

## Stacked Metallized PPS Film Chip Capacitor

Type: **ECHU(X)**

Stacked metallized PPS film as dielectric with simple mold-less construction

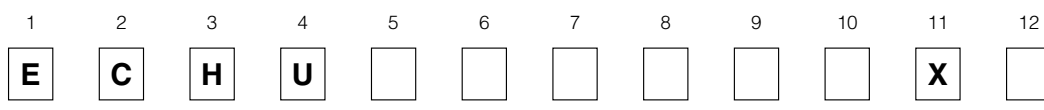
### ■Features

- Small in size (minimum size 1.6 mm × 0.8 mm)
- 85 °C, 85 %RH, W.V. × 1.0 for 500 hours
- For reflow soldering
- RoHS directive compliant

### ■Recommended Applications

- Time-constant
- Filtering
- Oscillation and resonance

### ■Explanation of Part Numbers



Product code      Dielectric & construction      Rated voltage      Capacitance      Cap. Tol.      Suffix      Suffix

01	10 VDC
1C	16 VDC
1H	50 VDC

G	±2 %
J	±5 %

	Tape width
	Reel diameter
5	8 mm size ø180 mm
9	12 mm size ø330 mm

\* Tape width 8 mm and diameter ø330 mm reel is prepared.

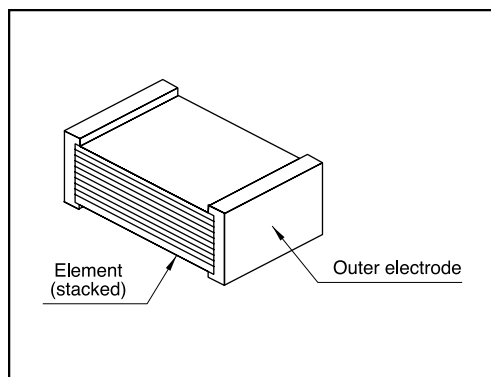
### ■Specifications

Category temp. range (Including temperature-rise on unit surface)	-55 °C to +125 °C
Rated voltage	10 VDC, 16 VDC, 50 VDC (50 VDC: 0.12 µF or more: Derating or rated voltage by 1.25 % / °C at more than 105 °C)
Capacitance range	0.00010 µF to 0.22 µF (E12)
Capacitance tolerance	±2 % (G), ±5 % (J)
Withstand voltage	Between terminals : Rated volt. (VDC) × 150 % 60 s
Dissipation factor (tan δ)	tan δ ≤ 0.6 % (20 °C, 1 kHz)
Insulation resistance (IR)	10 VDC : IR ≥ 3000 MΩ (20 °C, 10 VDC, 60 s) 16 VDC : IR ≥ 3000 MΩ (20 °C, 10 VDC, 60 s) 50 VDC : IR ≥ 3000 MΩ (20 °C, 50 VDC, 60 s)
Soldering conditions	Reflow soldering : 260 °C max. and 95 sec max. at more than 220 °C (Temp. at cap. surface)

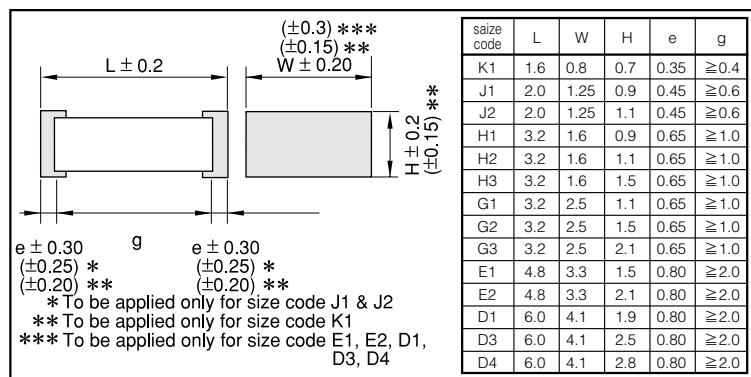
\* Please consult us for flow soldering

\* In case of applying voltage in alternating current (50 Hz or 60 Hz sine wave) to a capacitor with DC rated voltage, please refer to the page of "Permissible voltage (R.M.S) in alternating current corresponding to DC rated voltage".

### ■Construction



### ■Dimensions in mm (not to scale)



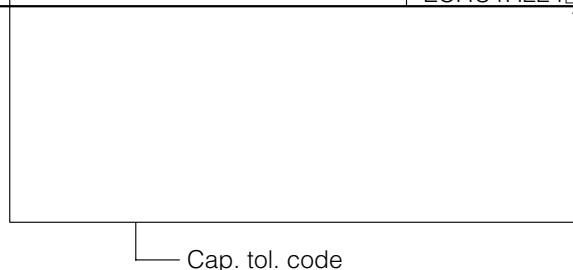
■Taping Specification for Automatic Mounting

Refer to the page of taping specifications

■Rating, Dimensions & Quantity/Reel

●Capacitance tolerance :  $\pm 2\%$  (G),  $\pm 5\%$  (J)

Cap. ( $\mu$ F)	Rated volt. 16 VDC					Q'ty	Rated volt. 50 VDC					Q'ty	
	Part No.	Dimensions (mm)			Size Code		Part No.	Dimensions (mm)			Size Code		
		L	W	H				L	W	H			
0.00010	ECHU1C101□X5	1.6	0.8	0.7	K1	4000	ECHU1H101□X5	2.0	1.25	0.9	J1	3000	
0.00012	ECHU1C121□X5	1.6	0.8	0.7	K1		ECHU1H121□X5	2.0	1.25	0.9	J1		
0.00015	ECHU1C151□X5	1.6	0.8	0.7	K1		ECHU1H151□X5	2.0	1.25	0.9	J1		
0.00018	ECHU1C181□X5	1.6	0.8	0.7	K1		ECHU1H181□X5	2.0	1.25	0.9	J1		
0.00022	ECHU1C221□X5	1.6	0.8	0.7	K1		ECHU1H221□X5	2.0	1.25	0.9	J1		
0.00027	ECHU1C271□X5	1.6	0.8	0.7	K1		ECHU1H271□X5	2.0	1.25	0.9	J1		
0.00033	ECHU1C331□X5	1.6	0.8	0.7	K1		ECHU1H331□X5	2.0	1.25	0.9	J1		
0.00039	ECHU1C391□X5	1.6	0.8	0.7	K1		ECHU1H391□X5	2.0	1.25	0.9	J1		
0.00047	ECHU1C471□X5	1.6	0.8	0.7	K1		ECHU1H471□X5	2.0	1.25	0.9	J1		
0.00056	ECHU1C561□X5	1.6	0.8	0.7	K1		ECHU1H561□X5	2.0	1.25	0.9	J1		
0.00068	ECHU1C681□X5	1.6	0.8	0.7	K1		ECHU1H681□X5	2.0	1.25	0.9	J1		
0.00082	ECHU1C821□X5	1.6	0.8	0.7	K1		ECHU1H821□X5	2.0	1.25	0.9	J1		
0.0010	ECHU1C102□X5	1.6	0.8	0.7	K1		ECHU1H102□X5	2.0	1.25	0.9	J1		
0.0012	ECHU1C122□X5	1.6	0.8	0.7	K1		ECHU1H122□X5	2.0	1.25	0.9	J1		
0.0015	ECHU1C152□X5	1.6	0.8	0.7	K1		ECHU1H152□X5	2.0	1.25	0.9	J1		
0.0018	ECHU1C182□X5	1.6	0.8	0.7	K1		ECHU1H182□X5	2.0	1.25	0.9	J1		
0.0022	ECHU1C222□X5	1.6	0.8	0.7	K1	ECHU1H222□X5	2.0	1.25	0.9	J1			
0.0027	ECHU1C272□X5	1.6	0.8	0.7	K1	ECHU1H272□X5	2.0	1.25	0.9	J1			
0.0033	ECHU1C332□X5	2.0	1.25	0.9	J1	3000	ECHU1H332□X5	3.2	1.6	0.9	H1		
0.0039	ECHU1C392□X5	2.0	1.25	0.9	J1		ECHU1H392□X5	3.2	1.6	0.9	H1		
0.0047	ECHU1C472□X5	2.0	1.25	0.9	J1		ECHU1H472□X5	3.2	1.6	0.9	H1		
0.0056	ECHU1C562□X5	2.0	1.25	0.9	J1		ECHU1H562□X5	3.2	1.6	0.9	H1		
0.0068	ECHU1C682□X5	2.0	1.25	0.9	J1		ECHU1H682□X5	3.2	1.6	0.9	H1		
0.0082	ECHU1C822□X5	2.0	1.25	1.1	J2		ECHU1H822□X5	3.2	1.6	1.1	H2		
0.010	ECHU1C103□X5	2.0	1.25	1.1	J2		2000	ECHU1H103□X5	3.2	1.6	1.1	H2	
0.012	ECHU1C123□X5	3.2	1.6	0.9	H1			ECHU1H123□X5	3.2	2.5	1.1	G1	
0.015	ECHU1C153□X5	3.2	1.6	0.9	H1			ECHU1H153□X5	3.2	2.5	1.1	G1	
0.018	ECHU1C183□X5	3.2	1.6	0.9	H1			ECHU1H183□X5	3.2	2.5	1.5	G2	
0.022	ECHU1C223□X5	3.2	1.6	0.9	H1			ECHU1H223□X5	3.2	2.5	1.5	G2	
0.027	ECHU1C273□X5	3.2	1.6	1.1	H2			ECHU1H273□X5	3.2	2.5	1.5	G2	
0.033	ECHU1C333□X5	3.2	1.6	1.1	H2			ECHU1H333□X5	3.2	2.5	2.1	G3	
0.039	ECHU1C393□X5	3.2	1.6	1.5	H3			2000	ECHU1H393□X5	3.2	2.5	2.1	G3
0.047	ECHU1C473□X5	3.2	1.6	1.5	H3				ECHU1H473□X9	4.8	3.3	1.5	E1
0.056	ECHU1C563□X5	3.2	2.5	1.5	G2				ECHU1H563□X9	4.8	3.3	1.5	E1
0.068	ECHU1C683□X5	3.2	2.5	1.5	G2	ECHU1H683□X9			4.8	3.3	1.5	E1	
0.082	ECHU1C823□X5	3.2	2.5	2.1	G3	ECHU1H823□X9			4.8	3.3	2.1	E2	
0.10	ECHU1C104□X5	3.2	2.5	2.1	G3	ECHU1H104□X9			4.8	3.3	2.1	E2	
0.12						2000			ECHU1H124□X9	6.0	4.1	1.9	D1
0.15									ECHU1H154□X9	6.0	4.1	1.9	D1
0.18									ECHU1H184□X9	6.0	4.1	2.5	D3
0.22							ECHU1H224□X9		6.0	4.1	2.8	D4	



- Rating, Dimensions & Quantity/Reel
- Capacitance tolerance :  $\pm 2\%$  (G),  $\pm 5\%$  (J)

Cap. ( $\mu\text{F}$ )	Rated volt. 10 VDC						
	Part No.	Dimensions (mm)			Size Code	Q'ty	
		L	W	H			
0.00010							
0.00012							
0.00015							
0.00018							
0.00022							
0.00027							
0.00033							
0.00039							
0.00047							
0.00056							
0.00068							
0.00082							
0.0010							
0.0012							
0.0015							
0.0018							
0.0022							
0.0027							
0.0033	ECHU01332	X5	1.6	0.8	0.7	K1	4000
0.0039	ECHU01392	X5	1.6	0.8	0.7	K1	
0.0047	ECHU01472	X5	1.6	0.8	0.7	K1	
0.0056	ECHU01562	X5	1.6	0.8	0.7	K1	
0.0068	ECHU01682	X5	2.0	1.25	0.9	J1	3000
0.0082	ECHU01822	X5	2.0	1.25	0.9	J1	
0.010	ECHU01103	X5	2.0	1.25	0.9	J1	
0.012	ECHU01123	X5	2.0	1.25	0.9	J1	
0.015	ECHU01153	X5	2.0	1.25	0.9	J1	
0.018	ECHU01183	X5	2.0	1.25	0.9	J1	
0.022	ECHU01223	X5	2.0	1.25	1.1	J2	
0.027	ECHU01273	X5	2.0	1.25	1.1	J2	
0.033							
0.039							
0.047							
0.056							
0.068							
0.082							
0.10							

Please use 16 VDC rating of ECHU(X)

Please use 16 VDC rating of ECHU(X)

Cap. tol. code

### ■ Recommended for Land Dimensions (mm)

The diagram shows a top-down view of a capacitor with two electrodes. The distance between the inner edges of the electrodes is labeled 'Land'. Dimension 'A' is the distance between the outer edges of the electrodes. Dimension 'B' is the total width of the capacitor body. Dimension 'C' is the height of the capacitor. An arrow points to one of the electrodes.

Size Code	Land dimensions		
	Reflow soldering		
	A	B	C
K1	0.6	2.0	0.7
J1,J2	0.8	2.4	1.1
H1,H2,H3	1.8	3.6	1.4
G1,G2,G3	1.8	3.6	2.3
E1,E2	3.0	5.6	3.0
D1,D3,D4	4.0	7.0	3.8

\* It is not warrantable that you can mount the capacitor without trouble under all the mounting condition when "Recommender for Land dimensions" is adopted.