

## Stacked Metallized PPS Film Chip Capacitor

Type: **ECHU(C)**

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

### ■Features

- Small in size
- Low loss and excellent frequency characteristics
- For reflow soldering
- RoHS directive compliant

### ■Recommended Applications

- Time-constant
- Filtering
- Oscillation and resonance
- Resonance circuit for LCD backlight inverter unit

### ■Explanation of Numbers

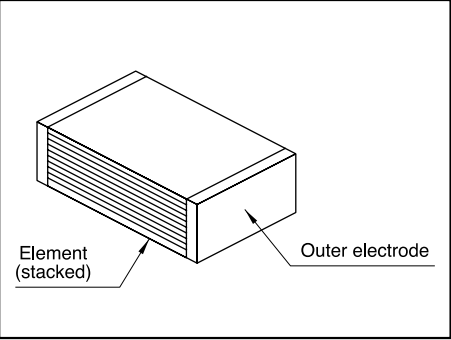
| 1            | 2                         | 3        | 4             | 5        | 6           | 7 | 8 | 9                | 10       | 11                               |
|--------------|---------------------------|----------|---------------|----------|-------------|---|---|------------------|----------|----------------------------------|
| <b>E</b>     | <b>C</b>                  | <b>H</b> | <b>U</b>      | <b>1</b> |             |   |   |                  | <b>C</b> |                                  |
| Product code | Dielectric & construction |          | Rated voltage |          | Capacitance |   |   | Cap. Tol.        | Suffix   | Suffix                           |
|              |                           |          |               | 1        | 100 VDC     |   |   | G ±2 %<br>J ±5 % |          | Tape width<br>9 12 mm<br>V 16 mm |

### ■Specifications

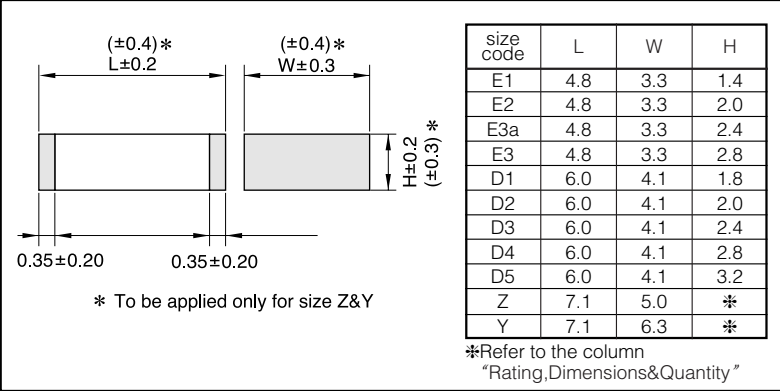
|                                                                      |                                                                                             |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Category temp. range<br>(Including temperature-rise on unit surface) | −55 °C to +105 °C                                                                           |
| Rated voltage                                                        | 100 VDC                                                                                     |
| Capacitance range                                                    | 0.010 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)                                           | IR ≥3000 MΩ(20 °C, 100 VDC, 60 s)                                                           |
| Soldering conditions                                                 | Reflow soldering : 260 °C max. and 95 s max. at more than 220 °C<br>(Temp. at cap. Surface) |

\* 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.

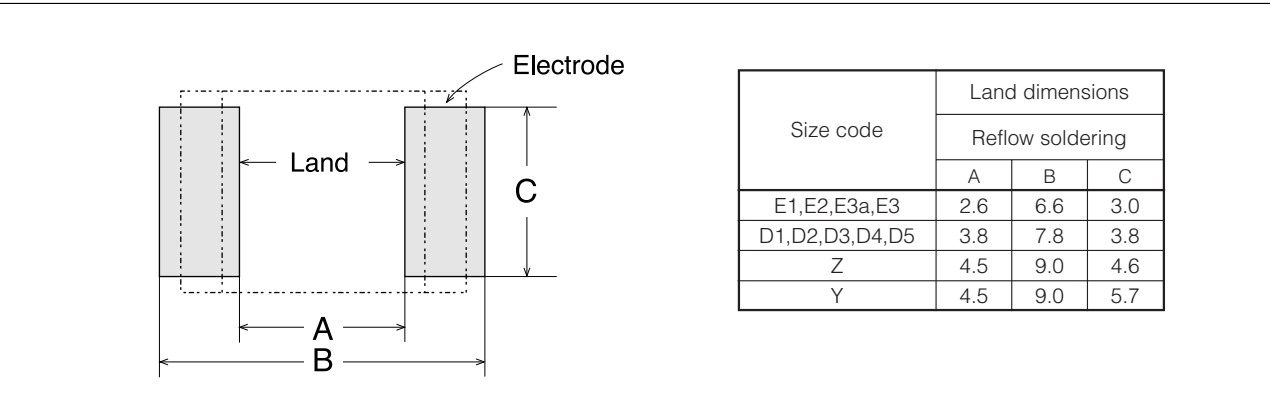
## ■ Rating, Dimensions & Quantity/Reel

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

| Cap.(μF) | Rated volt. 100 VDC |                 |     |     |           |      |
|----------|---------------------|-----------------|-----|-----|-----------|------|
|          | Part No.            | Dimensions (mm) |     |     | Size Code | Q'ty |
|          |                     | L               | W   | H   |           |      |
| 0.010    | ECHU1103□C9         | 4.8             | 3.3 | 1.4 | E1        | 3000 |
| 0.012    | ECHU1123□C9         | 4.8             | 3.3 | 1.4 | E1        |      |
| 0.015    | ECHU1153□C9         | 4.8             | 3.3 | 2.0 | E2        |      |
| 0.018    | ECHU1183□C9         | 4.8             | 3.3 | 2.0 | E2        |      |
| 0.022    | ECHU1223□C9         | 4.8             | 3.3 | 2.4 | E3a       | 2000 |
| 0.027    | ECHU1273□C9         | 4.8             | 3.3 | 2.8 | E3        |      |
| 0.033    | ECHU1333□C9         | 6.0             | 4.1 | 1.8 | D1        | 3000 |
| 0.039    | ECHU1393□C9         | 6.0             | 4.1 | 2.0 | D2        |      |
| 0.047    | ECHU1473□C9         | 6.0             | 4.1 | 2.4 | D3        |      |
| 0.056    | ECHU1563□C9         | 6.0             | 4.1 | 2.8 | D4        | 2000 |
| 0.068    | ECHU1683□C9         | 6.0             | 4.1 | 3.2 | D5        |      |
| 0.082    | ECHU1823□C9         | 7.1             | 5.0 | 2.8 | Z         | 1500 |
| 0.10     | ECHU1104□C9         | 7.1             | 5.0 | 3.0 | Z         |      |
| 0.12     | ECHU1124□C9         | 7.1             | 5.0 | 3.4 | Z         |      |
| 0.15     | ECHU1154□CV         | 7.1             | 6.3 | 3.4 | Y         | 1000 |
| 0.18     | ECHU1184□CV         | 7.1             | 6.3 | 4.0 | Y         |      |
| 0.22     | ECHU1224□CV         | 7.1             | 6.3 | 4.8 | Y         |      |

Cap. tol. code

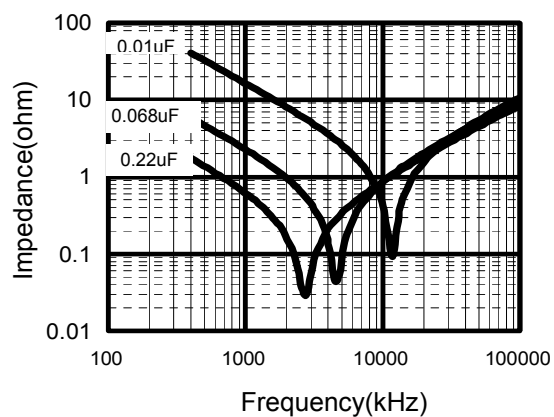
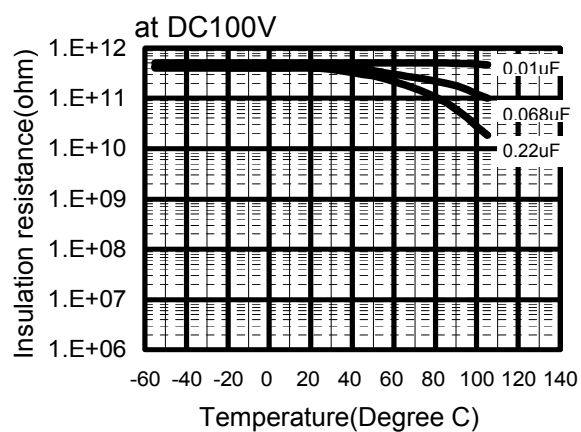
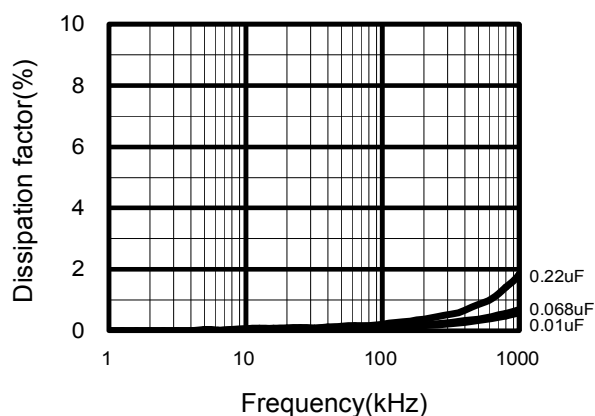
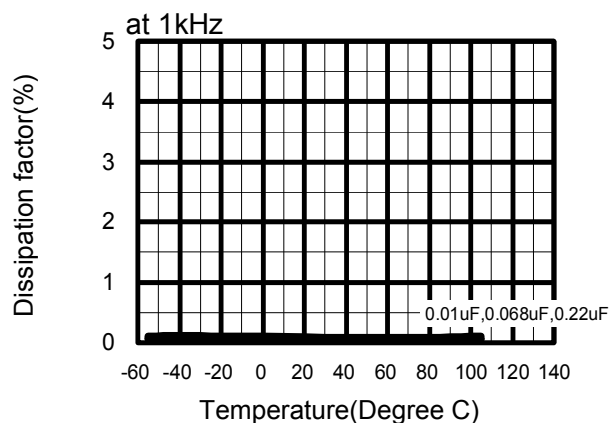
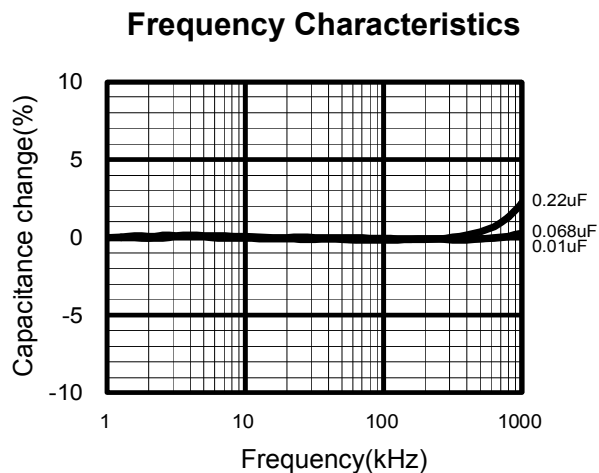
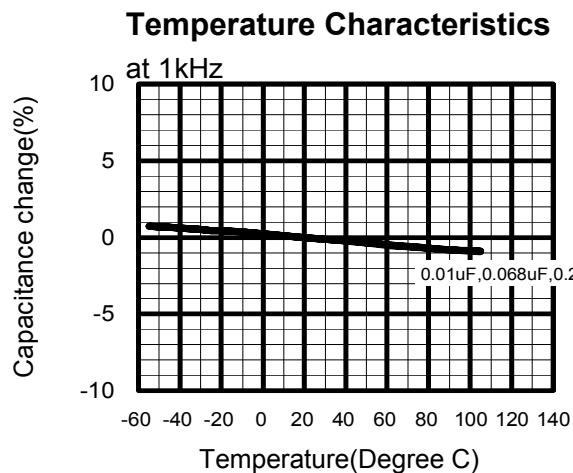
## ■ Recommended for Land Dimensions (mm)



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

# ECHU (C) Type DC100V series (Stacked Metallized Film)

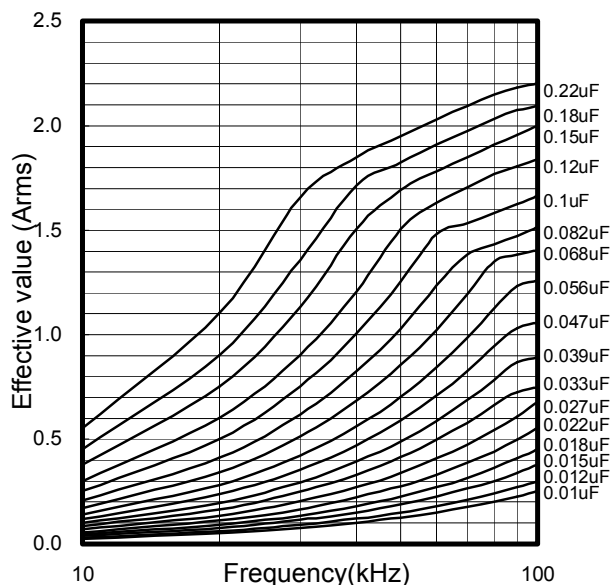
## Electrical Characteristics <Typical Data >



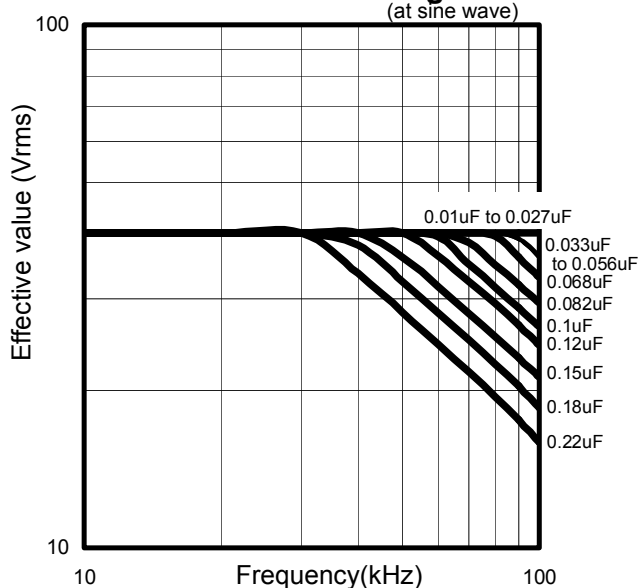
# ECHU (C) Type DC100V series (Stacked Metallized Film)

## Applicable Specifications

**Permissible Current**



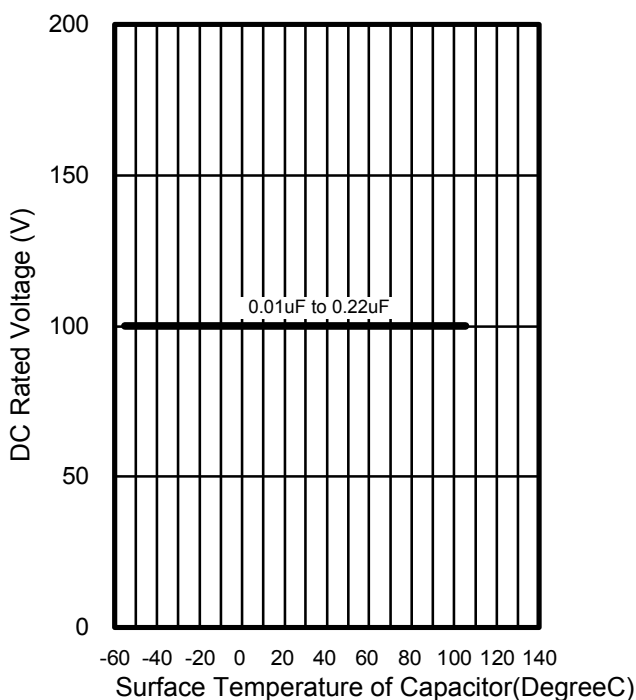
**Permissible Voltage**  
(at sine wave)



**Pulse Handling Capability (dv/dt)**  
(Max 10000cycles)

| Rating Voltage | Capacitance Value(uF) | code | dV/dt (V/us) | Current(o-P) (A) |
|----------------|-----------------------|------|--------------|------------------|
| DC 100V        | 0.010                 | 103  | 180          | 1.80             |
|                | 0.012                 | 123  |              | 2.16             |
|                | 0.015                 | 153  |              | 2.70             |
|                | 0.018                 | 183  |              | 3.24             |
|                | 0.022                 | 223  |              | 3.96             |
|                | 0.027                 | 273  |              | 4.86             |
|                | 0.033                 | 333  | 130          | 4.29             |
|                | 0.039                 | 393  |              | 5.07             |
|                | 0.047                 | 473  |              | 6.11             |
|                | 0.056                 | 563  |              | 7.28             |
|                | 0.068                 | 683  | 100          | 8.84             |
|                | 0.082                 | 823  |              | 8.20             |
|                | 0.10                  | 104  |              | 10.00            |
|                | 0.12                  | 124  |              | 12.00            |
|                | 0.15                  | 154  |              | 15.00            |
|                | 0.18                  | 184  |              | 18.00            |
|                | 0.22                  | 224  |              | 22.00            |

**Voltage Derating by Temperature**



\*Please consult Panasonic if your condition exceeds the above

\*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.

\*The current(0-P) value is calculated using nominal capacitance.

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