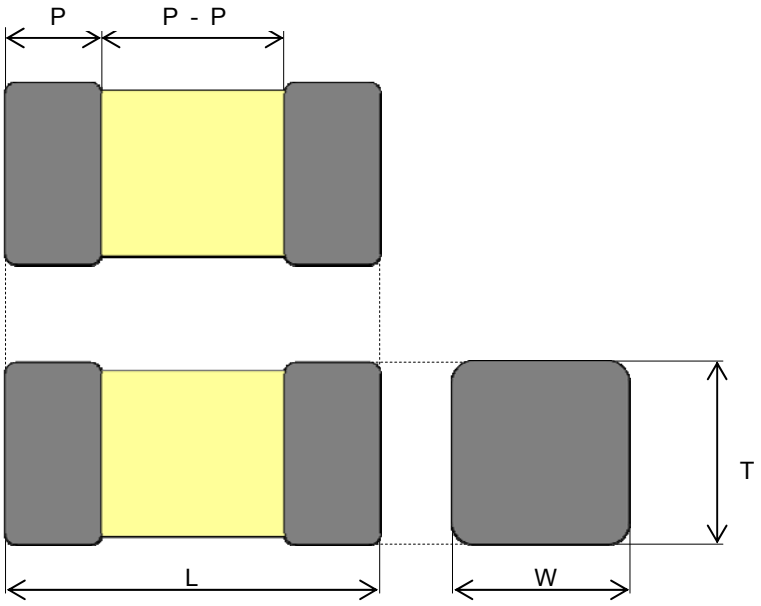


Fig.1 Dimension

Dimensions (Unit:mm)

Size	L	W	T	P	P-P
02	0.4±0.02	0.2±0.02	0.2±0.02	0.07-0.14	0.13min
03	0.6±0.03	0.3±0.03	0.3±0.03	0.10-0.20	0.20min
	0.6±0.05	0.3±0.05	0.3±0.05	0.13-0.23	0.19min
	0.6±0.09	0.3±0.09	0.3±0.09		

(2) Appearance

No problem is observed under a microscope.

(3) Internal structure

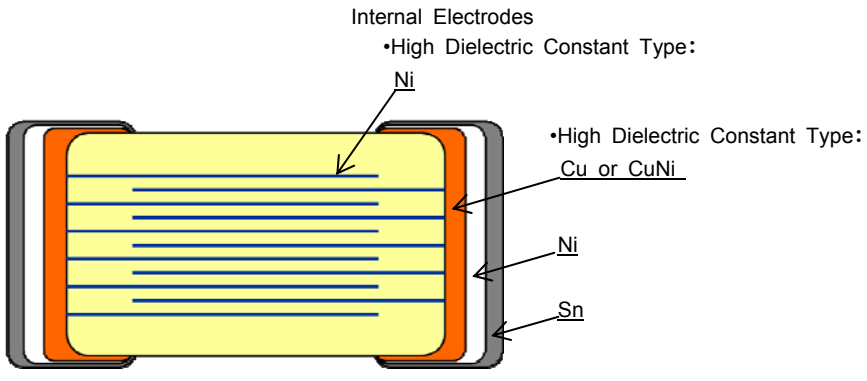


Fig.2 Internal structure

4. Electrical properties

<table>
<tr><th>No</th><th>Item</th><th>Test Conditions</th><th>Specifications</th></tr>
<tr><td>1</td><td>Temperature characteristic of capacitance</td><td>
○High Dielectric Constant Type(X5R)

Keep the sample at 150+0/-10 °C for 1 hour, leave the sample at room ambient for 24±2 hours.

X5R,X7R Test Conditions
<table>
<tr><th>Product</th><th>Frequency</th><th>Voltage</th></tr>
<tr><td>See Table 1</td><td>1kHz±10%</td><td>0.1+0.1/-0Vrms</td></tr>
<tr><td>See Table 2</td><td>1kHz±10%</td><td>0.2+0.1/-0Vrms</td></tr>
<tr><td>See Table 3</td><td>1kHz±10%</td><td>0.5±0.1Vrms</td></tr>
<tr><td>2 See Table 4</td><td>1kHz±10%</td><td>1.0±0.2Vrms</td></tr>
</table>
Table 1
<table>
<tr><th>Size</th><th>Dielectric code</th><th>Voltage[V]</th><th>Nominal capacitance [µF]</th></tr>
<tr><td>02</td><td>X5R</td><td>6.3</td><td>0.22</td></tr>
<tr><td>03</td><td>X5R</td><td>10,16</td><td>1.0</td></tr>
</table>
Table 2
<table>
<tr><th>Size</th><th>Dielectric code</th><th>Voltage[V]</th><th>Nominal capacitance [µF]</th></tr>
<tr><td>03</td><td>X5R</td><td>6.3,10</td><td>2.2</td></tr>
</table>
Table 3
<table>
<tr><th>Size</th><th>Dielectric code</th><th>Voltage[V]</th><th>Nominal capacitance [µF]</th></tr>
<tr><td rowspan="2">02</td><td rowspan="2">X5R</td><td>6.3</td><td>0.00022</td></tr>
<tr><td>6.3</td><td>0.1</td></tr>
<tr><td rowspan="3">03</td><td rowspan="3">X5R</td><td rowspan="3">6.3</td><td>0.22</td></tr>
<tr><td>0.47</td></tr>
<tr><td>1.0</td></tr>
</table>
2 Table 4
<table>
<tr><th>Size</th><th>Dielectric code</th><th>Voltage[V]</th><th>Nominal capacitance [µF]</th></tr>
<tr><td>03</td><td>X5R</td><td>25</td><td>0.001</td></tr>
</table>
X5R Temperature Range / Reference Temperature
<table>
<tr><th>Dielectric code</th><th>Min Temp.</th><th>Max Temp.</th><th>Reference Temp.</th></tr>
<tr><td>X5R</td><td>-55℃</td><td>85℃</td><td>25℃</td></tr>
</table>
</td><td>
X5R Capacitance Change
<table>
<tr><th colspan="2">Dielectric code</th><th>Capacitance Change</th></tr>
<tr><td>X5R</td><td>No applied volatage</td><td>Within ±15% of the initial capacitance</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>No</th><th>Item</th><th>Test Conditions</th><th>Specifications</th></tr>
<tr><td>2</td><td>Nominal capacitance and Tolerance</td><td rowspan="3">○High Dielectric Constant Type(X5R)
Keep the sample at 150+0/- 10 °C for 1 hour, leave the sample at room ambient for 24±2 hours.

X5R Test Conditions
<table>
<tr><th>Nominal capacitance (Code:C)</th><th>Frequency</th><th>Voltage</th></tr>
<tr><td>C≦10μF</td><td>1kHz±10%</td><td>1.0±0.2Vrms</td></tr>
<tr><td>See Table 1</td><td>1kHz±10%</td><td>0.5±0.1Vrms</td></tr>
</table>
Table 1
<table>
<tr><th>Size</th><th>Dielectric code</th><th>Voltage[V]</th><th>Nominal capacitance [μF]</th></tr>
<tr><td>03</td><td>X5R</td><td>6.3</td><td>2.2</td></tr>
</table></td><td rowspan="3">Refer to Parts list</td></tr>
<tr><td>3</td><td>Dissipation factor (tanδ)
(High Dielectric Constant Type)</td></tr>
<tr><td>4</td><td>Rated voltage</td></tr>
<tr><td>5</td><td>Insulation-resistance</td><td>Measure after rated voltage is applied for 1 minute at room ambient.
Charge and discharge current is 50mA or less.</td><td>Refer to Parts list</td></tr>
<tr><td>6</td><td>Dielectric Resistance</td><td>○High Dielectric Constant Type(X5R)
2.5 times of rated voltage is applied for 1 to 5seconds.

○CM03X5R105M06
1.5 times of rated voltage is applied for 1 to 5seconds.

Charge and discharge current is 50mA or less.</td><td>Dielectric breakdown should not occur.</td></tr>
</table>

CM02 X5R Parts list

Product Part No	DIELECTRIC CODE	Nominal Capacitance [pF]	Tolerance (□)	R.V [V]	D.F [%]max	IR(initial) [MΩ]or [MΩ•μF]min
CM02X5R221□06A■	X5R	220	K:±10%	6.3	12.5	10000MΩ
CM02X5R104□06A■		100,000	K:±10% M:±20%			500MΩ•μF
CM02X5R224M06A■		220,000	M:±20%			5MΩ

□:Tolerance code ■:Packaging code

Dimensions (Unit:mm)

Size	L	W	T	P	P-P
02	0.4±0.02	0.2±0.02	0.2±0.02	0.07-0.14	0.13min

CM03 X5R Parts list

Product Part No	DIELECTRIC CODE	Nominal Capacitance [pF]	Tolerance (□)	R.V [V]	D.F [%]max	IR(initial) [MΩ]or [MΩ•μF]min
2 CM03X5R102□25A■	X5R	1,000	K:±10%	25	5.0	10000MΩ
CM03X5R224□06A■		220,000	K:±10% M:±20%	6.3	10.0	100MΩ•μF
CM03X5R474□06A■		470,000			12.5	100MΩ•μF

□:Tolerance code ■:Packaging code

Dimensions (Unit:mm)

Size	L	W	T	P	P-P
03	0.6±0.03	0.3±0.03	0.3±0.03	0.10-0.20	0.20min

CM03 X5R Parts list

Product Part No	DIELECTRIC CODE	Nominal Capacitance [pF]	Tolerance	R.V [V]	D.F [%]max	IR(initial) [MΩ]or [MΩ•μF]min
CM03X5R105M06A■	X5R	1,000,000	M:±20%	6.3	12.5	100MΩ•μF
CM03X5R225M06A■035		2,200,000	M:±20%	6.3	12.5	5MΩ

■:Packaging code

Dimensions (Unit:mm)

Size	L	W	T	P	P-P
03	0.6±0.05	0.3±0.05	0.3±0.05	0.13-0.23	0.19min

CM03 X5R Parts list

Product Part No	DIELECTRIC CODE	Nominal Capacitance [pF]	Tolerance	R.V [V]	D.F [%]max	IR(initial) [MΩ]min
CM03X5R225M06A■	X5R	2,200,000	M:±20%	6.3	12.5	5MΩ
CM03X5R105M10A■		1,000,000	M:±20%	10	20.0	5MΩ
CM03X5R225M10A■		2,200,000	M:±20%		15.0	5MΩ
CM03X5R105M16A■		1,000,000	M:±20%	16	20.0	5MΩ

■:Packaging code

Dimensions (Unit:mm)

Size	L	W	T	P	P-P
03	0.6±0.09	0.3±0.09	0.3±0.09	0.13-0.23	0.19min

5. Reliability

<table>
<tr><th>No</th><th>Item</th><th>Test Conditions</th><th>Specifications</th></tr>
<tr><td>1</td><td>Temperature cycle</td><td>
○High Dielectric Constant Type(X5R)
Keep the sample at 150+0/- 10 °C for 1 hour, leave the sample at room ambient for 24±2 hours.
Measure the initial capacitance and Dissipation factor

< Temperature cycle regulation >
<table>
<tr><th>Stage</th><th>Temperature</th><th>Time</th></tr>
<tr><td>1</td><td>Room temperature</td><td>3min</td></tr>
<tr><td>2</td><td>Lowest operation temperature</td><td>30min</td></tr>
<tr><td>3</td><td>Room temperature</td><td>3min</td></tr>
<tr><td>4</td><td>Highest operation temperature</td><td>30min</td></tr>
</table>
After 5 cycle, measure after 24±2 hours.

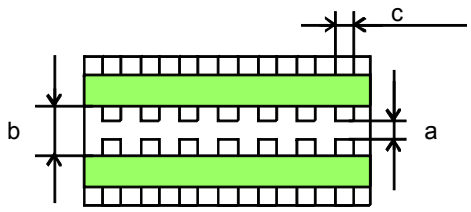
The charge and discharge current of the capacitor must not exceed 50mA for IR and withstanding voltage measurement.


Fig. 3. Substrate for temperature cycle test
(Unit:mm)
<table>
<tr><th>Size</th><th>a</th><th>b</th><th>c</th></tr>
<tr><td>02</td><td>0.15</td><td>0.50</td><td>0.20</td></tr>
<tr><td>03</td><td>0.26</td><td>0.92</td><td>0.32</td></tr>
</table>
</td><td>
•Appearance
No problem observed

•X5R
Capacitance Change/Dissipation factor(tanδ)/IR
See Temperature cycle Specifications

•Dielectric Resistance
Dielectric breakdown should not occur.
</td></tr>
</table>

Temperature cycle Specifications High Dielectric Constant Type(X5R)

DIELECTRIC CODE	Size	Voltage [V]	Nominal capacitance [μF]	Cap.Change (Tolerance to initial value) [%]	D.F (Max tolerance to Initial value) [%]	IR (Minimum value)
X5R	02	6.3	0.00022	±7.5	100	10000MΩ
			0.1	±7.5	100	500MΩ•μF
			0.22	±15	100	5MΩ
	03	25	0.001	±7.5	100	10000MΩ
		16	1.0	±25	100	5MΩ
		10	1.0	±25	100	5MΩ
			2.2			
		6.3	0.22	±20	100	50MΩ•μF
			0.47			
			1.0	±20	100	20MΩ•μF
			2.2	±15	100	5MΩ

No	Item	Test Conditions	Specifications
2	Load humidity test	○High Dielectric Constant Type(X5R) Apply the below mentioned test condition for 1 hour, then leave the sample at room ambient for 24±2 hours and measure the initial capacitance and dissipation factor. After applying rated voltage for 500+12/-0 hours in pre-condition at 40±2 °C, humidity 90 to 95%RH, allow parts to stabilize for 24±2 hours, at room temperature before measurement. Charge and discharge current of the capacitor must not exceed 50mA for IR measurement. Substrate for test is referred to Fig.3.	•Appearance No problem observed Capacitance Change/Dissipation factor(tanδ)/IR See Load humidity Specifications

Load humidity testSpecifications High Dielectric Constant Type(X5R)

DIELECTRIC CODE	Size	Voltage [V]	Nominal capacitance [μF]	Cap.Change (Tolerance to initial value) [%]	D.F (Max tolerance to Initial value) [%]	IR (Minimum value)	
X5R	02	6.3	0.00022	±12.5	200	500MΩ	
			0.1			25MΩ•μF	
			0.22	±12.5	200	0.5MΩ	
	03	25	0.001	±12.5	200	500MΩ	△2
		16	1.0	±25	200	0.5MΩ	
		10	1.0	±25	200	0.5MΩ	
			2.2				
		6.3	0.22	±20	200	10MΩ•μF	
			0.47				
			1.0	±25	200	10MΩ•μF	
			2.2	±12.5	200	0.5MΩ	

No	Item	Test Conditions	Specifications
3	High-temperature with loading	○High Dielectric Constant Type(X5R) Apply the below mentioned test condition for 1 hour, then leave the sample at room ambient for 24±2 hours and measure the initial capacitance and dissipation factor. After applying voltage (Magnification of Applied voltage × Rated voltage) for 1000+12/-0 hours in pre-condition at the highest temperature, allow parts to stabilize for 24±2 hours, at room temperature before measurement. Magnification of Applied voltage: See High-temperature with loading Test condition/ Specifications Charge and discharge current of the capacitor must not exceed 50mA for IR measurement. Substrate for test is referred to Fig.3.	•Appearance No problem observed •Capacitance Change/Dissipation factor(tanδ)/IR See High-temperature with loading Test condition/ Specifications

Load humidity testSpecifications High Dielectric Constant Type(X5R)

DIELECTRIC CODE	Size	Voltage [V]	Nominal capacitance [μF]	Voltage Bias [%]	Cap.Change (Tolerance to initial value) [%]	D.F (Max tolerance to Initial value) [%]	IR (Minimum value)
X5R	02	6.3	0.00022	150	±12.5	200	1000MΩ
			0.1	130	±12.5	200	50MΩ•μF
			0.22	100	±12.5	200	1MΩ
	03	25	0.001	200	±12.5	200	1000MΩ △2
		16	1.0	100	±25	200	1MΩ
		10	1.0	150			
			2.2	100	±12.5	200	1MΩ
		6.3	0.22	130	±20	200	10MΩ•μF
			0.47	130	±20	200	10MΩ•μF
			1.0	120	±25	200	5MΩ•μF
			2.2	100	±12.5	200	1MΩ

6. Soldering Heat Resistance

<table>
<tr><th>No</th><th>Item</th><th>Test Conditions</th><th>Specifications</th></tr>
<tr><td>1</td><td>Soldering
Heat Resistance</td><td>○High Dielectric Constant Type(X5R)
Keep the sample at 150+0/- 10 °C for 1 hour, leave the sample at room ambient for 24±2 hours.
Measure the initial capacitance and dissipation factor.

<Pre-heating conditions>
<table><tr><th>Order</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>80~100℃</td><td>2min</td></tr><tr><td>2</td><td>150~200℃</td><td>2min</td></tr></table>Soak the sample in 260±5 °C solder for 10±0.5 seconds and leave the sample at room ambient, and measure the electrical properties after 24 ±2 hours.
(CM02 series: Reflow method)

IR and the charge-and-discharge current of electric strength measurement are 50mA or less.

Substrate for test is referred to Fig.3.</td><td>•Appearance
No problem observed

•X5R Capacitance Change
<table><tr><th>Dielectric code</th><th>Capacitance Change</th></tr><tr><td>X5R</td><td>Within ±7.5% of the initial capacitance.</td></tr></table>•X5R dissipation factor(tanδ)
100% max of initial value

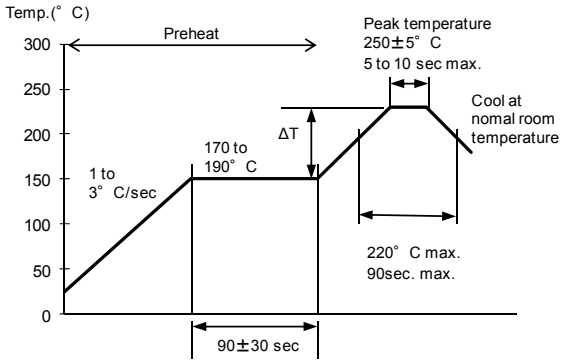
• IR
<table><tr><th>Product</th><th>IR</th></tr><tr><td>CM02X5R221/6.3V
CM03X5R102/25V △2</td><td>10000MΩ min</td></tr><tr><td>CM02X5R104/6.3V
CM03X5R224/6.3V
CM03X5R474/6.3V
CM03X5R105/6.3V</td><td>100MΩ•μF min</td></tr><tr><td>CM02X5R224/6.3V
CM03X5R105/10V, 16V
CM03X5R225/10V, 6.3V</td><td>5MΩ min</td></tr></table>•Dielectric Resistance
Dielectric breakdown should not occur.</td></tr>
</table>

7.Solderability

No	Item	Test Conditions	Specifications
1	Solderability	Lead-free soldering (Sn-3.0Ag-0.5Cu) Soak the sample in 245±5 °C lead-free solder for 3±0.5 seconds. Eutectic solder Soak the sample in 235±5 °C eutectic solder for 2±0.5 seconds.	•Appearance Solder coverage: 90% min.

■For lead-free soldering Recommended temperature profile

•Reflow porfile

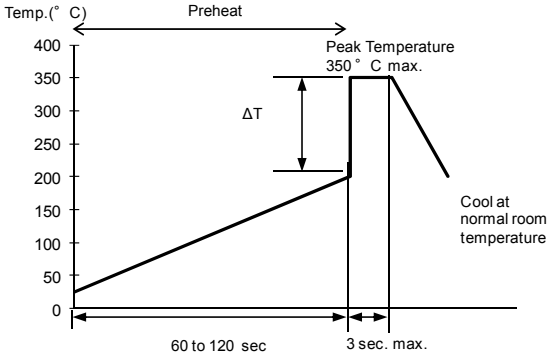


(1) Minimize soldering time
(2) Ensure that the temperature difference does not exceed 150 °C.
(3) MLCC can withstand the above reflow conditions up to 3 times.
(4) Cool naturally after soldering.

•Flow profile

Flow is not applicable for chips with CM02, CM03 size.

•Sodering iron profile



(1) Ensure that the chip capacitor is preheated adequately.
(2) Ensure that the temperature difference between a capacitor and the soldering iron shall not exceed 150 °C.
(3) Cool naturally after soldering.
(4) Avoid direct touching to capacitors.
(5) Tip shape of soldering iron is dia.3.0mm max.
(6) Wattage 80W max.

8.Mechanical Strength

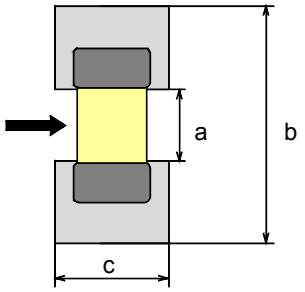
<table>
<tr><th>No</th><th>Item</th><th>Test Conditions</th><th>Specifications</th></tr>
<tr><td>1</td><td>Termination Strength</td><td>Apply a sideward force to a PCB-mounted sample.
Substrate material: Glass epoxy.
 

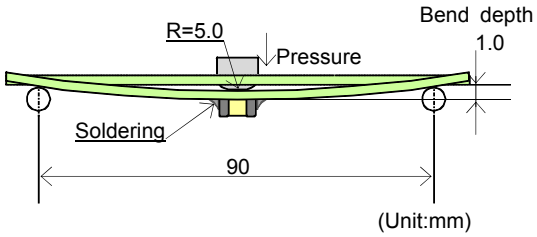
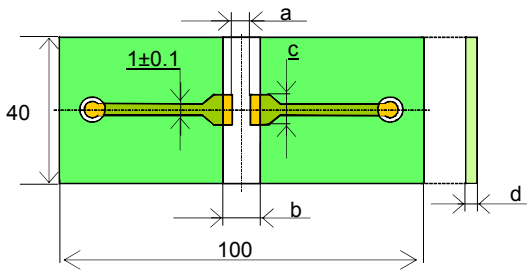
Fig. 4. Substrate for adhesion strength test
<table>
<tr><th>Size</th><th>a [mm]</th><th>b [mm]</th><th>c [mm]</th><th>force [N]</th></tr>
<tr><td>02</td><td>0.15</td><td>0.50</td><td>0.20</td><td>1</td></tr>
<tr><td>03</td><td>0.26</td><td>0.92</td><td>0.32</td><td>2</td></tr>
</table></td><td>•Appearance
No problem observed</td></tr>
<tr><td>2</td><td>Vibration Test</td><td>○High Dielectric Constant Type(X5R)
Keep the sample at 150+0/- 10 °C for 1 hour, leave the sample at room ambient for 24±2 hours.
Measure the initial capacitance and dissipation factor.

Vibration frequency :10 to 55 (Hz)
Amplitude : 1.5mm
Sweeping condition : 10 ->55->10Hz/1 minute
In X, Y and Z direction : 2 hours each
Total 6 hours

Substrate for test is referred to Figure 3.</td><td>•Appearance
No problem observed

•Capacitance Change
Within tolerance.

•X5R
Dissipation factor(tanδ)
100% max of initial value</td></tr>
</table>

No	Item	Test Conditions	Specifications
3	Bending Strength	○High Dielectric Constant Type(X5R) Keep the sample at 150+0/- 10 °C for 1 hour, leave the sample at room ambient for 24±2 hours. Measure the initial capacitance and dissipation factor. Substrate material: Glass epoxy Test time : 10 seconds  Fig. 5 Testing status  (Unit:mm) Fig. 6 Substrate for bending test (Unit:mm) Size / a / b / c / d 02 / 0.15 / 0.50 / 0.20 / 0.8 03 / 0.26 / 0.92 / 0.32 /	•Appearance No problem observed. • Capacitance Change Within ±10% of the initial capacitance.

9.Packaging material

(1) Plastic reel dimensions

(Unit:mm)

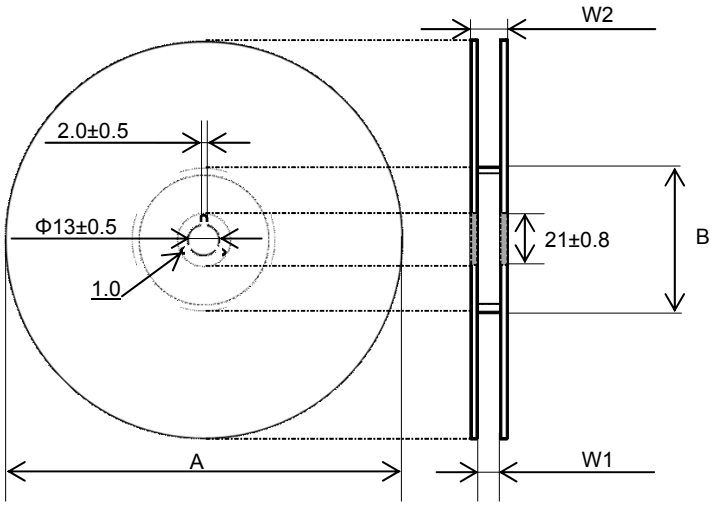


Fig.7 Reel dimensions

Dimensions (Unit:mm)

Size	Packaging code	A	B	W1	W2
02,03	H	180+0/-2.0	φ60min	10.0±1.5	16.5max

(2) Carrier tape dimensions/ Maximum packaging quantity

(a) Pitch=2.0±0.05mm (Packaging code:H) Papercarrier tape

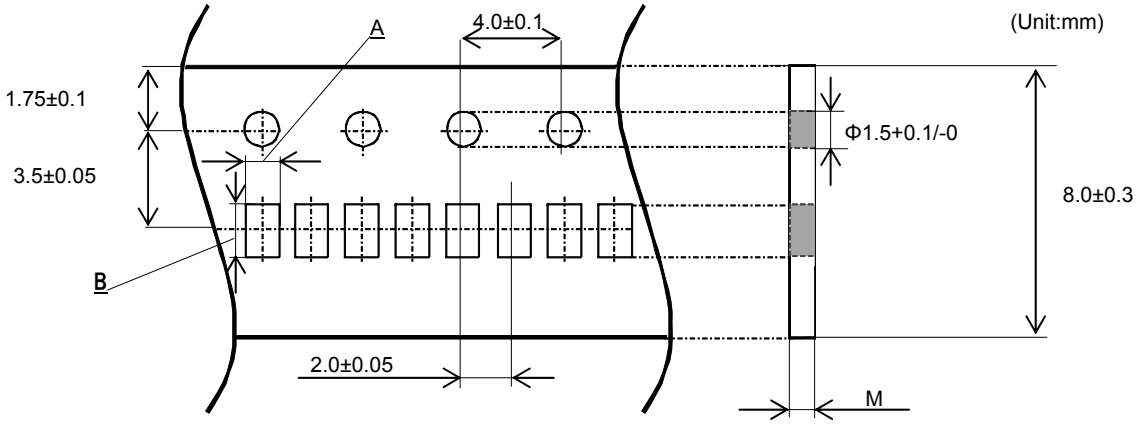


Fig 8.Carrier tape dimensions

Dimensions (Unit:mm)

Size	Chip Thickness[mm]	Maximum packaging quantity(pieces/reel)	carrier tape dimensions[mm]		
		Φ180 Code:H	A	B	M
02	0.2±0.02	20,000	0.25±0.03	0.45±0.03	0.4max
03	0.3±0.03	15,000	0.37±0.03	0.67±0.03	0.5max
	0.3±0.05		0.39±0.03	0.69±0.03	
	0.3±0.09		0.42±0.03	0.72±0.03	0.6max

10.Packaging style

1. Taping

(1) Taping packaging

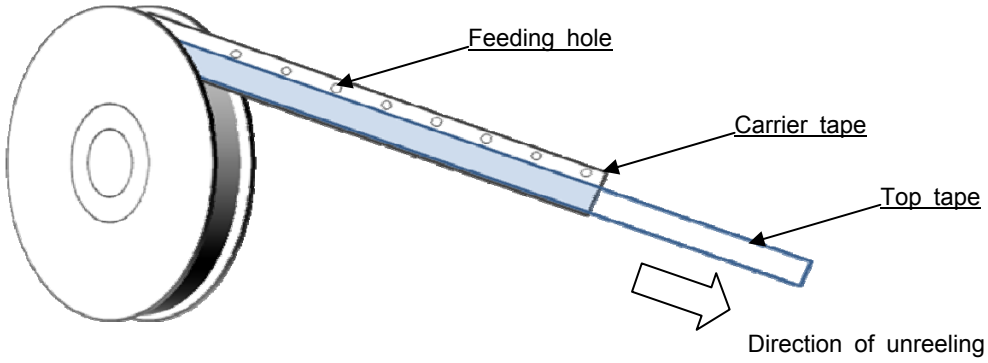


Fig. 9 Taping packaging schema

There are no capacitors in the leader and the trailer portion in taping packaging (refer to Fig. 10).
End of the tape is not fixed to the reel to be released from the hub.

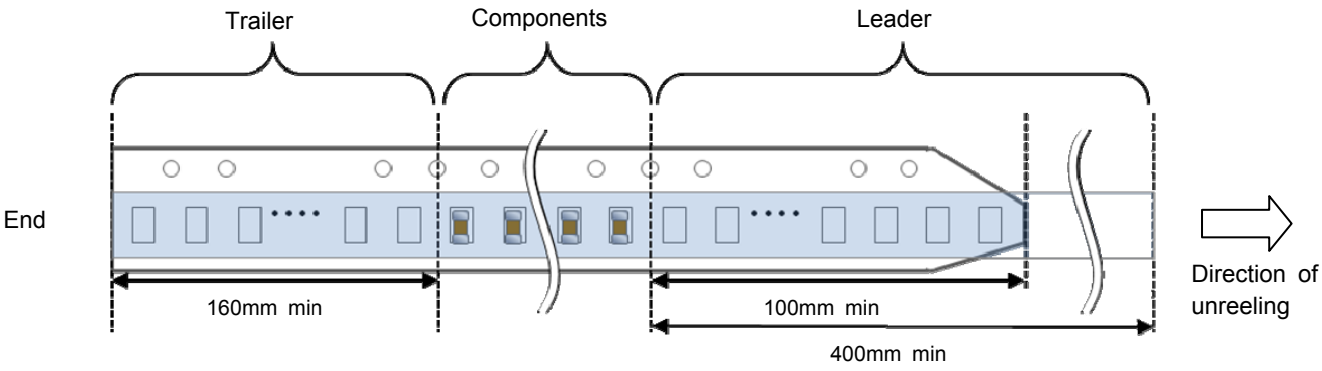


Fig.10 Detail of leader and trailer

(2) Peeling strength of the top tape

The peeling strength when peeling off the top tape from the carrier tape by the method of the following figrue shall be *0.1 to 0.7N. (*:CM02 size: 0.1 to 0.5N) (Refer to Fig 11)

Peeling angle: 165 to 180 degrees to the carrier tape.
Peeling speed: 300mm/min

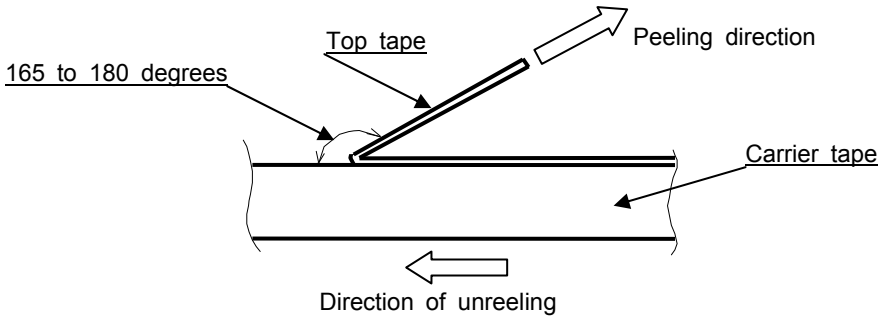


Fig.11 Peeling of the top tape (cross sectional view)

(3) Others

When bent a carrier tape at 25mm in radius, there is neither lack of a capacitor nor breakage of a tape (refer to Fig. 12).
When a top tape is peeled off, glue of the top tape adheres to the top tape side.
Capacitors should not be adhered to the top tape.

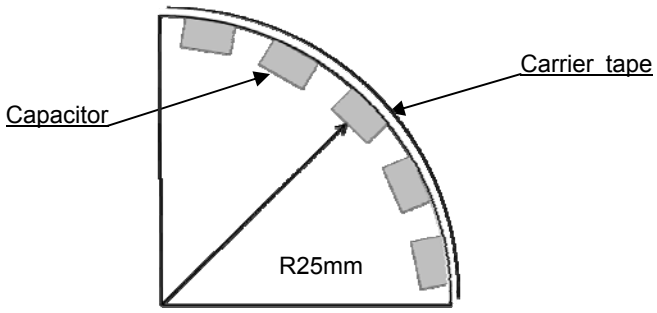


Fig.12 Carrier tape bending (cross sectional view)

11.Label and location

(1) Label location for reels

The label shall be placed on one side of a reel (refer to Fig. 13).

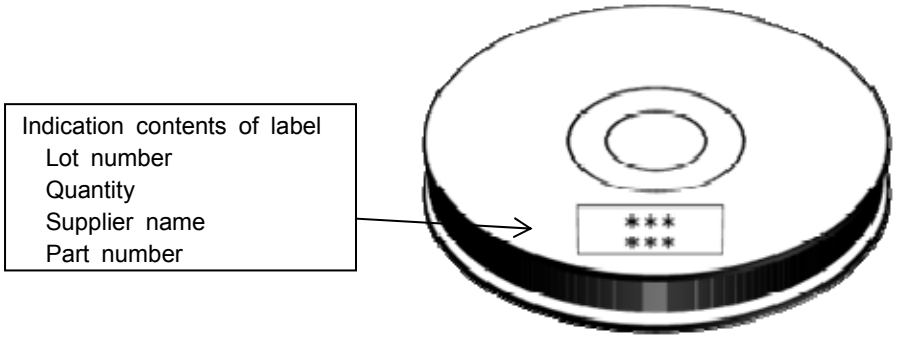


Fig. 13 Label location for reels

(2) Label location for packaging boxes

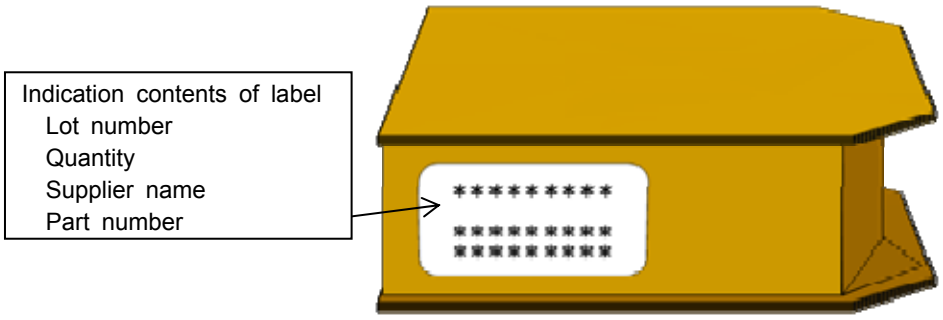


Fig. 14 Label location for packaging boxes

12.Production Site

Kagoshima Kokubu plant (1-1, Kokubu-yamashita-cho, Kirishima-shi, kagoshima)
Shanghai Kyocera electronics (No. 2077 New Jin Qiao Road Jin Qiao Pudong Shanghai 201206)

13.Precautions

■ Handling

1) Cracks may occur unless otherwise avoiding excessive stress to the capacitors by the load of an adsorption nozzle,and bending of a substrate at the time of mounting.
2) Please arrange the capacitor position where they don't have too much stress of board bending after mounting.
3) Please design that the form and size of the land pattern has suitable solder amount.
Otherwise cracks may occur. The recommended fillet height shall be 1/2 to 1/3 of the thickness of capacitors.

■ Circuit Design

1) When AC voltage is superimposed on DC voltage, the zero-to-peak voltage shall not exceed the rated voltage. When the capacitor is to be employed in a circuit in which there is continuous application of a high frequency Voltage or a steep pulse voltage, even though it is within the rated voltage, please inquire to the manufacturer.
2) Please use the capacitor below the maximum temperature.
When using the capacitor in a self-heating AC circuit, please make sure the surface of the capacitor remains under the maximum temperature for usage. Also, please make certain temperature rises remain below 20 °C.

■ Resin coating

Please use the resin of low curing shrinkage type. (Otherwise cracks may occur).

■ Storage

1) When the components is stored in minimal packaging (a heat-sealed or chuck-type plastic bag), the bag should be kept closed. Once the bag has been opened, reseal it or store it in a desiccator.
2) Keep storage place temperature +5 to +40 °C, humidity 20 to 70% RH.
3) The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminals will oxidize and solderability will be effected.
4) Precautions 1) to 3) apply to chip capacitors packaged in carrier tapes and bulk cases.
5) The solderability is assured for 6 months from our shipping date if the above storage precautions are followed.

■ Application Restriction

Please consult with us before using a capacitor in the equipment which requires a high degree reliability (medical equipment, aerospace applications, nuclear equipment.) Malfunctions in medical, space, nuclear power or other vital equipment may result in death or great social losses. Capacitors designed specially with high reliability are used for the equipment above.

■ Export regulation

When the applying products relate the strategic materials which are provided in Foreign Exchange and Foreign Trade Act and Foreign Trade Management Law, the export license based on these laws are required.

■ Disposal

Please dispose the capacitors according to the relating laws about the waste treatment and cleaning.
Safety application guideline and detailed information of electrical properties are also provided in Kyocera home page:
URL: http://www.kyocera.co.jp/electronic

Notice:

This specification shall guarantee only monolithic capacitors. Please make sure the performance of capacitors after mounted on the assembled product.
Any failures occurred being used out of this specification shall not be quaranteed.
This specification shall be applied to the products purchased through the regular sales routes, such as the sale offices, the subsidiaries and the distributors, etc.).

14.Revision History

No.	Date	Contents	APPD	CHKD	CHKD	PREPD
1	2016/05/24	New issue				
2	2016/06/20	Addition CM03X5R102K25AH				

单击下面可查看定价，库存，交付和生命周期等信息

>>Kyocera(京瓷)