

Film Chip Capacitor

Type: **ECWU (V16), (V17)**

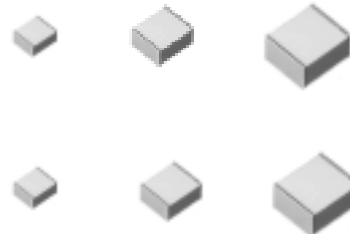
Stacked Metallized PEN film as dielectric with simple mold-less construction

■ **Features**

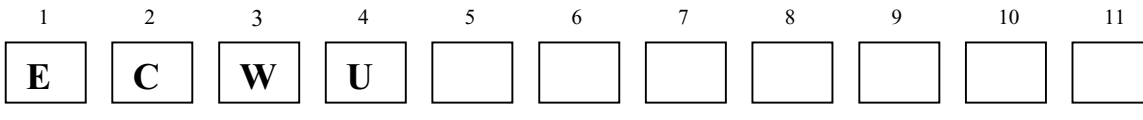
- Small in size
- Applicable for Reflow soldering

■ **Recommended Applications**

- DC Blocking for xDSL
- By-pass
- General purpose



■ **Explanation of Part Numbers**



Product code

Dielectric & construction

Rated Voltage

Capacitance

Rating (Withstand Volt)

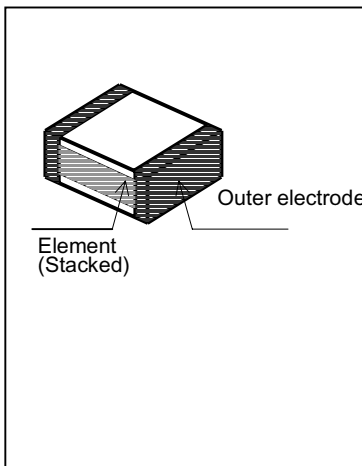
| | |
|---|--------|
| 2 | 250VDC |
| 4 | 400VDC |

| | |
|-----|----------------------|
| V16 | 250VDC (400VDC 1min) |
| V17 | 400VDC (600VDC 1min) |

■ **Specification**

| | |
|-----------------------|--|
| Rated Voltage | 250VDC, 400VDC |
| Capacitance range | 250VDC : 0.001 to 0.12uF (E12) 400VDC : 0.001 to 0.15uF (E12) |
| Capacitance tolerance | +/-5%(J) |
| Withstand voltage | Between terminals 250VDC rating : 400VDC for 60s 400VDC rating : 600VDC for 60s |
| Dissipation factor | 1.0% or less (20 degree C, 1kHz) |
| Insulation resistance | 250VDC : 3000M ohm or more |
| Soldering condition | Reflow soldering : 230 degree C max. 30sec max. 210 degree C and above (Temp. at caps. surface) |

■ **Construction**



| Size code | L | W | H |
|-----------|------|------|-----|
| E1 | 4.8 | 3.3 | 1.4 |
| E2 | 4.8 | 3.3 | 2.0 |
| E3a | 4.8 | 3.3 | 2.4 |
| E3 | 4.8 | 3.3 | 2.8 |
| D1 | 6.0 | 4.1 | 1.8 |
| D2 | 6.0 | 4.1 | 2.0 |
| D3 | 6.0 | 4.1 | 2.4 |
| D4 | 6.0 | 4.1 | 2.8 |
| D5 | 6.0 | 4.1 | 3.2 |
| B | 6.0 | 5.0 | |
| Z | 7.1 | 5.0 | |
| X | 7.7 | 5.5 | |
| Y | 7.1 | 6.3 | * |
| V | 9.8 | 6.3 | |
| U | 9.8 | 8.0 | |
| T | 15.2 | 8.0 | |
| S | 15.2 | 10.0 | |

*:Refer to the column "Rating, Dimension & Quantity"

■ **Rating, Dimension & Quantity / Reel**
Capacitance tolerance: +/-5%(J)

| Cap. (μ F) | Rated volt. 250VDC (400VDC for 1min.) | | | | | Rated volt. 400VDC (600VDC for 1min.) | | | | | | | |
|--------------------|---------------------------------------|--------------------|-----|-----|--------------|---------------------------------------|-------------|--------------------|-----|-----|--------------|----------|-------|
| | Part No. | Dimensions (mm) | | | Size code | Quantity | Part No. | Dimensions (mm) | | | Size code | Quantity | |
| | | L | W | H | | | | L | W | H | | | |
| 0.001 | ECWU2102V16 | 4.8 | 3.3 | 1.4 | E1 | 3,000 | ECWU4102V17 | 4.8 | 3.3 | 1.4 | E1 | 3,000 | |
| 0.0012 | ECWU2122V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4122V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0015 | ECWU2152V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4152V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0018 | ECWU2182V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4182V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0022 | ECWU2222V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4222V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0027 | ECWU2272V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4272V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0033 | ECWU2332V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4332V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0039 | ECWU2392V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4392V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0047 | ECWU2472V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4472V17 | 4.8 | 3.3 | 1.4 | E1 | | |
| 0.0056 | ECWU2562V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4562V17 | 4.8 | 3.3 | 2.0 | E2 | | |
| 0.0068 | ECWU2682V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4682V17 | 4.8 | 3.3 | 2.0 | E2 | | |
| 0.0082 | ECWU2822V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4822V17 | 4.8 | 3.3 | 2.4 | E3a | | |
| 0.01 | ECWU2103V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4103V17 | 4.8 | 3.3 | 2.8 | E3 | | 2,000 |
| 0.012 | ECWU2123V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4123V17 | 6.0 | 4.1 | 2.0 | D2 | | 3,000 |
| 0.015 | ECWU2153V16 | 4.8 | 3.3 | 1.4 | E1 | | ECWU4153V17 | 6.0 | 4.1 | 2.4 | D3 | | 2,000 |
| 0.018 | ECWU2183V16 | 4.8 | 3.3 | 2.0 | E2 | ECWU4183V17 | 6.0 | 4.1 | 2.8 | D4 | | | |
| 0.022 | ECWU2223V16 | 4.8 | 3.3 | 2.0 | E2 | ECWU4223V17 | 6.0 | 4.1 | 3.2 | D5 | | | |
| 0.027 | ECWU2273V16 | 4.8 | 3.3 | 2.4 | E3a | ECWU4273V17 | 6.0 | 5.0 | 3.0 | B | 1,500 | | |
| 0.033 | ECWU2333V16 | 4.8 | 3.3 | 2.8 | E3 | ECWU4333V17 | 6.0 | 5.0 | 3.6 | B | | | |
| 0.039 | ECWU2393V16 | 6.0 | 4.1 | 2.0 | D2 | ECWU4393V17 | 7.1 | 5.0 | 3.2 | Z | | | |
| 0.047 | ECWU2473V16 | 6.0 | 4.1 | 2.4 | D3 | ECWU4473V17 | 7.1 | 5.0 | 3.8 | Z | 2,000 | | |
| 0.056 | ECWU2563V16 | 6.0 | 4.1 | 2.8 | D4 | ECWU4563V17 | 7.1 | 6.3 | 3.6 | Y | | | |
| 0.068 | ECWU2683V16 | 6.0 | 4.1 | 3.2 | D5 | ECWU4683V17 | 7.1 | 6.3 | 4.4 | Y | | | |
| 0.082 | ECWU2823V16 | 6.0 | 5.0 | 3.2 | B | ECWU4823V17 | 9.8 | 6.3 | 3.4 | V | 1,000 | | |
| 0.1 | ECWU2104V16 | 6.0 | 5.0 | 3.8 | B | ECWU4104V17 | 9.8 | 6.3 | 4.0 | V | | | |
| 0.12 | ECWU2124V16 | 6.0 | 5.0 | 4.5 | B | ECWU4124V17 | 9.8 | 8.0 | 3.8 | U | | | |
| 0.15 | | | | | | ECWU4154V17 | 9.8 | 8.0 | 4.6 | U | | | |

■ **Example for Land Dimension (mm)**

Very Important!!

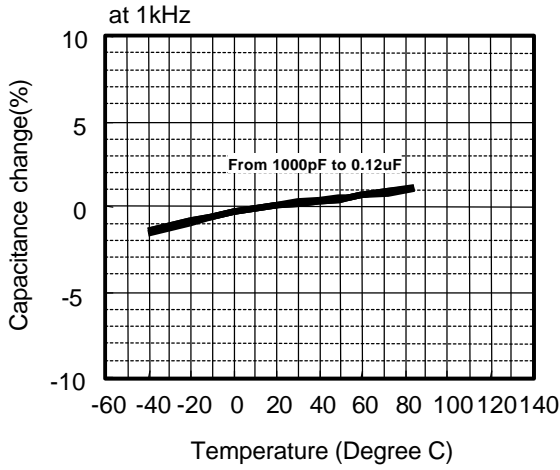
| Size code | Pad Layout for Reflow soldering | | |
|--------------|------------------------------------|------|-----|
| | A | B | C |
| E1,E2,E3a,E3 | 2.6 | 6.6 | 3 |
| D2,D3,D4,D5 | 3.8 | 7.8 | 3.8 |
| B | 3.8 | 7.8 | 4.6 |
| Z | 4.5 | 9 | 4.6 |
| X | 5.1 | 9.7 | 5 |
| Y | 4.5 | 9 | 5.7 |
| V | 7.2 | 11.9 | 5.7 |



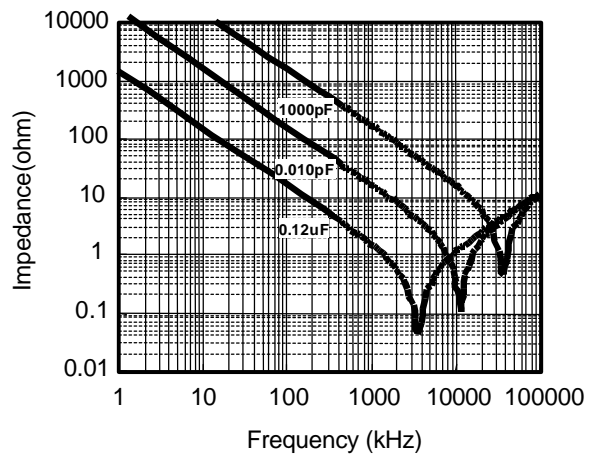
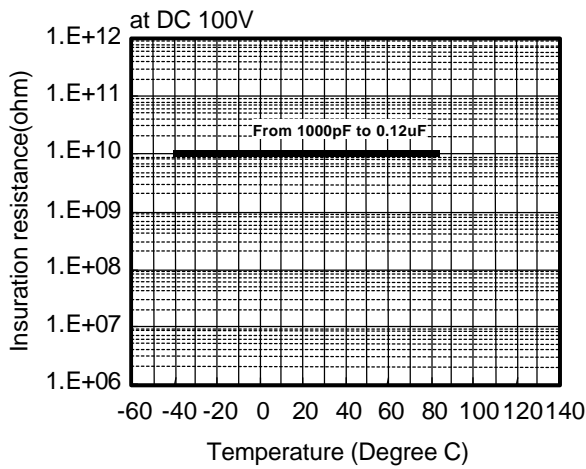
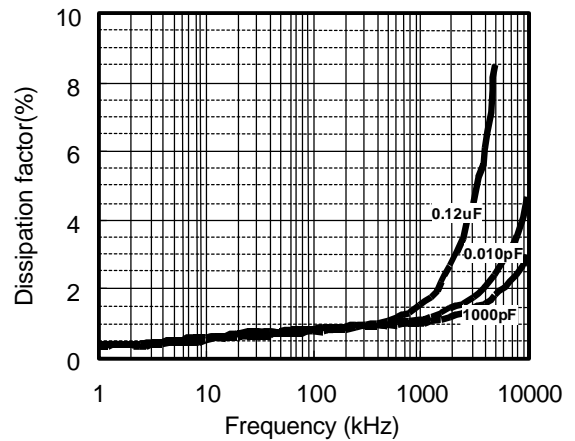
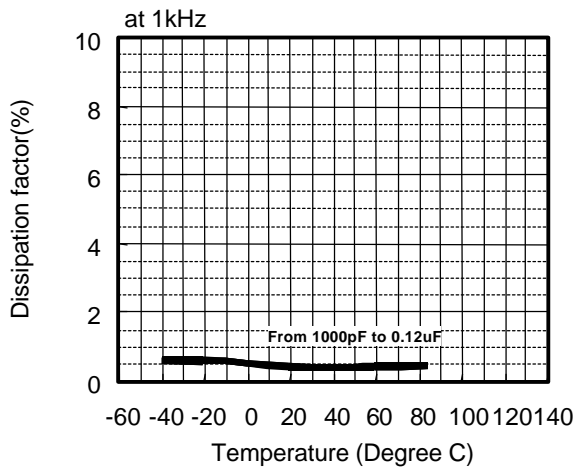
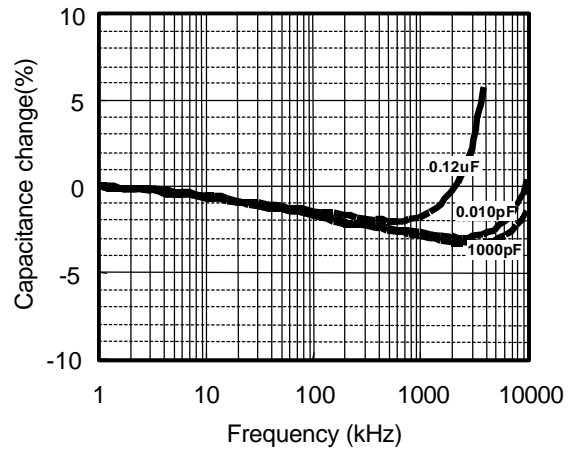
ECWU (V16) Type (for xDSL) DC250V series (Stacked Metallized Film)

Electrical Characteristics < Typical Data >

Temperature Characteristics

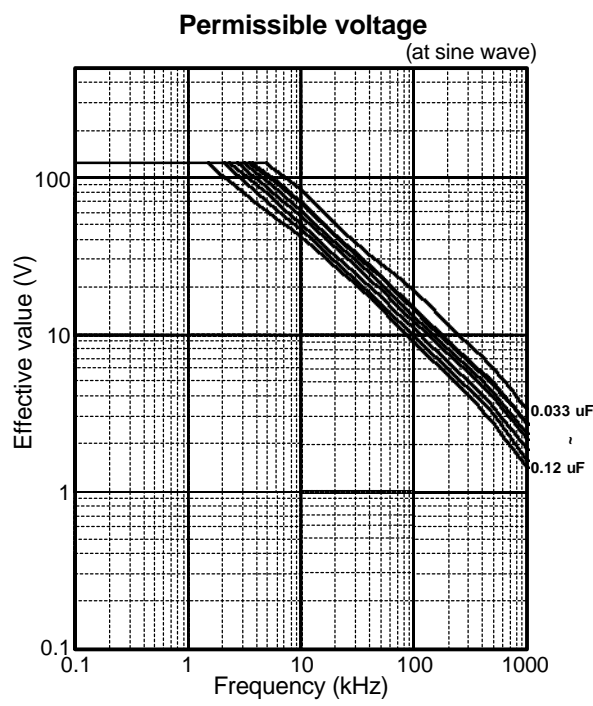
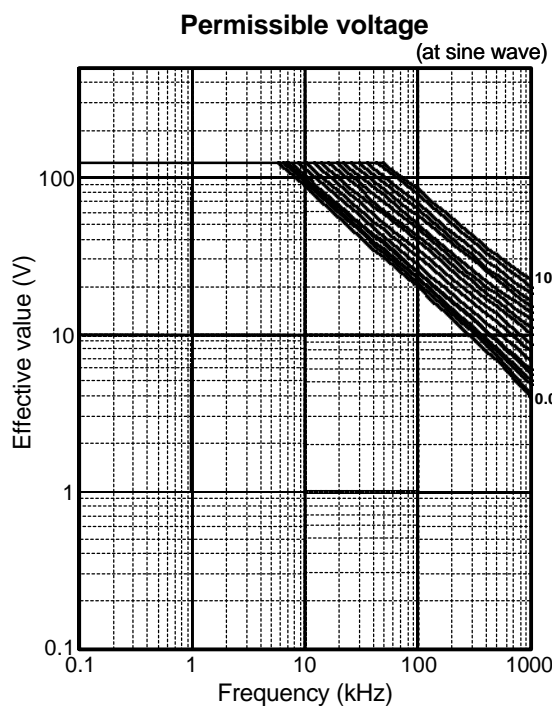
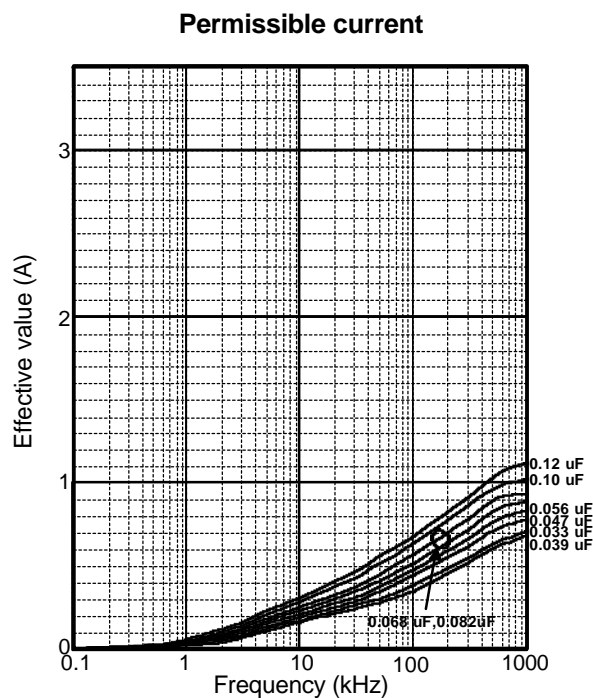
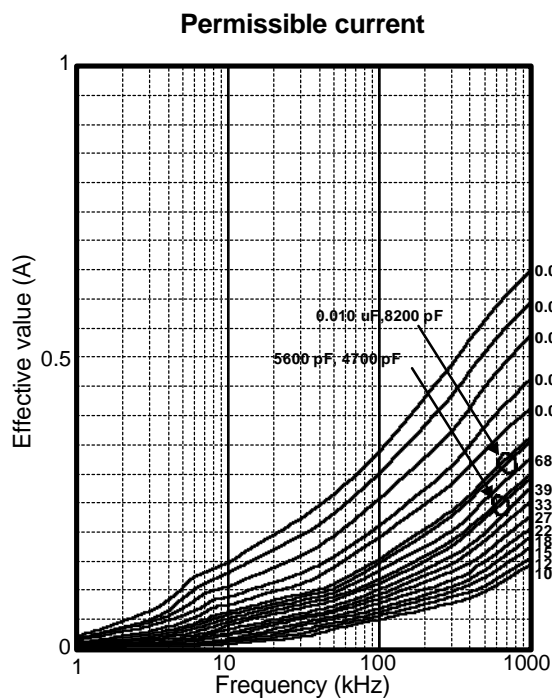


Frequency Characteristics



ECWU (V16) Type DC250V series (Stacked Metallized Film)

Applicable Specifications



* Please consult Panasonic if your condition exceeds the above spec.

*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.



ECWU (V16) Type DC250V series (Stacked Metallized Film)

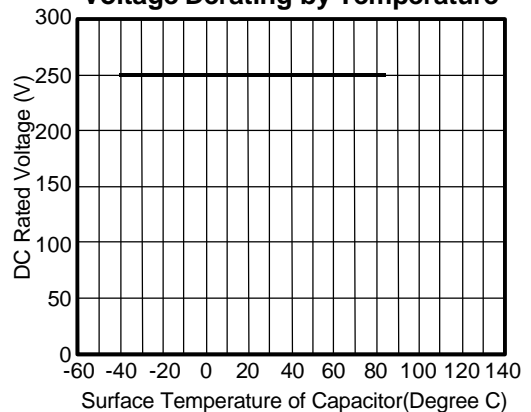
Applicable Specifications

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

| Rating Voltage | Capacitance Value(uF) | Code | dv/dt(V/us) | Current _(o,p) (A) |
|----------------|-----------------------|------|-------------|------------------------------|
| DC 250V | 0.0010 | 102 | 615 | 0.62 |
| | 0.0012 | 122 | | 0.74 |
| | 0.0015 | 152 | | 0.92 |
| | 0.0018 | 182 | | 1.11 |
| | 0.0022 | 222 | | 1.35 |
| | 0.0027 | 272 | | 1.66 |
| | 0.0033 | 332 | | 2.03 |
| | 0.0039 | 392 | | 2.40 |
| | 0.0047 | 472 | 360 | 1.69 |
| | 0.0056 | 562 | | 2.02 |
| | 0.0068 | 682 | | 2.45 |
| | 0.0082 | 822 | | 2.95 |
| | 0.010 | 103 | | 3.60 |
| | 0.012 | 123 | | 4.32 |
| | 0.015 | 153 | | 5.40 |
| | 0.018 | 183 | | 6.48 |
| | 0.022 | 223 | | 7.92 |
| | 0.027 | 273 | | 9.72 |
| | 0.033 | 333 | | 11.88 |

| Rating Voltage | Capacitance Value(uF) | Code | dv/dt(V/us) | Current _(o,p) (A) |
|----------------|-----------------------|------|-------------|------------------------------|
| DC 250V | 0.039 | 393 | 240 | 9.36 |
| | 0.047 | 473 | | 11.28 |
| | 0.056 | 563 | | 13.44 |
| | 0.068 | 683 | | 16.32 |
| | 0.082 | 823 | | 19.68 |
| | 0.10 | 104 | | 24.00 |
| | 0.12 | 124 | | 28.80 |

Voltage Derating by Temperature



* Please consult Panasonic if your condition exceeds the above spec.

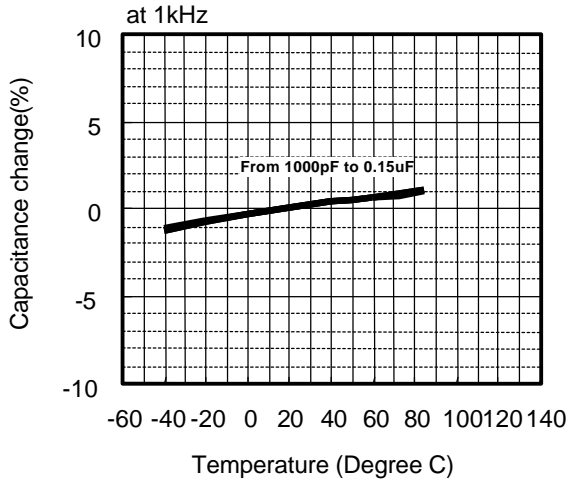
*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.

*The current_(o,p) value is calculated using nominal capacitance.

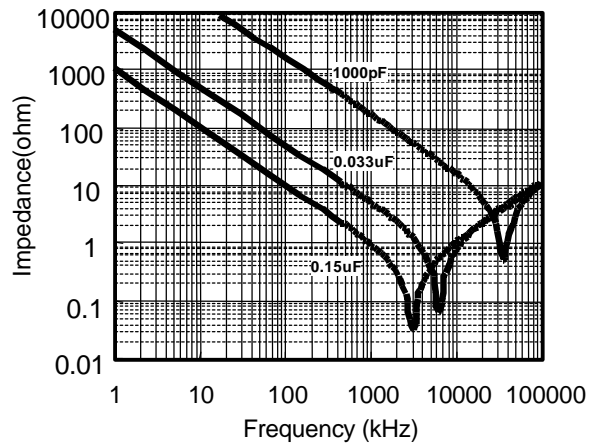
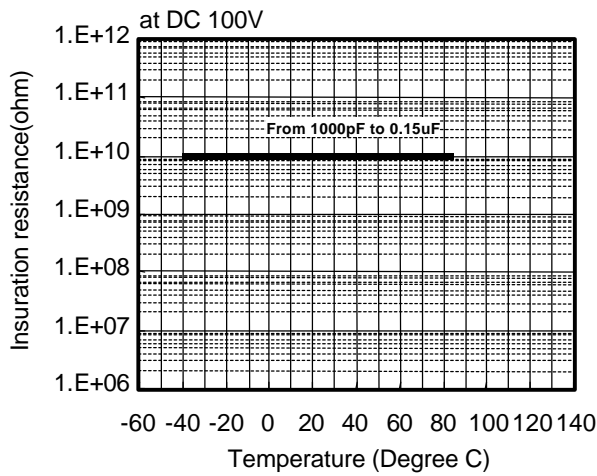
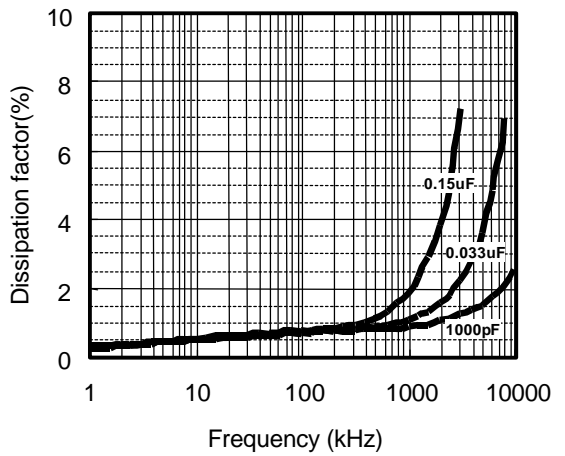
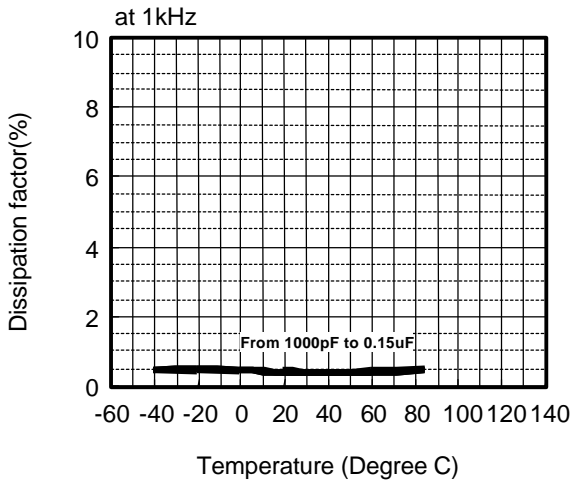
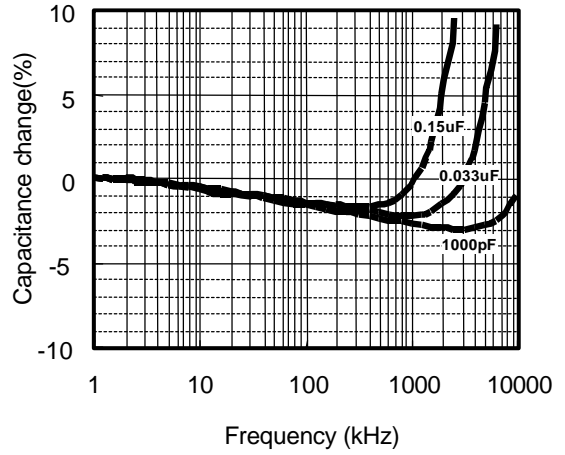
ECWU (V17) Type (for xDSL) DC400V series (Stacked Metallized Film)

Electrical Characteristics < Typical Data >

Temperature Characteristics

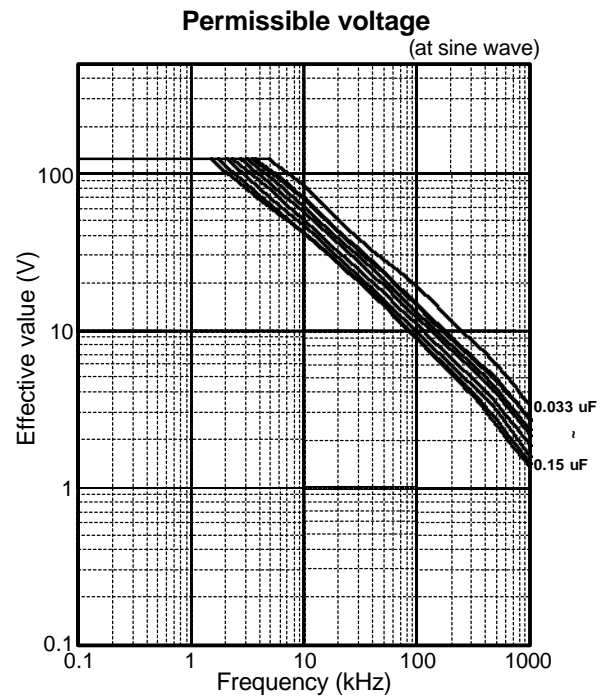
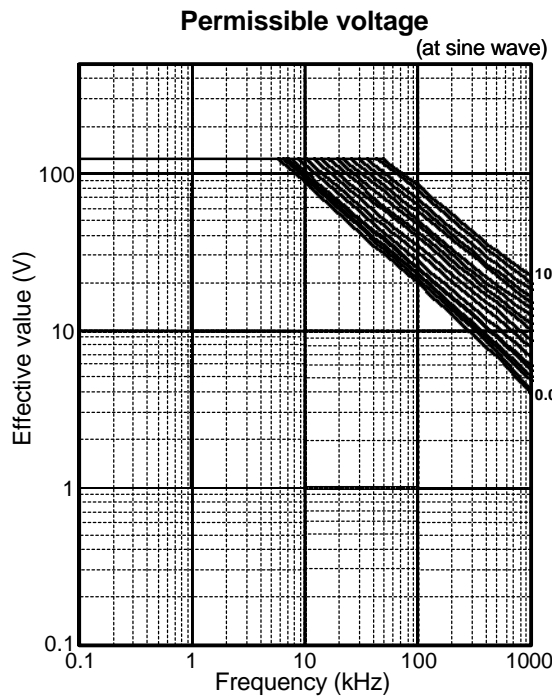
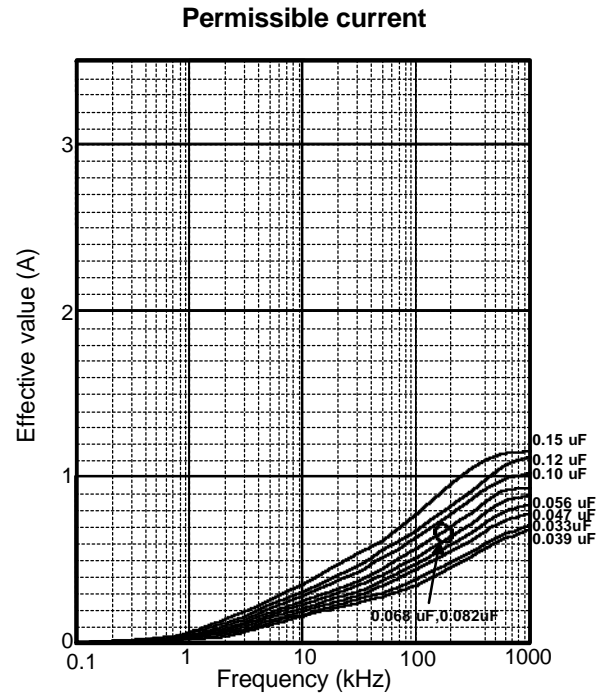
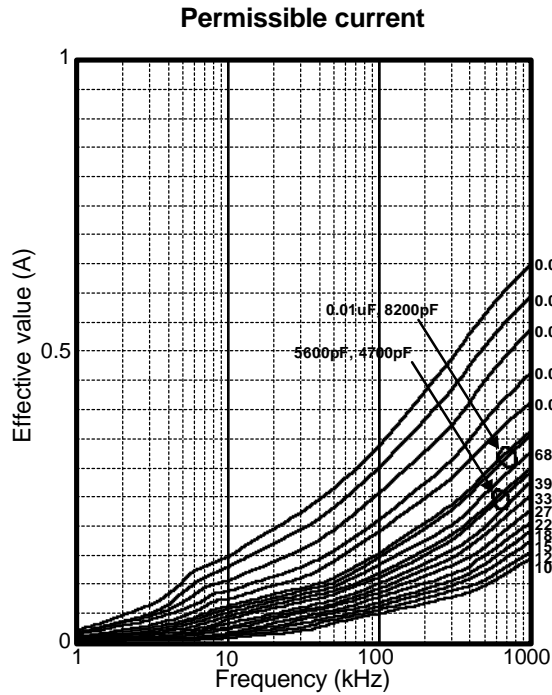


Frequency Characteristics



ECWU (V17) Type DC400V series (Stacked Metallized Film)

Applicable Specifications



* Please consult Panasonic if your condition exceeds the above spec.
 *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.



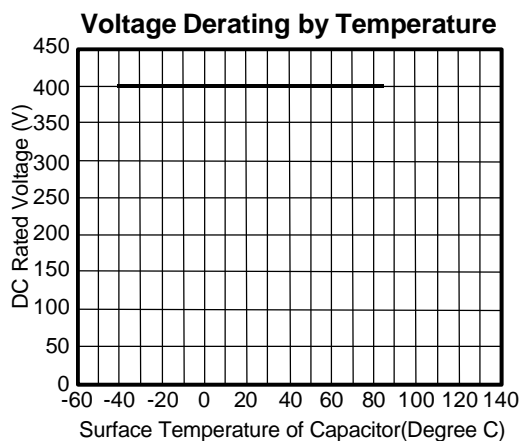
ECWU (V17) Type DC400V series (Stacked Metallized Film)

Applicable Specifications

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

| Rating Voltage | Capacitance Value(uF) | Code | dv/dt(V/us) | Current _(o,p) (A) |
|----------------|-----------------------|------|-------------|------------------------------|
| DC 400V | 0.0010 | 102 | 615 | 0.62 |
| | 0.0012 | 122 | | 0.74 |
| | 0.0015 | 152 | | 0.92 |
| | 0.0018 | 182 | | 1.11 |
| | 0.0022 | 222 | | 1.35 |
| | 0.0027 | 272 | | 1.66 |
| | 0.0033 | 332 | | 2.03 |
| | 0.0039 | 392 | | 2.40 |
| | 0.0047 | 472 | 360 | 1.69 |
| | 0.0056 | 562 | | 2.02 |
| | 0.0068 | 682 | | 2.45 |
| | 0.0082 | 822 | | 2.95 |
| | 0.010 | 103 | 240 | 3.60 |
| | 0.012 | 123 | | 2.88 |
| | 0.015 | 153 | | 3.60 |
| | 0.018 | 183 | | 4.32 |
| | 0.022 | 223 | | 5.28 |
| | 0.027 | 273 | | 6.48 |
| | 0.033 | 333 | | 7.92 |

| Rating Voltage | Capacitance Value(uF) | Code | dv/dt(V/us) | Current _(o,p) (A) |
|----------------|-----------------------|------|-------------|------------------------------|
| DC 400V | 0.039 | 393 | 190 | 7.41 |
| | 0.047 | 473 | | 8.93 |
| | 0.056 | 563 | | 10.64 |
| | 0.068 | 683 | | 12.92 |
| | 0.082 | 823 | 115 | 9.43 |
| | 0.10 | 104 | | 11.50 |
| | 0.12 | 124 | | 13.80 |
| | 0.15 | 154 | | 17.25 |



* Please consult Panasonic if your condition exceeds the above spec.

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

*The current_(o,p) value is calculated using nominal capacitance.