

Multilayer Ceramic Capacitors (2 Array Type)

Series: **ECJU**



■ Features

- Array of 2 capacitors within 0504 case size
- Single part placement, saving placement time and using less PC board area
- Advanced multi-layer technology that results in high capacitance within a very small package
- RoHS compliant

■ Handling Precautions

See Page 48 to 53

■ Recommended Applications

- Stabilization of power supply voltages and for filtering of noise
- Bypass capacitor for digital signal lines

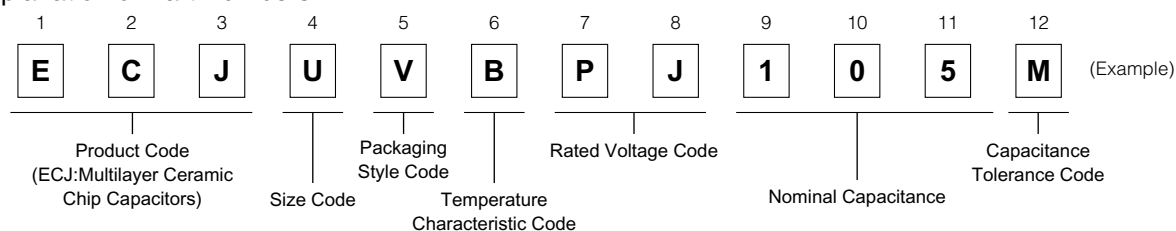
■ Packaging Specifications

See Page 45, 46, 56

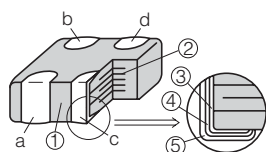
■ Discontinued / Revised Part Numbers, Alternative Part Numbers

See Page 54, 55

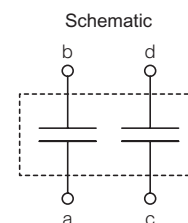
■ Explanation of Part Numbers



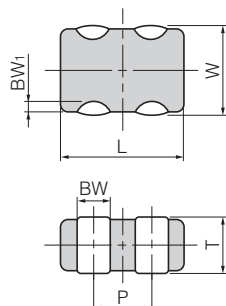
■ Construction



No	Name
①	Ceramic dielectric
②	Internal electrode
③	Substrate electrode
④	Intermediate electrode
⑤	External electrode



■ Dimensions in mm (not to scale)



Size Code	Size (EIA)	L	W	T	BW	BW ₁	P
U	0504	1.37±0.15	1.0±0.1	0.60 ^{+0.06} _{-0.10}	0.36±0.10	2.0±0.1	0.64±0.10
				0.8±0.1	0.52±0.06	0.2 ^{+0.2} _{-0.1}	0.81±0.06

■ Packaging Styles and Standard Packaging Quantity

Quantity: pcs. / reel

Packaging Style Code	Size		0504	
	Packaging Styles	Thickness (mm)	T=0.6	T=0.8
V	φ180 reel	Paper taping (Pitch : 4 mm)	4,000	

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

00 Apr. 2008

■ Temperature Characteristics

● Class 1

Temperature Characteristic Code	Temperature Characteristics	Temp. Coeff. (ppm/°C)	Rate of Capacitance change at each Temp. (%)			
			-25 °C		85 °C	
			max.	min.	max.	min.
C	CH	0 ± 60	0.49	-0.27	0.39	-0.39

Temperature coefficient: calculated between 20 °C to 85 °C

● Class 2

Temperature Characteristic Code	Temperature Characteristics	Capacitance Change	Measurement Temperature Range	Reference Temperature
B	B	±10 %	-25 to 85 °C	20 °C
	X7R	±15 %	-55 to 125 °C	25 °C
	X5R	±15 %	-55 to 85 °C	25 °C

For applicable "temperature characteristics", see the lists of standard products on page 27.

■ Rated Voltage

Code	1H	1E	1C, PC	1A, PA	PJ
Rated Voltage	DC 50 V	DC 25 V	DC 16 V	DC 10 V	DC 6.3 V

■ Nominal Capacitance

Ex.	100	101	103	104	105
Nominal Capacitance	10 pF	100 pF	10,000 pF (0.01 µF)	100,000 pF (0.1 µF)	1,000,000 pF (1.0 µF)

■ Capacitance tolerance

Class	Temperature Characteristics		Tolerance Code	Capacitance Tolerance
1	CH	Capacitance range	C=10 pF	±1 pF
			C>10 pF	±10 %
2	B, X7R, X5R		M	±20 %

■ Specifications and Testing Methods

Item	Specifications		Test Method
	Class 1	Class 2	
Operating Temperature Range	Temp. Char. CH: -55 to 125 °C	Temp. Char. B, X7R: -55 to 125 °C X5R: -55 to 85 °C	—
Dielectric Withstanding Voltage	No dielectric breakdown and /or damage		Test voltage: Class 1: Rated voltage × 300 % Class 2: Rated voltage × 250 % Duration: 1 to 5 s Charge/discharge current: 50 mA max.
Insulation Resistance (I.R.)	10000 MΩ or 500/C (MΩ) Whichever is less Note: 100/C (MΩ) min. for DC 10 V max. C: Nominal Cap. in µF		Measuring voltage: Rated voltage Duration: 60±5 s Charge/discharge current: 50 mA max.
Capacitance	Within the specified tolerance		Measuring temperature: 20±2 °C
Q Factor or Dissipation Factor (tan δ)	Q: C < 30 pF: Q≥400+20 C 30 pF≤C≤1000 pF: Q≥1000 C: Nominal Cap. in pF	tan δ: Temp. Char. B, X7R: 0.025 max. X5R: 0.15 max. Please see the technical specifications for details.	Class 1
			Measuring frequency
			1 MHz ± 10 %
			Measuring voltage
			0.5 to 5 Vrms
			Class 2
			Preconditioning: The capacitors shall be kept in temperature of 150 +0/-10 °C for 1 hour and subjected to standard condition * 48±4 hours before initial measurement.
			Measuring frequency
			1 kHz ± 10 %
			Measuring voltage
			1.0±0.2 Vrms

* Standard condition: Temperature 15 to 35 °C, Relative humidity 45 to 75 %.
For further information, see the technical specifications.

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■ Standard Products for EIA "0504", Taped Version

● Class 1

- ◆ Temperature Characteristic Code: C (Temperature Characteristics: CH)

Rated voltage		DC 50 V		
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.
10	±1 pF (F)	ECJUV1H100F	0.6	○
22		ECJUV1H220K	0.6	○
47	±10 % (K)	ECJUV1H470K	0.6	○
100		ECJUV1H101K	0.6	○

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 4,000 pcs./reel
Avoid flow soldering.

● Class 2

- ◆ Temperature Characteristic Code: B (Temperature Characteristics: B, X7R, X5R)

Temperature Characteristics Code: D (Temperature Characteristics: D, X7R, X5R)																
Rated voltage		DC 50 V				DC 25 V				DC 16 V			DC 10 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.		Part No.	Dim. T (mm)	Temp. Char.	Part No.	Dim. T (mm)	Temp. Char.	
				B	X7R			B	X7R							X5R
470	±20 % (M)	ECJUVB1H471M	0.6	○	○											
1000		ECJUVB1H102M	0.6	○	○											
2200		ECJUVB1H222M	0.6	○	○											
4700						ECJUVB1E472M	0.6	○	○							
10000						ECJUVB1E103M	0.6	○	○							
47000										ECJUVB1C473M	0.6	○				
100000													ECJUVB1A104M	0.6	○	
1000000										ECJUVBPC105M	0.8	○	ECJUVBPA105M	0.8	○	

Rated voltage		DC 6.3 V		
Capacitance (μF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.
1	±20 % (M)	ECJUVBPJ105M	0.8	○
2.2		ECJUVBPJ225M	0.8	○

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm, T = 0.8 mm): 4,000 pcs./reel
Avoid flow soldering.

■ Cross talk characteristics [Ex.]

Temperature Characteristics X5R, 1.0 μF

