

## Film Chip Capacitor

Type : **ECHU(X)**

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

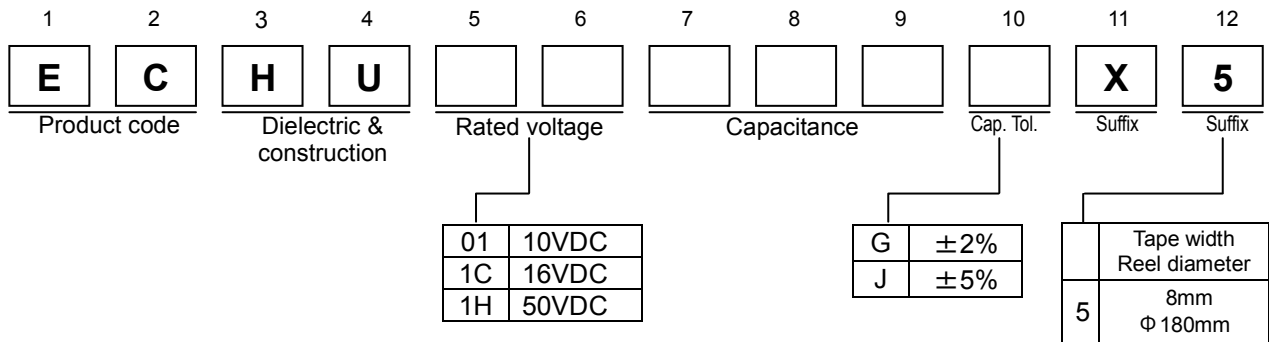
### ■ Features

- Small in size (minimum size 1.6mm x 0.8mm)
- 85 degree C , 85%RH , W.V. x 1.0 , 500 hours
- Applicable for reflow soldering

### ■ Recommended Applications

- Time-constant
- Filtering
- Oscillation and resonance

### ■ Explanation of Numbers



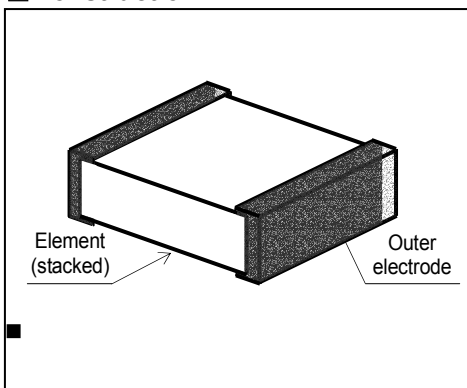
\* Φ 330mm reel is prepared.

### ■ Specification

Category temp.range	-55 to +125 °C
Rated voltage	10VDC , 16VDC , 50VDC
Capacitance range	0.0001μF to 0.033μF (E12)
Capacitance tolerance	±2%(G) , ±5%(J)
Withstand voltage	Between terminals : Rated volt. (VDC)X150% , 60s
Dissipation factor	0.6% or less (20°C , 1kHz)
Insulation resistance	10VDC : 3000MΩ or more (20°C , 10VDC , 60s) 16VDC : 3000MΩ or more (20°C , 10VDC , 60s) 50VDC : 3000MΩ or more (20°C , 50VDC , 60s)
Soldering conditions	Reflow soldering : 260°C max. and 30s max. at more than 230°C (Temp. at cap. Surface)

Note : Flow Soldering Type is available. Please contact the home page (<http://www.maco.panasonic.co.jp>)

### ■ Construction



### ■ Dimensions in mm (not to scale)

<p> <math>L \pm 0.2</math>  <math>W \pm 0.2</math>  <math>(W \pm 0.15)**</math>  <math>H \pm 0.2</math>  <math>(H \pm 0.15)**</math>  <math>e \pm 0.3</math>  <math>(e \pm 0.25)*</math>  <math>(e \pm 0.2)**</math>  <math>g</math> </p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Size code</th> <th>L</th> <th>W</th> <th>H</th> <th>e</th> <th>g</th> </tr> </thead> <tbody> <tr> <td>k1</td> <td>1.6</td> <td>0.8</td> <td>0.7</td> <td>0.35</td> <td>min.0.4</td> </tr> <tr> <td>J1</td> <td>2.0</td> <td>1.25</td> <td>0.9</td> <td>0.45</td> <td>min.0.6</td> </tr> <tr> <td>J2</td> <td>2.0</td> <td>1.25</td> <td>1.1</td> <td>0.45</td> <td>min.0.6</td> </tr> <tr> <td>H1</td> <td>3.2</td> <td>1.6</td> <td>0.9</td> <td>0.65</td> <td>min.1.0</td> </tr> <tr> <td>H2</td> <td>3.2</td> <td>1.6</td> <td>1.1</td> <td>0.65</td> <td>min.1.0</td> </tr> <tr> <td>H3</td> <td>3.2</td> <td>1.6</td> <td>1.5</td> <td>0.65</td> <td>min.1.0</td> </tr> <tr> <td>G1</td> <td>3.2</td> <td>2.5</td> <td>1.1</td> <td>0.65</td> <td>min.1.0</td> </tr> <tr> <td>G2</td> <td>3.2</td> <td>2.5</td> <td>1.5</td> <td>0.65</td> <td>min.1.0</td> </tr> <tr> <td>G3</td> <td>3.2</td> <td>2.5</td> <td>2.1</td> <td>0.65</td> <td>min.1.0</td> </tr> </tbody> </table> <p>           * To be applied only for size code J1 &amp; J2            ** To be applied only for size code K1         </p>	Size code	L	W	H	e	g	k1	1.6	0.8	0.7	0.35	min.0.4	J1	2.0	1.25	0.9	0.45	min.0.6	J2	2.0	1.25	1.1	0.45	min.0.6	H1	3.2	1.6	0.9	0.65	min.1.0	H2	3.2	1.6	1.1	0.65	min.1.0	H3	3.2	1.6	1.5	0.65	min.1.0	G1	3.2	2.5	1.1	0.65	min.1.0	G2	3.2	2.5	1.5	0.65	min.1.0	G3	3.2	2.5	2.1	0.65	min.1.0
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Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt safety arises from this product, please inform us immediately for technical consultation without fail.

### ■ Taping Specification for Automatic Mounting

See page 24 for automatic mounting.

### ■ Rating , Dimensions & quantity / Reel

■ Rated voltage : 16VDC , 50VDC      Capacitance tolerance : ±2%(G) , ±5%(J)

Cap. (μF)	Rated volt. 16VDC						Rated volt. 50VDC					
	Part No.	Dimensions (mm)			Size code	Q'ty	Part No.	Dimensions (mm)			Size code	Q'ty
		L	W	H				L	W	H		
0.0001	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	
0.001	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	2000
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	
0.01	ECHU1C103( )X5	2.0	1.25	1.1	J2		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		ECHU1H393( )X5	3.2	2.5	2.1	G3	
0.047	ECHU1C473( )X5	3.2	1.6	1.5	H3		Please use 50VDC rating of ECHU(C)					
0.056	ECHU1C563( )X5	3.2	2.5	1.5	G2							
0.068	ECHU1C683( )X5	3.2	2.5	1.5	G2							
0.082	ECHU1C823( )X5	3.2	2.5	2.1	G3							
0.1	ECHU1C104( )X5	3.2	2.5	2.1	G3	2000						

Capacitance tolerance code

### ■ Rating , Dimensions & quantity / Reel

■ Rated voltage : 10VDC    Capacitance tolerance : ±2%(G) , ±5%(J)

Cap. (μF)	Rated volt. 10VDC					
	Part No.	Dimensions (mm)			Size code	Q'ty
		L	W	H		
0.0001						
0.00012						
0.00015						
0.00018						
0.00022						
0.00027						
0.00033						
0.00039						
0.00047						
0.00056						
0.00068						
0.00082						
0.001						
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	
0.01	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						
0.1						

Please use 16VDC rating of ECHU(X)

Please use 16VDC rating of ECHU(X)

Capacitance tolerance code

**New!**

### ► Example for Land Dimensions (mm)

Size code	Land dimensions Reflow soldering		
	A	B	C
K1	0.6	2.0	0.7
J1J2	0.8	2.4	1.1
H1,H2,H3	1.8	3.6	1.4
G1,G2,G3	1.8	3.6	2.3