



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

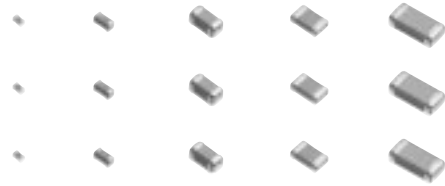
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Multilayer Ceramic Capacitors (For General Electronic Equipment)

Series: **ECJ**



■ Features

- Small size and wide capacitance range
- High humidity resistance and long life
- Excellent solderability and resistance to soldering heat
- Low inductance (ESL) and excellent frequency characteristics
- RoHS compliant

■ Recommended Applications

- **Class 1 (T.C. Type)**
Tuned circuits, and filter circuitry, where low loss and high stability of capacitance and high insulation resistance is required
- **Class 2 (Hi-K Type)**
Coupling and By-passing

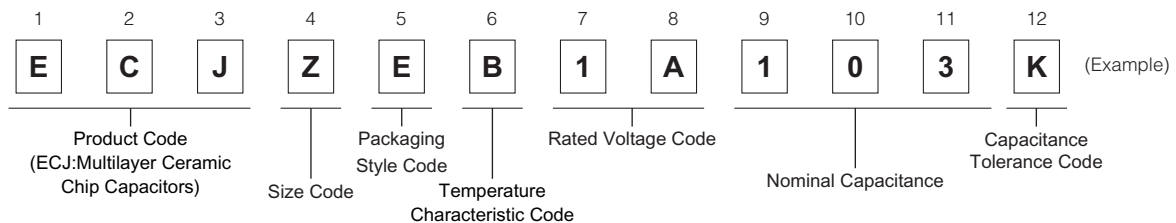
■ Handling Precautions

See Page 48 to 53

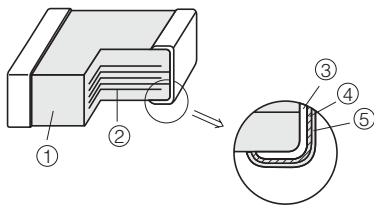
■ Packaging Specifications

See Page 45, 46, 56

■ Explanation of Part Numbers

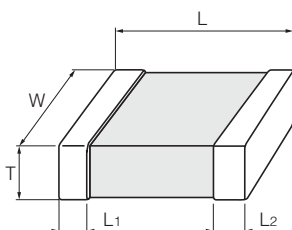


■ Construction



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
Z	0201	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05
0	0402	1.00±0.05	0.50±0.05	0.50±0.05	0.2±0.1
1	0603	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.2
2	0805	2.0±0.1	1.25±0.10	0.6±0.1	0.50±0.25
				0.85±0.10	
				1.25±0.10	
		2.00±0.15	1.25±0.15	1.25±0.15	

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 Sep. 2008

■ Packaging Styles and Standard Packaging Quantities

Quantity (Taping: pcs./reel)

Packaging Style Code	Packaging Styles	Size Thickness (mm)	0201	0402	0603	0805		
			T=0.3	T=0.5	T=0.8	T=0.6	T=0.85	T=1.25
E	φ180 reel	Paper taping (Pitch: 2 mm)	15,000	10,000	—	—	—	—
V		Paper taping (Pitch: 4 mm)	—	—	4,000	5,000	4,000	—
F		Embossed taping (Pitch: 4 mm)	—	—	—	—	—	3,000

φ330 reel and bulk case type : Please contact us

■ Temperature Characteristics

● Class 1

Temperature Characteristic Code	Temperature Characteristics		Temp. Coeff. (ppm/°C)	Rate of Capacitance change at each Temperature (%)			
				-25 °C		85 °C	
				max.	min.	max.	min.
C	CΔ	≥10 pF CG	0± 30	0.33	-0.14	0.20	-0.20
		≥4 pF CH	0± 60	0.49	-0.27	0.39	-0.39
		3 pF CJ	0±120	0.82	-0.54	0.78	-0.78
		≤2 pF CK	0±250	1.54	-1.13	1.63	-1.63
G	SL	+350 to -1000	—	—	2.28	-6.50	

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

For applicable "temperature characteristics", see the lists of standard products on page 13 to 19.

● 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
F	F	+30, -80 %	-25 to 85 °C	20 °C
	Y5V	+22, -82 %	-30 to 85 °C	25 °C

For applicable "temperature characteristics", see the lists of standard products on page 13 to 19.

■ Rated Voltage

Code	1H	1E	1C	1A	0J
Rated Voltage	DC 50 V	DC 25 V	DC 16 V	DC 10 V	DC 6.3 V

■ Nominal Capacitance

Ex	0R5	010	100	104
Nominal Capacitance	0.5 pF	1 pF	10 pF	100,000 pF (0.1 μF)

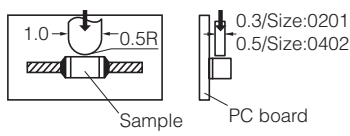
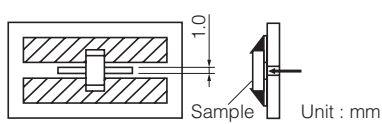
■ Capacitance Tolerance

Class	Temperature Characteristics		Tol. Code	Capacitance Tolerance
1	CΔ, SL	Capacitance range	C ≤ 5 pF	C ±0.25 pF
			C ≤ 10 pF	D ±0.5 pF
			C = 10 pF	F ±1 pF
			C > 10 pF	J ±5 %
2	B, X7R, X5R		K ±10 %	
			M ±20 %	
	F, Y5V		Z +80, -20 %	

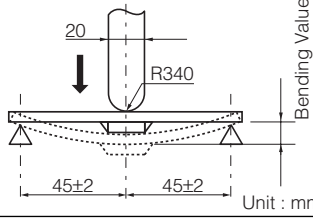
Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

00 Sep. 2008

■ Specifications and Testing Methods

Item	Specification		Test Method																														
	Class 1	Class 2																															
Operating Temperature Range	Temp. Char. CΔ : -55 to 125 °C : -25 to 85 °C Temp. Char. SL : -55 to 125 °C	Temp. Char. B, X7R : -55 to 125 °C Temp. Char. B, X5R : -55 to 85 °C Temp. Char. F, Y5V : -30 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+20C 30 pF≤C≤1000 pF:Q≥1000 tan δ: C>1000 pF: tan δ≤0.002 (C:Nominal Cap. in pF)	tan δ: Temp. Char. B, X7R, X5R: 0.15 max. Temp. Char. F, Y5V: 0.2 max. Please see the technical specifications for details.	Class 1: <table border="1"> <tr> <td>Nominal capacitance</td> <td>C ≤ 1000 pF</td> <td>C > 1000 pF</td> </tr> <tr> <td>Measuring frequency</td> <td>1 MHz ± 10 %</td> <td>1 kHz ± 10 %</td> </tr> <tr> <td>Measuring voltage</td> <td>0.5 to 5 Vrms</td> <td>0.5 to 5 Vrms</td> </tr> </table> 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. <table border="1"> <tr> <td>Nominal capacitance</td> <td>C < 1 μF</td> </tr> <tr> <td>Measuring frequency</td> <td>1 kHz ± 10 %</td> </tr> <tr> <td>Measuring voltage</td> <td>1.0 ± 0.2 Vrms</td> </tr> </table>	Nominal capacitance	C ≤ 1000 pF	C > 1000 pF	Measuring frequency	1 MHz ± 10 %	1 kHz ± 10 %	Measuring voltage	0.5 to 5 Vrms	0.5 to 5 Vrms	Nominal capacitance	C < 1 μF	Measuring frequency	1 kHz ± 10 %	Measuring voltage	1.0 ± 0.2 Vrms															
Nominal capacitance	C ≤ 1000 pF	C > 1000 pF																															
Measuring frequency	1 MHz ± 10 %	1 kHz ± 10 %																															
Measuring voltage	0.5 to 5 Vrms	0.5 to 5 Vrms																															
Nominal capacitance	C < 1 μF																																
Measuring frequency	1 kHz ± 10 %																																
Measuring voltage	1.0 ± 0.2 Vrms																																
Temperature Characteristics	Temp. Char. CG : 0± 30 ppm/ °C CH : 0± 60 ppm/ °C CJ : 0±120 ppm/ °C CK : 0±250 ppm/ °C SL : +350 to -1000 ppm/ °C	Temp. Char. B : ±10 % X7R : ±15 % X5R : ±15 % F : +30, -80 % Y5V : +22, -82 %	Maximum capacitance change at stage 1 to 5 <table border="1"> <thead> <tr> <th>Temp. Char.</th> <th>CΔ, SL B, F</th> <th>X7R</th> <th>X5R</th> <th>Y5V</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> <tr> <td>2</td> <td>-25 °C</td> <td>-55 °C</td> <td>-55 °C</td> <td>-30 °C</td> </tr> <tr> <td>3 (Ref. Temp.)</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> <tr> <td>4</td> <td>85 °C</td> <td>125 °C</td> <td>85 °C</td> <td>85 °C</td> </tr> <tr> <td>5</td> <td>20 °C</td> <td>25 °C</td> <td>25 °C</td> <td>25 °C</td> </tr> </tbody> </table> See the technical specifications for details such as measuring voltage.	Temp. Char.	CΔ, SL B, F	X7R	X5R	Y5V	1	20 °C	25 °C	25 °C	25 °C	2	-25 °C	-55 °C	-55 °C	-30 °C	3 (Ref. Temp.)	20 °C	25 °C	25 °C	25 °C	4	85 °C	125 °C	85 °C	85 °C	5	20 °C	25 °C	25 °C	25 °C
Temp. Char.	CΔ, SL B, F	X7R	X5R	Y5V																													
1	20 °C	25 °C	25 °C	25 °C																													
2	-25 °C	-55 °C	-55 °C	-30 °C																													
3 (Ref. Temp.)	20 °C	25 °C	25 °C	25 °C																													
4	85 °C	125 °C	85 °C	85 °C																													
5	20 °C	25 °C	25 °C	25 °C																													
Adhesion	Terminal electrodes shall be free from peeling or signs of peeling.		Applied force: Size: 0201: 2 N Size: 0402 to 0805: 5N Duration: 10 s Size: 0201 to 0402  Size: 0603 to 0805  Unit : mm																														

*Standard conditions : Temperature 15 to 35 °C, Relative humidity 45 to 75 %

Item	Specification		Test Method									
	Class 1	Class 2										
Bending Strength	Appearance: No mechanical damage Capacitance change: Within $\pm 5\%$ or ± 0.5 pF whichever is larger.	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R : within $\pm 12.5\%$ F, Y5V : within $\pm 30\%$	Bending value:1 mm Bending speed:1 mm/ 									
Vibration Proof	Appearance: No mechanical damage. Capacitance: within the specified tolerance Q, tan δ : Initial standard value		Total amplitude : 1.5 mm Vibration frequency : 10 to 55 to 10 Hz for 1 min. 3 perpendicular directions for 2 hours each, a total of 6 hours									
Resistance to Soldering Heat	Appearance: No mechanical damage Capacitance change: Within $\pm 2.5\%$ or ± 0.25 pF whichever is larger. Q,tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R : within $\pm 7.5\%$ F, Y5V : within $\pm 20\%$ tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Soldering bath method Preconditioning:Heat treatment/Class 2 ^(*) Solder temperature:270 \pm 5 °C Dipping period:3.0 \pm 0.5 s Preheat condition: <table border="1" data-bbox="1018 869 1444 990"> <thead> <tr> <th>Order</th> <th>Temp. (°C)</th> <th>Size 0805 max.</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>80 to 100</td> <td>120 to 180 s</td> </tr> <tr> <td>2</td> <td>150 to 200</td> <td>120 to 180 s</td> </tr> </tbody> </table> Recovery (Standard condition): Class 1:24 \pm 2 h Class 2:48 \pm 4 h	Order	Temp. (°C)	Size 0805 max.	1	80 to 100	120 to 180 s	2	150 to 200	120 to 180 s
Order	Temp. (°C)	Size 0805 max.										
1	80 to 100	120 to 180 s										
2	150 to 200	120 to 180 s										
Solderability	More than 95 % of the soldered area of both terminal electrodes should be covered with fresh solder.		Soldering bath method Solder temperature:230 \pm 5 °C Dipping period:4 \pm 1 s Solder:H63A (JIS Z 3282)									
Temperature Cycle	Appearance: No mechanical damage Capacitance change: Within $\pm 2.5\%$ or ± 0.25 pF whichever is larger. Q,tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R: within $\pm 7.5\%$ F, Y5V : within $\pm 20\%$ tan δ :Initial standard value IR:Initial standard value Withstand voltage: No dielectric breakdown and/or damage	Preconditioning:Heat treatment (150 °C, 1h) /Class 2 Condition of one cycle Step 1:Minimum operationing temp. 30 \pm 3 min Step 2:Room temp. 3 min max. Step 3:Maximum operationing temp. 30 \pm 3 min Step 4:Room temp. 3 min max. Number of cycles:5 cycles Recovery (Standard condition) Class 1:24 \pm 2 h Class 2:48 \pm 4 h									
Damp Heat (Steady state)	Appearance: No mechanical damage Capacitance change: Within $\pm 5\%$ or ± 0.5 pF whichever is larger. Q: C<10 pF:Q \geq 200+10C 10 pF \leq C<30 pF:Q \geq 275+5C/2 30 pF \leq C \leq 1000 pF:Q \geq 350 tan δ : C>1000 pF:tan δ \leq 0.004 C:Nominal capacitance in pF IR: 1000 M Ω or 50/C (M Ω) Whichever is less. C:Nominal capacitance in μ F	Appearance: No mechanical damage Capacitance change: Temp. Char. B, X7R, X5R: Within $\pm 20\%$ F, Y5V: Within $\pm 30\%$ tan δ : Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max. IR: 1000 M Ω or 50/C (M Ω) Whichever is less. Note:10/C (M Ω) min. for DC 10 V max. C:Nominal capacitance in μ F Please see the technical specifications for details.	Preconditioning:Heat treatment/Class 2 ^(*) Temperature:40 \pm 2 °C Relative humidity:90 to 95 % Test period:500+24/0 h Recovery (Standard condition) Class 1:24 \pm 2 h Class 2:48 \pm 4 h									

(*) Heat treatment: 1 h of heat treatment at 150 \pm 0/-10 °C followed by 48 \pm 4 h recovery under standard conditions.

Item	Specification		Test Method
	Class 1	Class 2	
Damp Heat Load	<p>Appearance: No mechanical damage</p> <p>Capacitance change: Within $\pm 7.5\%$ or ± 0.75 pF whichever is larger.</p> <p>Q: C<30 pF:Q\geq100+10C/3 30 pF\leqC\leq1000 pF:Q\geq200</p> <p>tan δ: C>1000 pF:tan $\delta$$\leq$0.004 (C:Nominal capacitance in pF)</p> <p>IR: 500 MΩ or 25/C (MΩ) Whichever is less. (C:Nominal capacitance in μF)</p>	<p>Appearance: No mechanical damage</p> <p>Capacitance change: Temp. Char. B, X7R, X5R: Within $\pm 20\%$ F, Y5V: Within $\pm 30\%$</p> <p>tan δ: Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max.</p> <p>IR: 500 MΩ or 25/C (MΩ) Whichever is less. Note:5/C (MΩ) min. for DC 10 V max. C:Nominal capacitance in μF Please see the technical specifications for details.</p>	<p>Preconditioning:Voltage treatment/Class 2^(*)</p> <p>Temperature:40\pm2 °C</p> <p>Relative humidity:90 to 95 %</p> <p>Applied voltage:Rated voltage</p> <p>Charge/discharge current: 50 mA max.</p> <p>Test period:500+24/0 h</p> <p>Recovery (Standard condition) Class 1:24\pm2 h Class 2:48\pm4 h</p>
High Temperature Load	<p>Appearance: No mechanical damage</p> <p>Capacitance change: Within $\pm 3\%$ or ± 0.3 pF whichever is larger.</p> <p>Q: C<10 pF:Q\geq200+10C 10 pF\leqC\leq30 pF:Q\geq275+5C/2 30 pF\leqC\leq1000 pF:Q\geq350</p> <p>tan δ: C>1000 pF:tan $\delta$$\leq$0.004 C:Nominal capacitance in pF</p> <p>IR: 1000 MΩ or 50/C (MΩ) Whichever is less. Note:10/C (MΩ) min. for DC 10 V max. C:Nominal capacitance in μF</p>	<p>Appearance: No mechanical damage</p> <p>Capacitance change: Temp. Char. B, X7R, X5R: Within $\pm 20\%$ F, Y5V: Within $\pm 30\%$</p> <p>tan δ: Temp. Char. B, X7R, X5R: 0.25 max. F, Y5V: 0.3 max.</p> <p>IR: 1000 MΩ or 50/C (MΩ) Whichever is less. Note:10/C (MΩ) min. for DC 10 V max. C:Nominal capacitance in μF Please see the technical specifications for details.</p>	<p>Preconditioning:Voltage treatment/Class 2^(*)</p> <p>Temperature: Maximum operating temp. ± 3 °C</p> <p>Applied voltage: (1) Rated voltage $\times 200\%$ (2) Rated voltage $\times 100\%$</p> <p>Please see the technical specifications for details.</p> <p>Charge/discharge current: 50 mA max.</p> <p>Test period:1000+48/0 h</p> <p>Recovery (Standard condition) Class 1:24\pm2 h Class 2:48\pm4 h</p>

(*1) Heat treatment:1 h of heat treatment at 150+0/-10 °C followed by 48 \pm 4 h recovery under standard conditions

(*2) Voltage treatment:1 h of voltage treatment under the specified temperature and voltage for testing followed by 48 \pm 4 h of recovery under standard conditions

■ Standard Products for EIA "0201", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temperature Characteristics : CA)

Rated voltage		DC 25 V				DC 16 V									
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.				Part No.	Dim. T (mm)	Temp. Char.					
				CK	CJ	CH	CG			CK	CJ	CH	CG		
0.5	±0.25 pF(C)	ECJZEC1E0R5C	0.3	○	—	—	—								
1	±0.25 pF (C) or ±0.5 pF (D)	ECJZEC1E010□	0.3	○	—	—	—								
1.5		ECJZEC1E1R5□	0.3	○	—	—	—								
2	±0.5 pF (D)	ECJZEC1E020□	0.3	○	—	—	—								
3		ECJZEC1E030□	0.3	—	○	—	—								
4	±0.5 pF (D)	ECJZEC1E040□	0.3	—	—	○	—								
5		ECJZEC1E050□	0.3	—	—	○	—								
6	±0.5 pF (D)	ECJZEC1E060D	0.3	—	—	○	—								
7		ECJZEC1E070D	0.3	—	—	○	—								
8	±0.5 pF (D)	ECJZEC1E080D	0.3	—	—	○	—								
9		ECJZEC1E090D	0.3	—	—	○	—								
10	±0.5 pF (D) or ±1 pF (F)	ECJZEC1E100□	0.3	—	—	○	○								
12	±5 % (J) or ±10 % (K)	ECJZEC1E120□	0.3	—	—	○	○								
15		ECJZEC1E150□	0.3	—	—	○	○								
18	±10 % (K)	ECJZEC1E180□	0.3	—	—	○	○								
22		ECJZEC1E220□	0.3	—	—	○	○								
27	±10 % (K)	ECJZEC1E270□	0.3	—	—	○	○								
33		ECJZEC1E330□	0.3	—	—	○	○								
39	±10 % (K)							ECJZEC1C390□	0.3	—	—	○	○		
47									ECJZEC1C470□	0.3	—	—	○	○	
56	±10 % (K)								ECJZEC1C560□	0.3	—	—	○	○	
68									ECJZEC1C680□	0.3	—	—	○	○	
82	±10 % (K)								ECJZEC1C820□	0.3	—	—	○	○	
100									ECJZEC1C101□	0.3	—	—	○	○	

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "E" (T = 0.3 mm): 15,000 pcs./reel

Recommend soldering method: Reflow soldering.

● Class 2 Capacitors

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

Rated voltage		DC 50 V				DC 25 V				DC 16 V				DC 10 V				DC 6.3 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	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R		
150	±10 % (K) or ±20 % (M)	ECJZEB1H151□	0.3	○	○	—	ECJZEB1E151□	0.3	○	○	—												
220		ECJZEB1H221□	0.3	○	○	—	ECJZEB1E221□	0.3	○	○	—												
330	±20 % (M)	ECJZEB1H331□	0.3	○	○	—	ECJZEB1E331□	0.3	○	○	—												
470		ECJZEB1H471□	0.3	○	○	—	ECJZEB1E471□	0.3	○	○	—												
680	±20 % (M)	ECJZEB1H681□	0.3	○	○	—	ECJZEB1E681□	0.3	○	○	—												
1000		ECJZEB1H102□	0.3	○	○	—	ECJZEB1E102□	0.3	○	○	—												
1500	±20 % (M)								ECJZEB1E152□	0.3	○	○	—										
2200									ECJZEB1E222□	0.3	○	○	—										
3300	±20 % (M)													ECJZEB1A332□	0.3	○	—	○					
4700														ECJZEB1A472□	0.3	—	—	○	ECJZEB0J472□	0.3	—	—	○
6800	±20 % (M)													ECJZEB1A682□	0.3	—	—	○	ECJZEB0J682□	0.3	—	—	○
10000														ECJZEB1A103□	0.3	—	—	○	ECJZEB0J103□	0.3	—	—	○
15000	±20 % (M)													ECJZEB1A153□	0.3	—	—	○	ECJZEB0J153□	0.3	—	—	○
22000														ECJZEB1A223□	0.3	—	—	○	ECJZEB0J223□	0.3	—	—	○
33000	±20 % (M)													ECJZEB1A333□	0.3	—	—	○	ECJZEB0J333□	0.3	—	—	○
47000														ECJZEB1A473□	0.3	—	—	○	ECJZEB0J473□	0.3	—	—	○
68000	±20 % (M)													ECJZEB1A683□	0.3	—	—	○	ECJZEB0J683□	0.3	—	—	○
100000														ECJZEB1A104□	0.3	—	—	○	ECJZEB0J104□	0.3	—	—	○
220000	±20 % (M)																						

□: Capacitance tolerance code : "□" for "K" or "M"

Standard packaging quantity of Packaging Style Code "E" (T = 0.3 mm): 15,000 pcs./reel

Recommend soldering method: Reflow soldering.

■ Standard Products for EIA "0402", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : Δ)

Rated voltage		DC 50 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			
				CK	CJ	CH	CG
0.5	± 0.25 pF (C)	ECJ0EC1H0R5C	0.5	○	—	—	—
1	± 0.25 pF (C)	ECJ0EC1H010□	0.5	○	—	—	—
1.5		ECJ0EC1H1R5□	0.5	○	—	—	—
2	± 0.5 pF (D)	ECJ0EC1H020□	0.5	○	—	—	—
3		ECJ0EC1H030□	0.5	—	○	—	—
4	± 0.5 pF (D)	ECJ0EC1H040□	0.5	—	—	○	—
5		ECJ0EC1H050□	0.5	—	—	○	—
6		ECJ0EC1H060D	0.5	—	—	○	—
7	± 0.5 pF(D)	ECJ0EC1H070D	0.5	—	—	○	—
8		ECJ0EC1H080D	0.5	—	—	○	—
9		ECJ0EC1H090D	0.5	—	—	○	—
10	± 0.5 pF (D) or ± 1 pF (F)	ECJ0EC1H100□	0.5	—	—	○	○
12	± 5 % (J) or ± 10 % (K)	ECJ0EC1H120□	0.5	—	—	○	○
15		ECJ0EC1H150□	0.5	—	—	○	○
18		ECJ0EC1H180□	0.5	—	—	○	○
22		ECJ0EC1H220□	0.5	—	—	○	○
27		ECJ0EC1H270□	0.5	—	—	○	○
33		ECJ0EC1H330□	0.5	—	—	○	○
39		ECJ0EC1H390□	0.5	—	—	○	○
47		ECJ0EC1H470□	0.5	—	—	○	○
56		ECJ0EC1H560□	0.5	—	—	○	○
68		ECJ0EC1H680□	0.5	—	—	○	○
82		ECJ0EC1H820□	0.5	—	—	○	○
100		ECJ0EC1H101□	0.5	—	—	○	○
120		ECJ0EC1H121□	0.5	—	—	○	○
150		ECJ0EC1H151□	0.5	—	—	○	○
180	ECJ0EC1H181□	0.5	—	—	○	○	
220	ECJ0EC1H221□	0.5	—	—	○	○	

□: Capacitance tolerance code.

Standard packaging quantity of Packaging Style Code "E" (T = 0.5 mm): 10,000 pcs./reel.

Recommend soldering method: Reflow soldering.

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
				SL	
0.5	± 0.25 pF (C)	ECJ0EG1H0R5C	0.5	○	
1	± 0.25 pF (C)	ECJ0EG1H010□	0.5	○	
1.5		ECJ0EG1H1R5□	0.5	○	
2	± 0.5 pF (D)	ECJ0EG1H020□	0.5	○	
3		ECJ0EG1H030□	0.5	○	
4	± 0.5 pF (D)	ECJ0EG1H040□	0.5	○	
5		ECJ0EG1H050□	0.5	○	
6		ECJ0EG1H060D	0.5	○	
7	± 0.5 pF(D)	ECJ0EG1H070D	0.5	○	
8		ECJ0EG1H080D	0.5	○	
9		ECJ0EG1H090D	0.5	○	
10	± 0.5 pF (D) or ± 1 pF (F)	ECJ0EG1H100□	0.5	○	
12	± 5 % (J) or ± 10 % (K)	ECJ0EG1H120□	0.5	○	
15		ECJ0EG1H150□	0.5	○	
18		ECJ0EG1H180□	0.5	○	
22		ECJ0EG1H220□	0.5	○	
27		ECJ0EG1H270□	0.5	○	
33		ECJ0EG1H330□	0.5	○	
39		ECJ0EG1H390□	0.5	○	
47		ECJ0EG1H470□	0.5	○	
56		ECJ0EG1H560□	0.5	○	
68		ECJ0EG1H680□	0.5	○	
82		ECJ0EG1H820□	0.5	○	
100		ECJ0EG1H101□	0.5	○	
120		ECJ0EG1H121□	0.5	○	
150		ECJ0EG1H151□	0.5	○	
180	ECJ0EG1H181□	0.5	○		
220	ECJ0EG1H221□	0.5	○		

■ Standard Products for EIA "0603", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : CA)

Rated voltage		DC 50 V					
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.			
				CK	CJ	CH	CG
0.5	±0.25 pF (C)	ECJ1VC1H0R5C	0.8	○	—	—	—
1	±0.25 pF (C)	ECJ1VC1H010□	0.8	○	—	—	—
1.5		ECJ1VC1H1R5□	0.8	○	—	—	—
2	±0.5 pF (D)	ECJ1VC1H020□	0.8	○	—	—	—
3		ECJ1VC1H030□	0.8	—	○	—	—
4	±0.5 pF (D)	ECJ1VC1H040□	0.8	—	—	○	—
5		ECJ1VC1H050□	0.8	—	—	○	—
6	±0.5 pF (D)	ECJ1VC1H060D	0.8	—	—	○	—
7		ECJ1VC1H070D	0.8	—	—	○	—
8		ECJ1VC1H080D	0.8	—	—	○	—
9		ECJ1VC1H090D	0.8	—	—	○	—
10		ECJ1VC1H100□	0.8	—	—	○	○
12	±0.5 pF (D) or ±1 pF (F)	ECJ1VC1H120□	0.8	—	—	○	○
15		ECJ1VC1H150□	0.8	—	—	○	○
18		ECJ1VC1H180□	0.8	—	—	○	○
22		ECJ1VC1H220□	0.8	—	—	○	○
27		ECJ1VC1H270□	0.8	—	—	○	○
33		ECJ1VC1H330□	0.8	—	—	○	○
39		ECJ1VC1H390□	0.8	—	—	○	○
47		ECJ1VC1H470□	0.8	—	—	○	○
56		ECJ1VC1H560□	0.8	—	—	○	○
68		ECJ1VC1H680□	0.8	—	—	○	○
82	±5 % (J) or ±10 % (K)	ECJ1VC1H820□	0.8	—	—	○	○
100		ECJ1VC1H101□	0.8	—	—	○	○
120		ECJ1VC1H121□	0.8	—	—	○	○
150		ECJ1VC1H151□	0.8	—	—	○	○
180		ECJ1VC1H181□	0.8	—	—	○	○
220		ECJ1VC1H221□	0.8	—	—	○	○
270		ECJ1VC1H271□	0.8	—	—	○	○
330		ECJ1VC1H331□	0.8	—	—	○	○
390	ECJ1VC1H391□	0.8	—	—	○	○	
470	ECJ1VC1H471□	0.8	—	—	○	○	
560	ECJ1VC1H561□	0.8	—	—	○	○	
680	ECJ1VC1H681□	0.8	—	—	○	○	
820	ECJ1VC1H821□	0.8	—	—	○	○	
1000	ECJ1VC1H102□	0.8	—	—	○	○	

□: Capacitance tolerance code.

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

Recommend soldering method: Reflow soldering.

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
				SL	
0.5	±0.25 pF (C)	ECJ1VG1H0R5C	0.8	○	
1	±0.25 pF (C)	ECJ1VG1H010□	0.8	○	
1.5		ECJ1VG1H1R5□	0.8	○	
2	±0.5 pF (D)	ECJ1VG1H020□	0.8	○	
3		ECJ1VG1H030□	0.8	○	
4	±0.5 pF (D)	ECJ1VG1H040□	0.8	○	
5		ECJ1VG1H050□	0.8	○	
6	±0.5 pF (D)	ECJ1VG1H060D	0.8	○	
7		ECJ1VG1H070D	0.8	○	
8		ECJ1VG1H080D	0.8	○	
9		ECJ1VG1H090D	0.8	○	
10		ECJ1VG1H100□	0.8	○	
12	±0.5 pF (D) or ±1 pF (F)	ECJ1VG1H120□	0.8	○	
15		ECJ1VG1H150□	0.8	○	
18		ECJ1VG1H180□	0.8	○	
22		ECJ1VG1H220□	0.8	○	
27		ECJ1VG1H270□	0.8	○	
33		ECJ1VG1H330□	0.8	○	
39		ECJ1VG1H390□	0.8	○	
47		ECJ1VG1H470□	0.8	○	
56		ECJ1VG1H560□	0.8	○	
68		ECJ1VG1H680□	0.8	○	
82	±5 % (J) or ±10 % (K)	ECJ1VG1H820□	0.8	○	
100		ECJ1VG1H101□	0.8	○	
120		ECJ1VG1H121□	0.8	○	
150		ECJ1VG1H151□	0.8	○	
180		ECJ1VG1H181□	0.8	○	
220		ECJ1VG1H221□	0.8	○	
270		ECJ1VG1H271□	0.8	○	
330		ECJ1VG1H331□	0.8	○	
390	ECJ1VG1H391□	0.8	○		
470	ECJ1VG1H471□	0.8	○		
560	ECJ1VG1H561□	0.8	○		
680	ECJ1VG1H681□	0.8	○		
820	ECJ1VG1H821□	0.8	○		
1000	ECJ1VG1H102□	0.8	○		

■ Standard Products for EIA "0805", Taped Version

● Class 1

◆ Temperature Characteristic Code : C (Temp. Char. : CA)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
				CH	CG
27		ECJ2VC1H270□	0.6	○	○
33		ECJ2VC1H330□	0.6	○	○
39		ECJ2VC1H390□	0.6	○	○
47		ECJ2VC1H470□	0.6	○	○
56		ECJ2VC1H560□	0.6	○	○
68		ECJ2VC1H680□	0.6	○	○
82		ECJ2VC1H820□	0.6	○	○
100		ECJ2VC1H101□	0.6	○	○
120		ECJ2VC1H121□	0.6	○	○
150		ECJ2VC1H151□	0.6	○	○
180		ECJ2VC1H181□	0.6	○	○
220	±5 % (J)	ECJ2VC1H221□	0.6	○	○
270	or	ECJ2VC1H271□	0.6	○	○
330	±10 % (K)	ECJ2VC1H331□	0.6	○	○
390		ECJ2VC1H391□	0.6	○	○
470		ECJ2VC1H471□	0.6	○	○
560		ECJ2VC1H561□	0.6	○	○
680		ECJ2VC1H681□	0.6	○	○
820		ECJ2VC1H821□	0.6	○	○
1000		ECJ2VC1H102□	0.6	○	○
1200		ECJ2VC1H122□	0.6	○	—
1500		ECJ2VC1H152□	0.6	○	—
1800		ECJ2VC1H182□	0.6	○	—
2200		ECJ2VC1H222□	0.6	○	—
2700		ECJ2VC1H272□	0.85	○	—

◆ Temperature Characteristic Code : G (Temp. Char. : SL)

Rated voltage		DC 50 V			
Capacitance (pF)	Capacitance Tolerance	Part No.	Dim. T (mm)	Temp. Char.	
				SL	
27		ECJ2VG1H270□	0.6	○	
33		ECJ2VG1H330□	0.6	○	
39		ECJ2VG1H390□	0.6	○	
47		ECJ2VG1H470□	0.6	○	
56		ECJ2VG1H560□	0.6	○	
68		ECJ2VG1H680□	0.6	○	
82		ECJ2VG1H820□	0.6	○	
100		ECJ2VG1H101□	0.6	○	
120		ECJ2VG1H121□	0.6	○	
150		ECJ2VG1H151□	0.6	○	
180		ECJ2VG1H181□	0.6	○	
220	±5 % (J)	ECJ2VG1H221□	0.6	○	
270	or	ECJ2VG1H271□	0.6	○	
330	±10 % (K)	ECJ2VG1H331□	0.6	○	
390		ECJ2VG1H391□	0.6	○	
470		ECJ2VG1H471□	0.6	○	
560		ECJ2VG1H561□	0.6	○	
680		ECJ2VG1H681□	0.6	○	
820		ECJ2VG1H821□	0.6	○	
1000		ECJ2VG1H102□	0.6	○	
1200		ECJ2VG1H122□	0.6	○	
1500		ECJ2VG1H152□	0.6	○	
1800		ECJ2VG1H182□	0.6	○	
2200		ECJ2VG1H222□	0.6	○	
2700		ECJ2VG1H272□	0.6	○	

□: Capacitance tolerance code.

Dimensional tolerance of L, W, T: ± 0.1 mm

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel

Recommend soldering method: Reflow soldering.

■ Standard Products for EIA "0805", Taped Version

● Class 2

◆ Temperature Characteristic Code : B (Temperature Characteristics : B, 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	X5R			B	X7R	X5R			B	X7R	X5R			B	X7R	X5R
1000		ECJ2VB1H102□	0.6	○	○	—															
1200		ECJ2VB1H122K	0.6	○	○	—															
1500		ECJ2VB1H152□	0.6	○	○	—															
1800		ECJ2VB1H182K	0.6	○	○	—															
2200		ECJ2VB1H222□	0.6	○	○	—															
2700		ECJ2VB1H272K	0.6	○	○	—															
3300		ECJ2VB1H332□	0.6	○	○	—															
3900		ECJ2VB1H392K	0.6	○	○	—															
4700		ECJ2VB1H472□	0.6	○	○	—															
5600		ECJ2VB1H562K	0.6	○	○	—															
6800		ECJ2VB1H682□	0.6	○	○	—															
8200		ECJ2VB1H822K	0.6	○	○	—															
10000		ECJ2VB1H103□	0.6	○	○	—															
12000		ECJ2VB1H123K	0.6	○	○	—															
15000	±10 % (K)	ECJ2VB1H153□	0.6	○	○	—															
18000	or	ECJ2VB1H183K	0.6	○	○	—															
22000	±20 % (M)	ECJ2VB1H223□	0.6	○	○	—															
27000		ECJ2VB1H273K	0.85	○	○	—															
33000		ECJ2VB1H333□	0.85	○	○	—															
39000		ECJ2VB1H393K	0.85	○	○	—															
47000		ECJ2FB1H473□	1.25	○	○	—	ECJ2VB1E473□	0.85	○	○	—										
56000		ECJ2FB1H563K	1.25	○	○	—	ECJ2VB1E563K	0.85	○	○	—										
68000		ECJ2FB1H683□	1.25	○	○	—	ECJ2VB1E683□	0.85	○	○	—										
82000		ECJ2FB1H823K	1.25	○	○	—	ECJ2VB1E823K	0.85	○	○	—										
100000		ECJ2FB1H104□	1.25	○	○	—	ECJ2VB1E104□	0.85	○	○	—	ECJ2VB1C104□	0.85	○	○	—					
150000		ECJ2FB1H154□	1.25	○	○	—	ECJ2VB1E154□	1.25	○	○	—	ECJ2VB1C154□	0.85	○	○	—					
220000		ECJ2FB1H224□	1.25	○	○	—	ECJ2VB1E224□	1.25	○	○	—	ECJ2VB1C224□	0.85	○	○	—					
330000							ECJ2FB1E334□	1.25	○	○	—	ECJ2FB1C334□	1.25	○	○	—					
470000							ECJ2FB1E474□	1.25	○	○	—	ECJ2FB1C474□	1.25	○	○	—					
680000							ECJ2FB1E684□	1.25*	—	—	○	ECJ2FB1C684□	1.25*	—	—	○	ECJ2FB1A684□	1.25	—	—	○

□: Capacitance tolerance code : "□" for "K" or "M"

Dimensional tolerance of L, W, T: ± 0.1 mm for no mark, ± 0.15 mm for "*" mark

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel, "F" (T = 1.25 mm): 3,000 pcs./reel

Soldering method of dimension T>1 mm: Avoid flow soldering.

For capacitance 1 μF or more, see page 6 and 7 for High Capacitance.

◆ Temperature Characteristic Code : F (Temperature Characteristics : F, Y5V)

Rated voltage		DC 50 V				DC 25 V				DC 16 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.	
				F	Y5V			F	Y5V			F	Y5V
10000		ECJ2VF1H103Z	0.6	○	○								
22000		ECJ2VF1H223Z	0.6	○	○								
47000		ECJ2VF1H473Z	0.6	○	○								
100000	+80, -20 % (Z)	ECJ2VF1H104Z	0.85	○	○	ECJ2VF1E104Z	0.6	○	○	ECJ2VF1C104Z	0.6	○	○
220000		ECJ2VF1H224Z	0.85	○	○	ECJ2VF1E224Z	0.85	○	○	ECJ2VF1C224Z	0.6	○	○
470000						ECJ2VF1E474Z	1.25	○	○	ECJ2VF1C474Z	0.85	○	○

Dimensional tolerance of L, W, T: ± 0.1 mm

Standard packaging quantity of Packaging Style Code "V" (T = 0.6 mm): 5,000 pcs./reel, "V" (T = 0.85 mm): 4,000 pcs./reel, "F" (T = 1.25 mm): 3,000 pcs./reel

Soldering method of dimension T>1 mm: Avoid flow soldering.

For capacitance 1 μF or more, see page 6 and 7 for High Capacitance.