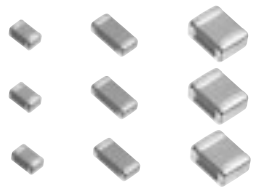
Multilayer Ceramic Capacitors (Low Profile Type)

Series: **ECJ**



■ Features

- Low profile/height with high capacitance values
- For small and thin electronic equipment
- RoHS compliant

■ Recommended Applications

- For slim type HDD, DVD drive, LCD circuit

■ Handling Precautions

See Page 48 to 53

■ Packaging Specifications

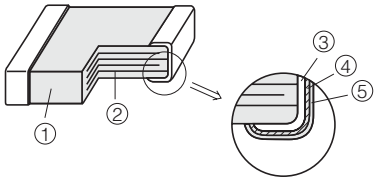
See Page 45, 46, 56

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12	
E	C	J	G	V	B	0	J	2	2	5	M	(Example)

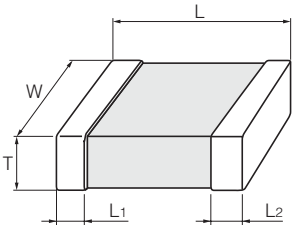
- 1 2 3: Product Code (ECJ:Multilayer Ceramic Chip Capacitors)
- 4: Size Code
- 5: Packaging Style Code
- 6: Temperature Characteristic Code
- 7 8: Rated Voltage Code
- 9 10 11: Nominal Capacitance
- 12: Capacitance Tolerance Code

■ Construction



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

■ Dimensions in mm (not to scale)



Size Code	Size (EIA)	L	W	T	L_1, L_2
B	0603	1.6±0.1	0.8±0.1	0.45±0.05	0.3±0.2
G	0805	2.00±0.15	1.25±0.15	0.85±0.10	0.50±0.25
		2.0±0.2	1.25±0.20		
H	1206	3.2±0.2	1.6±0.2	0.85±0.10	0.6±0.3

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■ Packaging Styles and Standard Packaging Quantities

Quantity : pcs. reel

Packaging Style Code	Packaging Styles \ Size / Thickness (mm)		0603	0805	1206
			T=0.45	T=0.85	T=0.85
V	φ180 reel	Paper taping (Pitch : 4 mm)	4,000	4,000	4,000

■ Temperature Characteristics

● Class 2

Temperature Characteristic Code	Temperature Characteristics	Capacitance Change	Measurement Temperature Range	Reference Temperature
B	X5R	±15 %	−55 to 85 °C	25 °C

■ Rated Voltage

Rated Voltage Code	1E	1C	1A	0J
Rated Voltage	DC 25 V	DC 16 V	DC 10 V	DC 6.3 V

■ Nominal Capacitance

EX.	105	225	475	106
Nominal Capacitance	1,000,000 pF (1 μF)	2,200,000 pF (2.2 μF)	4,700,000 pF (4.7 μF)	10,000,000 pF (10 μF)

■ Capacitance Tolerance

Class	Temperature Characteristics	Capacitance Tolerance Code	Capacitance Tolerance
2	X5R	K	±10 %
		M	±20 %

■ Specifications and Testing Methods

Item	Specifications	Test Method
Operating Temperature Range	−55 to 85 °C	——
Dielectric Withstanding Voltage	No dielectric breakdown and /or damage	Test voltage:Rated voltage ×250 % Duration : 1 to 5 s. Charge/discharge current: 50 mA max.
Insulation Resistance (I.R.)	500/C (MΩ) min. Note : DC10V, min. ; 100/C (MΩ) min. (C: Nominal capacitance 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 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.
Dissipation Factor (tan δ)	0.2 max. Please see the technical reports for details.	

Normal capacitance	C≦10 μF	C>10 μF
Measuring frequency	1 kHz ± 10 %	120 Hz ± 20 %
Measuring voltage	1.0 ± 0.2 Vrms	0.5 ± 0.2 Vrms

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

■ Standard Products for EIA “0603”, Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : X5R)

Rated voltage		DC 10 V			DC 6.3 V		
Capacitance (μF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R
1	±10 % (K) or ±20 % (M)	ECJBVB1A105□	0.45	○	ECJBVB0J105□	0.45	○
2.2					ECJBVB0J225M	0.45	○

□: Capacitance tolerance code : “□” for “K” or “M”
Standard packaging quantity of Packaging Style Code “V” (T = 0.45 mm): 4,000 pcs./reel
Avoid flow soldering.

■ Standard Products for EIA “0805”, Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : X5R)

Rated voltage		DC 25 V			DC 16 V			DC 10 V			DC 6.3 V		
Capacitance (μF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R
2.2	±10 % (K) or ±20 % (M)	ECJGVB1E225□	0.85	○	ECJGVB1C225□	0.85	○	ECJGVB1A225□	0.85	○			
4.7								ECJGVB1A475□	0.85	○	ECJGVB0J475□	0.85	○
10								ECJGVB1A106□	0.85*	○	ECJGVB0J106□	0.85*	○

□: Capacitance tolerance code : “□” for “K” or “M”
Dimensional tolerance of L, W, T: L/W: ± 0.15 mm / T: ± 0.1 mm for no mark, L/W: ± 0.2 mm / T: ± 0.1 mm for “✻” mark
Standard packaging quantity of Packaging Style Code “V” (T = 0.85 mm): 4,000 pcs./reel
Avoid flow soldering.

■ Standard Products for EIA “1206”, Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : X5R)

Rated voltage		DC 25 V			DC 16 V			DC 10 V			DC 6.3 V		
Capacitance (μF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R	Part No.	Dim. T (mm)	Temp. Char. X5R
4.7	±10 % (K) or ±20 % (M)	ECJHVB1E475M	0.85	○	ECJHVB1C475M	0.85	○						
10					ECJHVB1C106□	0.85	○						
22								ECJHVB1A226M	0.85	○	ECJHVB0J226M	0.85	○

□: Capacitance tolerance code : “□” for “K” or “M”
Standard packaging quantity of Packaging Style Code “V” (T = 0.85 mm): 4,000 pcs./reel
Avoid flow soldering.