

Film Chip Capacitor

Type : **ECHU(X)**

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

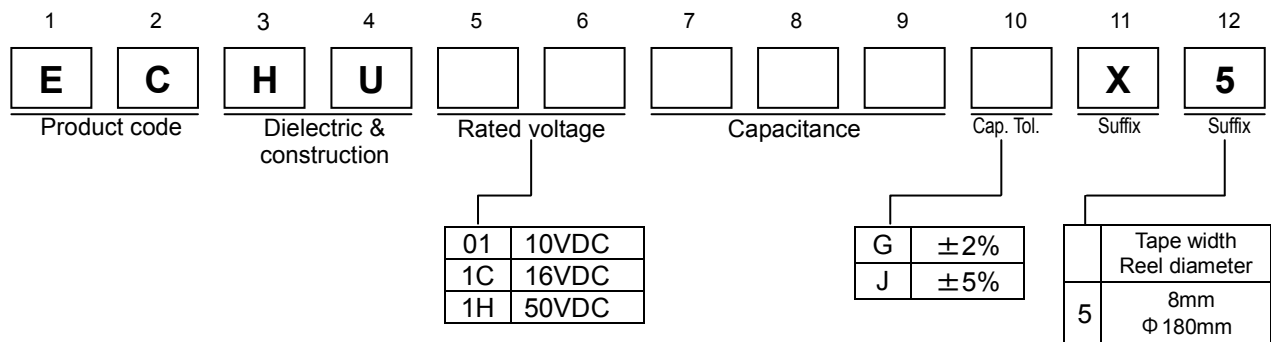
■ Features

- 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



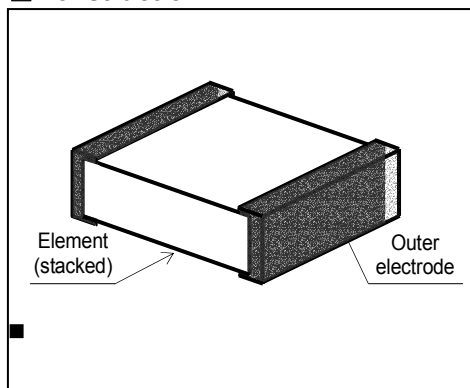
* Φ330mm reel is prepared.

■ 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)

| 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 |

* To be applied only for size code J1 & J2
** To be applied only for size code K1

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 |