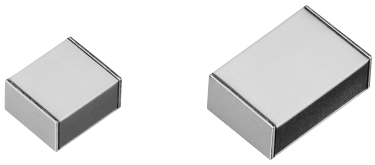
Stacked Metallized PEN Film Chip Capacitor

Type: ECWU(C)

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



■Features
- Small in size
- For reflow soldering
- RoHS directive compliant

■Recommended Applications
- General purpose (Coupling, By-pass)

■Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12
E	C	W	U							C	
Product code		Dielectric & construction		Rated voltage		Nominal capacitance			Cap. Tol.	Suffix	Suffix

1	100 VDC
2	250 VDC

J	±5 %
K	±10 %

	Tape width
9	12 mm
V	16 mm

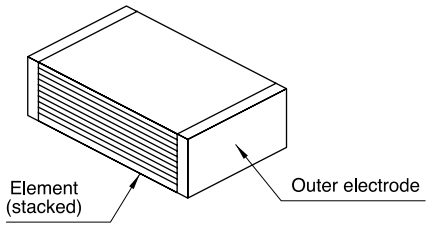
■Specifications

Category temp.range (Including temperature-rise on unit surface)	-55 ˚C to +125 ˚C	
Rated voltage	100 VDC, 250 VDC (Derating of rated voltage by 1.25 %/˚C more than 85 ˚C)	
Capacitance range	100 VDC	0.012 µF to 1.0 µF (E12)
	250 VDC	0.0010 µF to 0.12 µF (E12)
Capacitance tolerance	100 VDC	±5 %(J), ±10 %(K) (C≧0.18 µF : ±10 %(K)only)
	250 VDC	±5 %(J), ±10 %(K)
Withstand voltage	Between terminals: Rated volt. (VDC)×150 % 60 s	
Dissipation factor (tanδ)	tanδ≦1.0 %(20 ˚C, 1 kHz)	
Insulation resistance (IR)	C≦0.33 µF	100 VDC, 250 VDC : IR≧3000 MΩ · (20 ˚C,100 VDC, 60 s)
	C>0.33 µF	100 VDC : IR≧1000 MΩ · µF (20 ˚C,100 VDC, 60 s)
Soldering conditions	Reflow soldering : 240 ˚C max. and 60 s max. at more than 220 ˚C (Temp. at cap. surface) (Please consult us for Reflow 250 ˚C max. product.)	

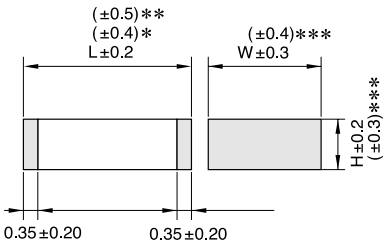
❉ In case of applying voltage in alternating current (50 Hz or 60 Hz sine wave) to a capacitor with DC rated voltage, please refer to the page of “Permissible voltage (R.M.S) in alternating current corresponding to DC rated voltage”.
❉ Please consult us for capacitance range between 0.15 µF and 1.0 µF for 250 VDC type.

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

■Construction



■Dimensions in mm (not to scale)



* To Be applied only for size Z,X
** To Be applied only for size V
*** To Be applied only for size B,Z,X,V

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	
V	9.8	6.3	

❉Refer to the column “Rating, Dimensions & Quantity”.

■Taping Specification for Automatic Mounting

Refer to the page of taping specifications.

■ Rating, Dimensions & Quantity/Reel

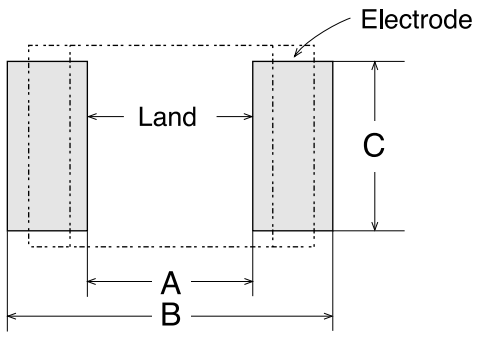
● Capacitance tolerance : ±5 %(J), ±10 %(K)

Cap. (μF)	Rated volt. 100 VDC						Rated volt. 250 VDC					
	Part No	Dimensions (mm) L	W	H	Size code	Q'ty	Part No	Dimensions (mm) L	W	H	Size code	Q'ty
0.0010	Please use 100 VDC rating ECWU(X)						ECWU2102□C9	4.8	3.3	1.4	E1	
0.0012							ECWU2122□C9	4.8	3.3	1.4	E1	
0.0015							ECWU2152□C9	4.8	3.3	1.4	E1	
0.0018							ECWU2182□C9	4.8	3.3	1.4	E1	
0.0022							ECWU2222□C9	4.8	3.3	1.4	E1	
0.0027							ECWU2272□C9	4.8	3.3	1.4	E1	
0.0033							ECWU2332□C9	4.8	3.3	1.4	E1	
0.0039							ECWU2392□C9	4.8	3.3	1.4	E1	
0.0047							ECWU2472□C9	4.8	3.3	1.4	E1	3000
0.0056							ECWU2562□C9	4.8	3.3	1.4	E1	
0.0068							ECWU2682□C9	4.8	3.3	1.4	E1	
0.0082							ECWU2822□C9	4.8	3.3	1.4	E1	
0.010							ECWU2103□C9	4.8	3.3	1.4	E1	
0.012	ECWU1123□C9	4.8	3.3	1.4	E1	3000	ECWU2123□C9	4.8	3.3	1.4	E1	
0.015	ECWU1153□C9	4.8	3.3	1.4	E1		ECWU2153□C9	4.8	3.3	1.4	E1	
0.018	ECWU1183□C9	4.8	3.3	1.4	E1		ECWU2183□C9	4.8	3.3	2.0	E2	
0.022	ECWU1223□C9	4.8	3.3	1.4	E1		ECWU2223□C9	4.8	3.3	2.0	E2	
0.027	ECWU1273□C9	4.8	3.3	1.4	E1		ECWU2273□C9	4.8	3.3	2.4	E3a	2000
0.033	ECWU1333□C9	4.8	3.3	1.4	E1		ECWU2333□C9	4.8	3.3	2.8	E3	
0.039	ECWU1393□C9	4.8	3.3	1.4	E1		ECWU2393□C9	6.0	4.1	2.0	D2	3000
0.047	ECWU1473□C9	4.8	3.3	2.0	E2		ECWU2473□C9	6.0	4.1	2.4	D3	
0.056	ECWU1563□C9	4.8	3.3	2.0	E2		ECWU2563□C9	6.0	4.1	2.8	D4	2000
0.068	ECWU1683□C9	4.8	3.3	2.4	E3a	2000	ECWU2683□C9	6.0	4.1	3.2	D5	
0.082	ECWU1823□C9	4.8	3.3	2.8	E3		ECWU2823□C9	6.0	5.0	3.2	B	
0.10	ECWU1104□C9	6.0	4.1	1.8	D1	3000	ECWU2104□C9	6.0	5.0	3.8	B	1500
0.12	ECWU1124□C9	6.0	4.1	2.4	D3	2000	ECWU2124□C9	6.0	5.0	4.5	B	
0.15	ECWU1154□C9	6.0	4.1	2.8	D4							
0.18	ECWU1184KC9	7.1	5.0	2.0	Z	1500						
0.22	ECWU1224KC9	7.1	5.0	2.4	Z							
0.27	ECWU1274KC9	7.1	5.0	2.9	Z							
0.33	ECWU1334KC9	7.1	5.0	3.5	Z							
0.39	ECWU1394KCV	7.7	5.5	3.4	X	1000						
0.47	ECWU1474KCV	7.7	5.5	4.0	X							
0.56	ECWU1564KCV	9.8	6.3	3.0	V							
0.68	ECWU1684KCV	9.8	6.3	3.6	V							
0.82	ECWU1824KCV	9.8	6.3	4.3	V							
1.0	ECWU1105KCV	9.8	6.3	5.1	V							

Cap. tol. code

Cap. tol. code

■ Recommened for Land Dimensions (mm)



Size code	Land dimensions for reflow soldering		
	A	B	C
E1,E2,E3a,E3	2.6	6.6	3.0
D1,D2,D3,D4,D5	3.8	7.8	3.8
B	3.8	7.8	4.6
Z	4.5	9.0	4.6
X	5.1	9.7	5.0
V	7.2	11.9	5.7

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

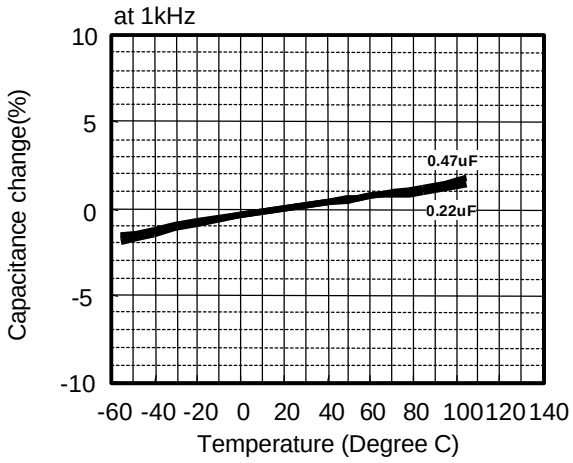
Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

Panasonic

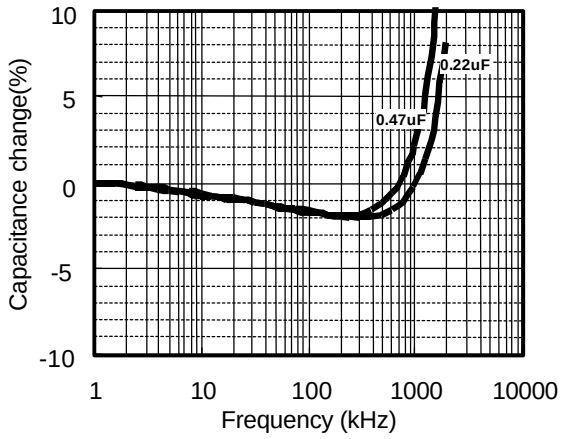
ECWU (C) Type DC16V series (Stacked Metallized Film)

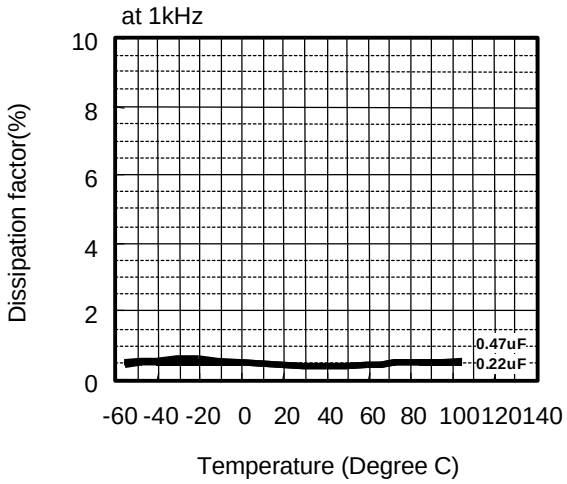
Electrical Characteristics < Typical Data >

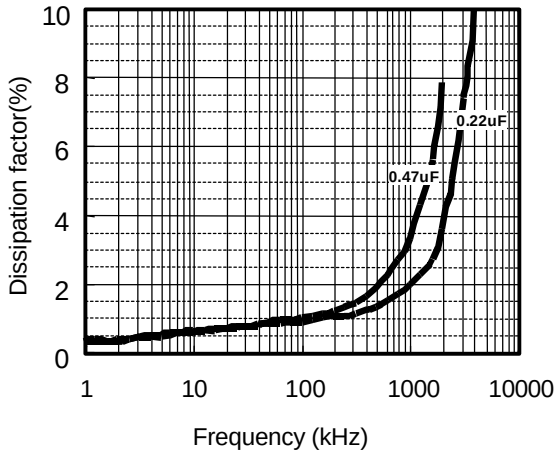
Temperature Characteristics

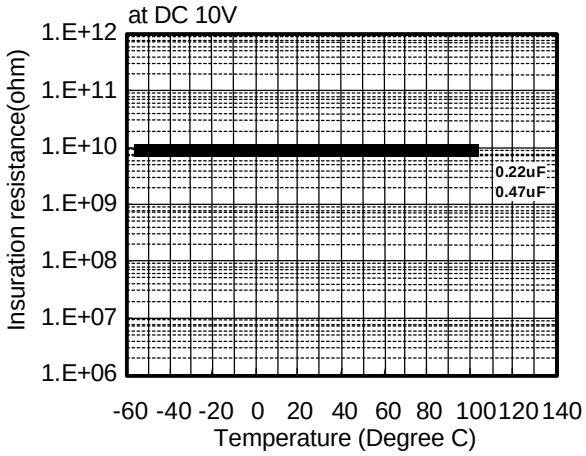


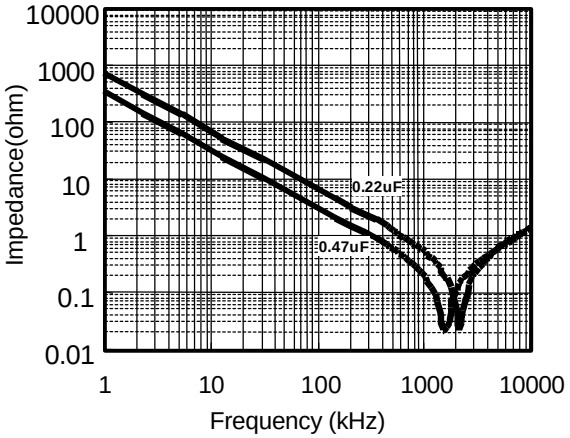
Frequency Characteristics









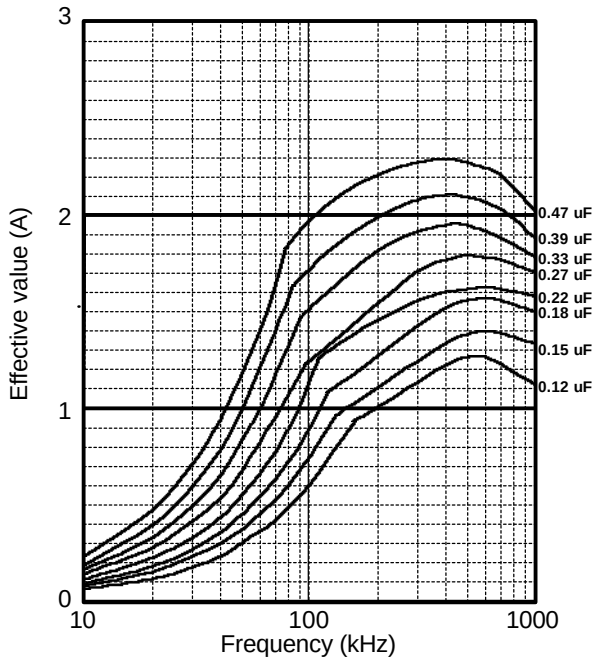


Panasonic

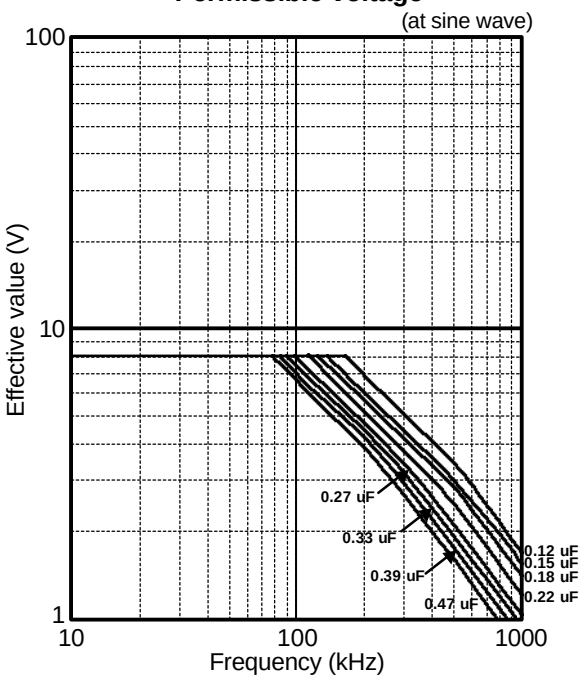
ECWU (C) Type DC16V series (Stacked Metallized Film)

Applicable Specifications

Permissible current



Permissible voltage

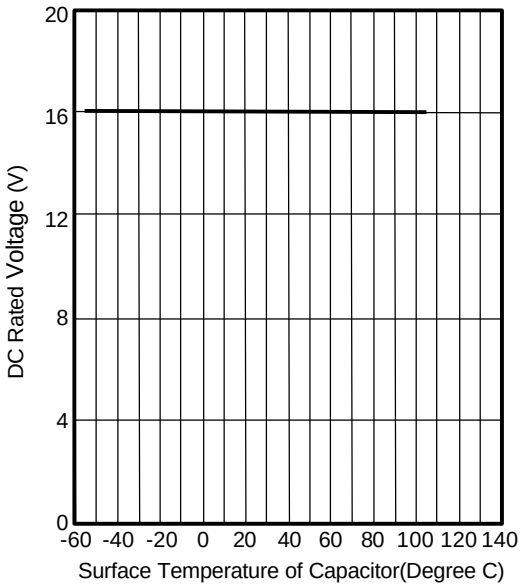


Pulse Handling Capability (dv/dt)

(Max 10000cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (A)
DC 16V	0.12	124	60	7.2
	0.15	154		9.0
	0.18	184		10.8
	0.22	224		13.2
	0.27	274	40	10.8
	0.33	334		13.2
	0.39	394		15.6
	0.47	474		18.8

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.

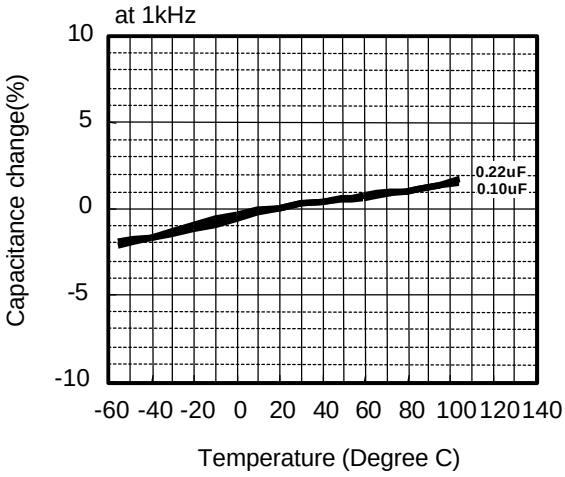
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

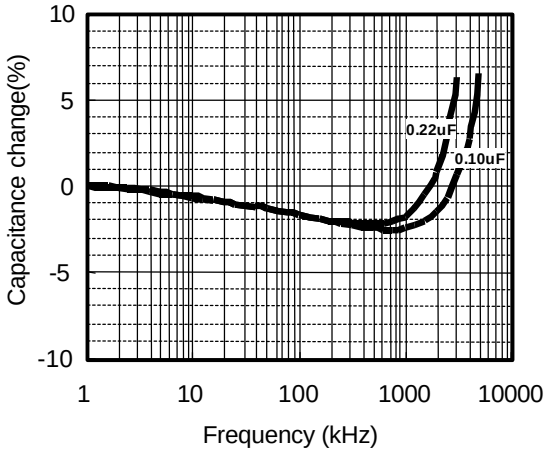
ECWU (C) Type DC50V series (Stacked Metallized Film)

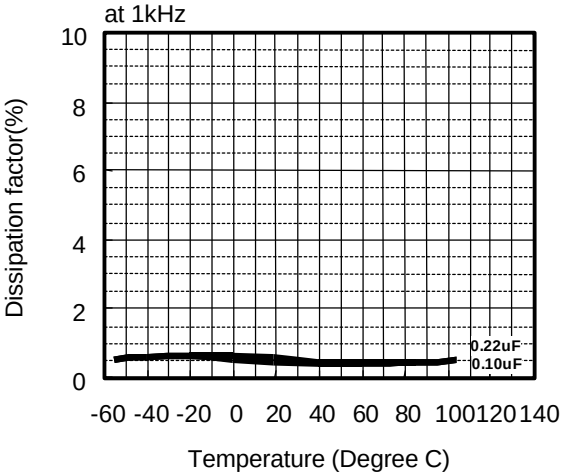
Electrical Characteristics < Typical Data >

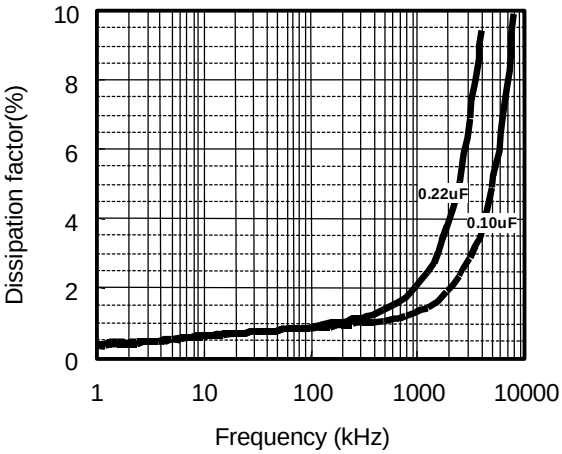
Temperature Characteristics

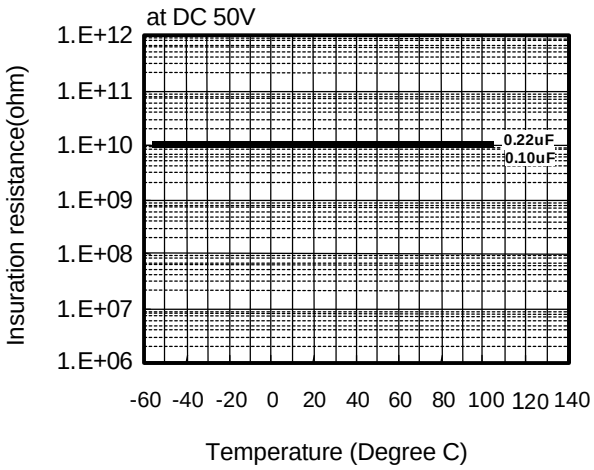


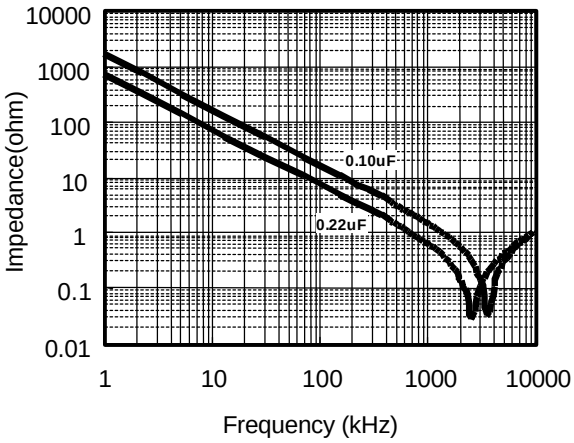
Frequency Characteristics









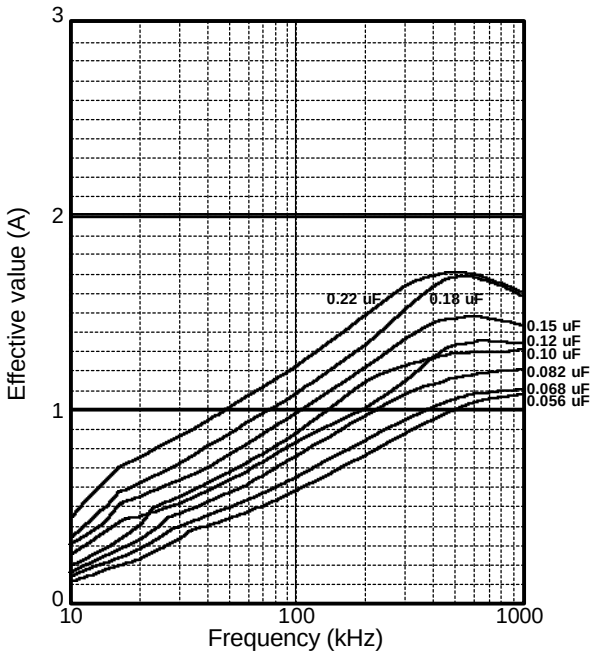


Panasonic

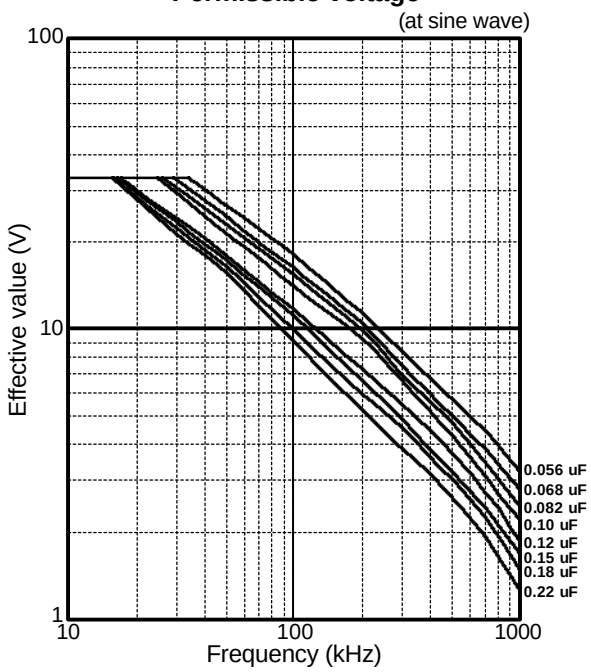
ECWU (C) Type DC50V series (Stacked Metallized Film)

Applicable Specifications

Permissible current



Permissible voltage

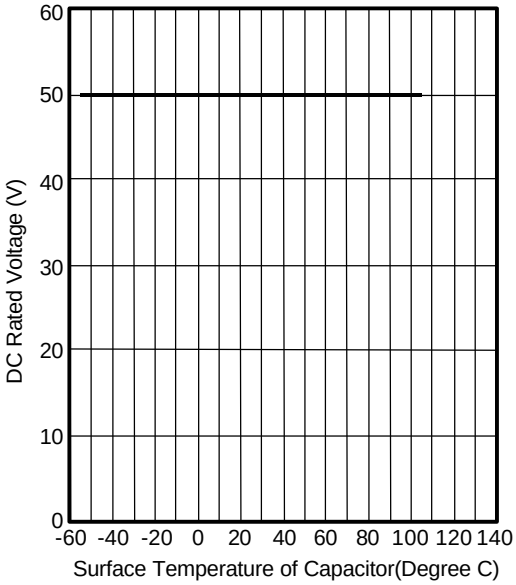


Pulse Handling Capability (dv/dt)

(Max 10000cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (A)
DC 50V	0.056	563	190	10.6
	0.068	683		12.9
	0.082	823		15.6
	0.10	104		19.0
	0.12	124	130	15.6
	0.15	154		19.5
	0.18	184		23.4
	0.22	224		28.6

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.

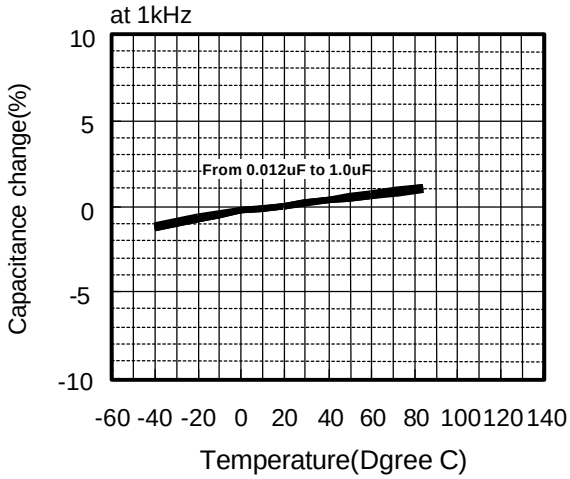
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

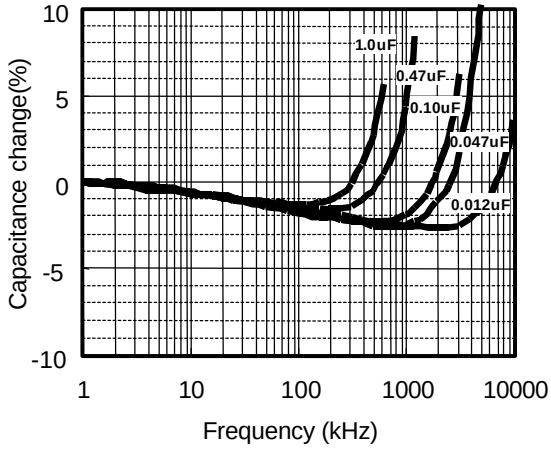
ECWU (C) Type DC100V series (Stacked Metallized Film)

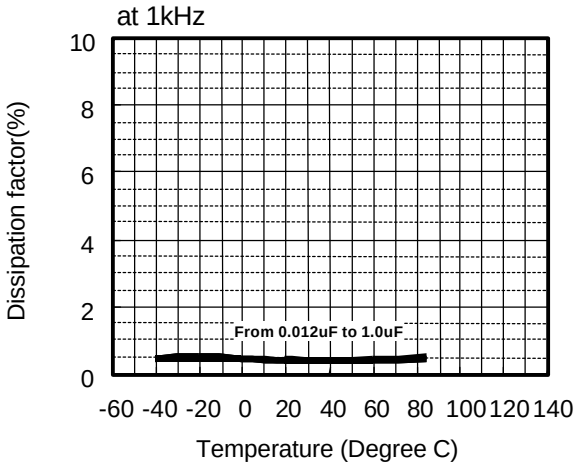
Electrical Characteristics < Typical Data >

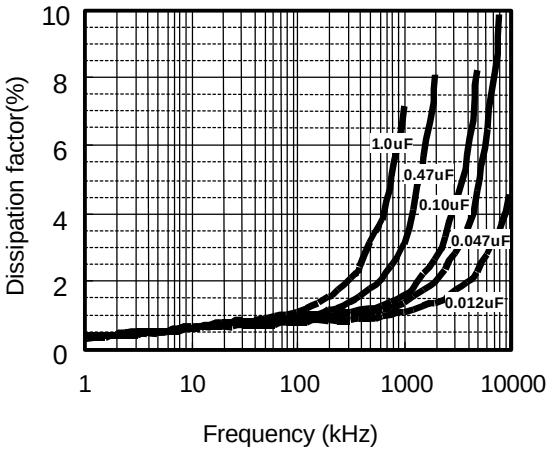
Temperature Characteristics

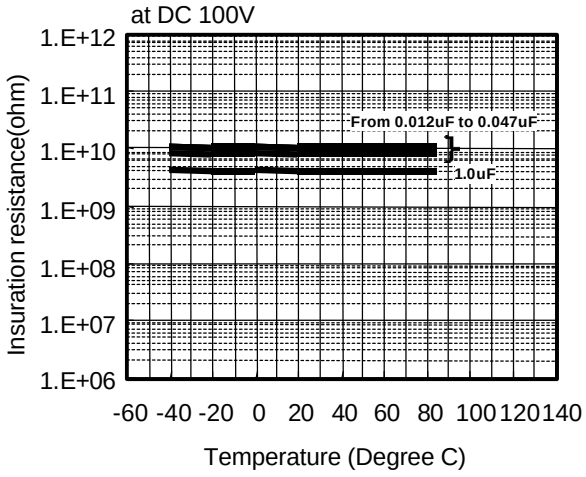


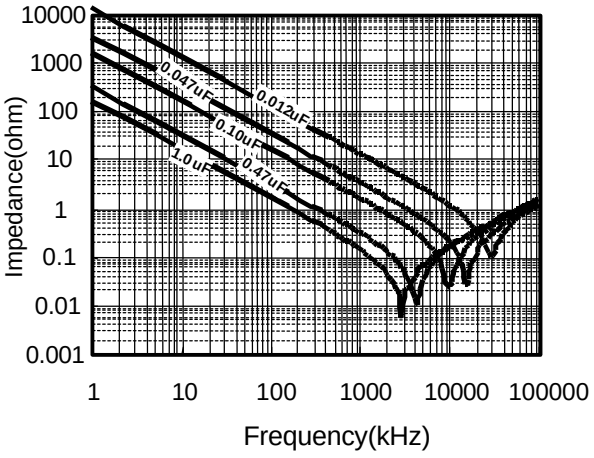
Frequency Characteristics









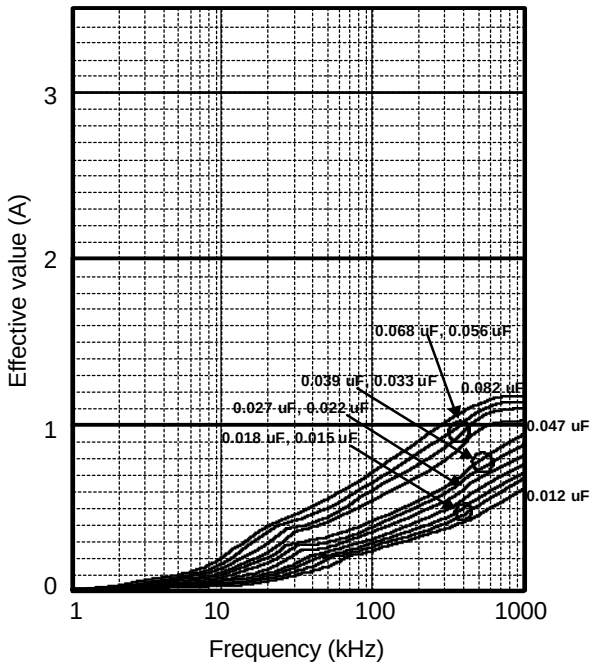


Panasonic

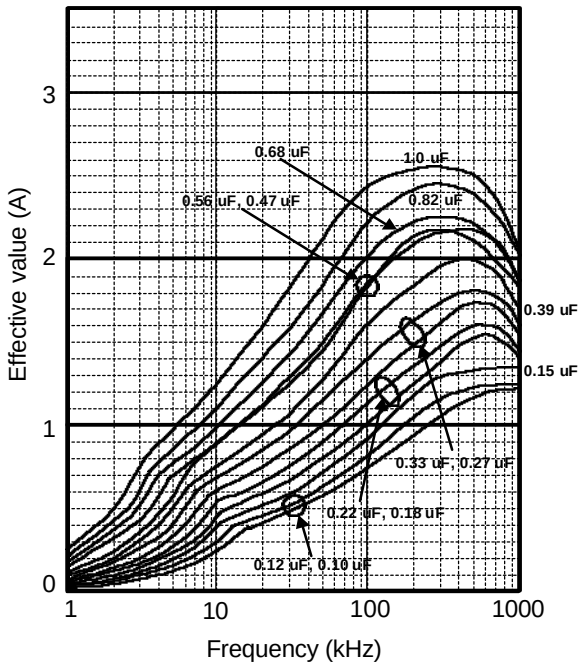
ECWU (C) Type DC100V series (Stacked Metallized Film)

Applicable Specifications

Permissible current

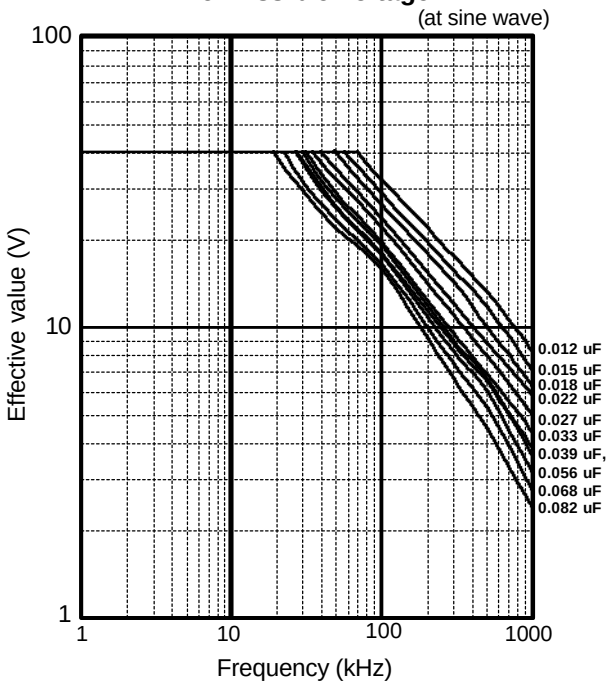


Permissible current



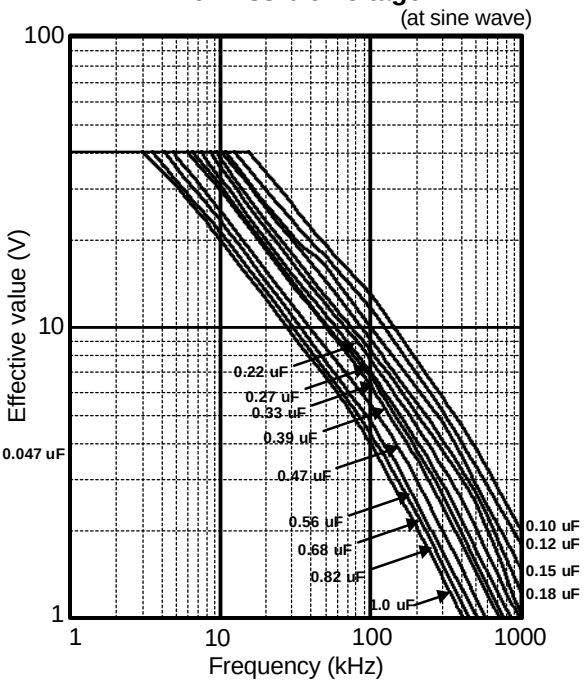
Permissible voltage

(at sine wave)



Permissible voltage

(at sine wave)



* 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 value (Aop) is calculated using "nominal capacitance." In fact, it changes by the tolerance of a capacitance value, capacitance change, etc.

Panasonic

ECWU (C) Type DC100V series (Stacked Metallized Film)

Applicable Specifications

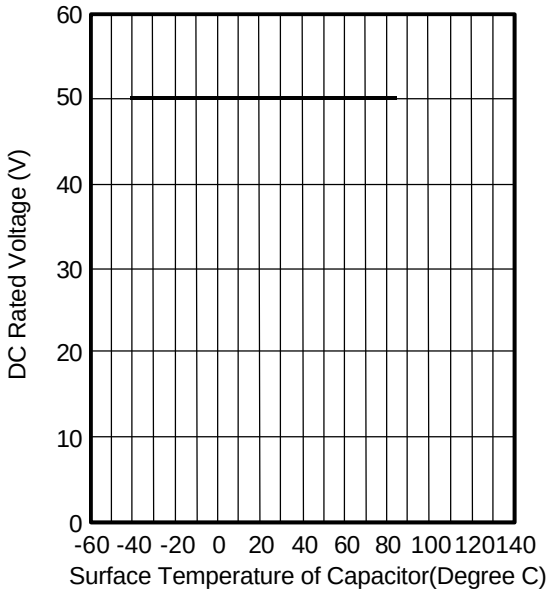
Pulse Handling Capability (dv/dt)
(Max 10000cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (A)
DC 100V	0.012	123	320	3.8
	0.015	123		4.8
	0.018	183		5.8
	0.022	223		7.0
	0.027	273		8.6
	0.033	333		10.6
	0.039	393		12.5
	0.047	473		15.0
	0.056	563		17.9
	0.68	683		21.8
	0.82	823		26.2

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

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (A)
DC 100V	0.10	104	210	21.0
	0.12	124		25.2
	0.15	154		31.5
	0.18	184	120	21.6
	0.22	224		26.4
	0.27	274		32.4
	0.33	334		39.6
	0.39	394	100	39.0
	0.47	474		47.0
	0.56	564	70	39.2
	0.68	684		47.6
	0.82	824		57.4
	1.0	105		70.0

Voltage Derating by Temperature



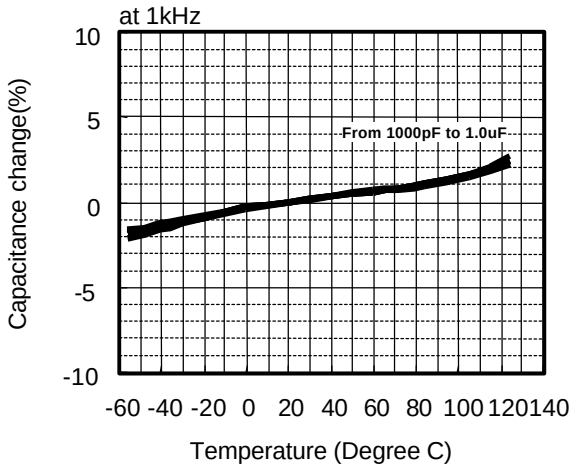
* Please consult Panasonic if your condition exceeds the above spec.
*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

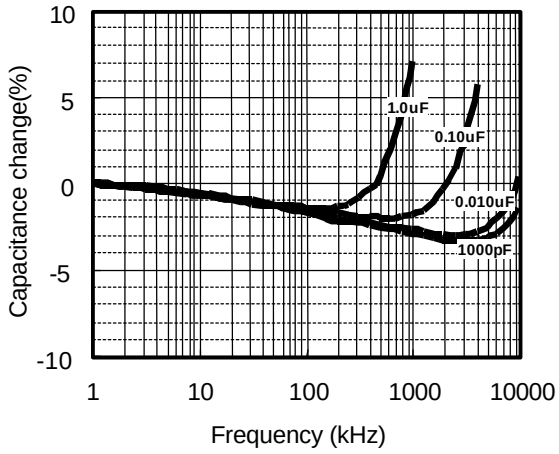
ECWU (C) Type DC250V series (Stacked Metallized Film)

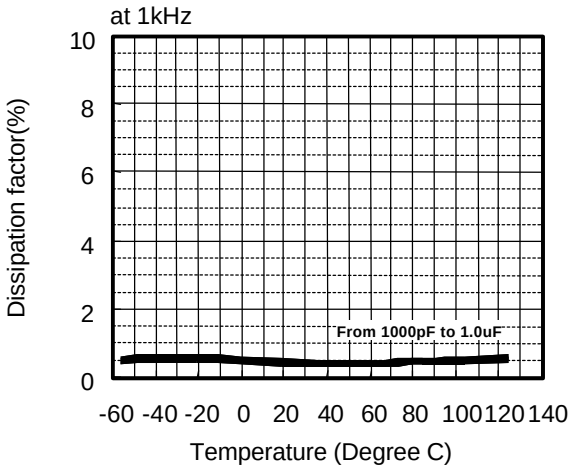
Electrical Characteristics < Typical Data >

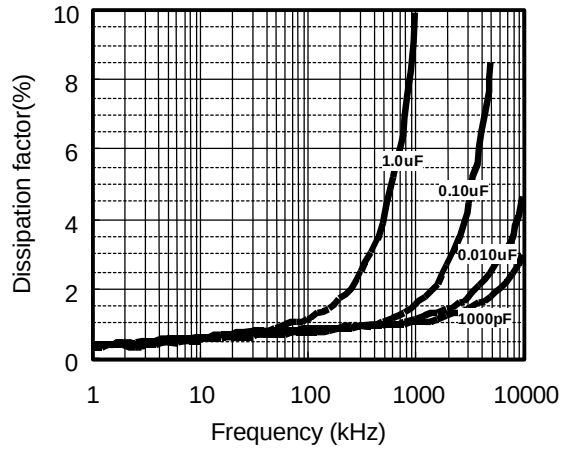
Temperature Characteristics

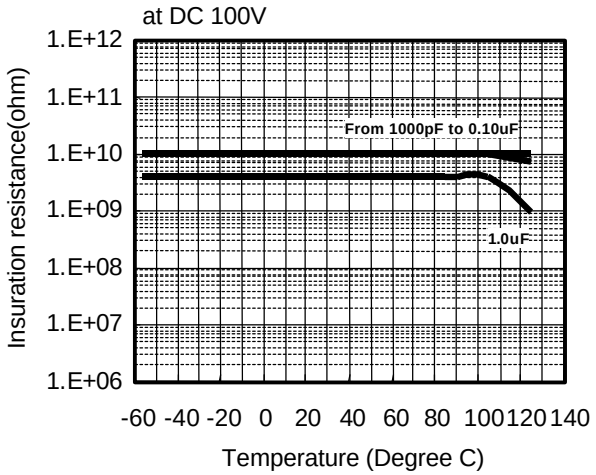


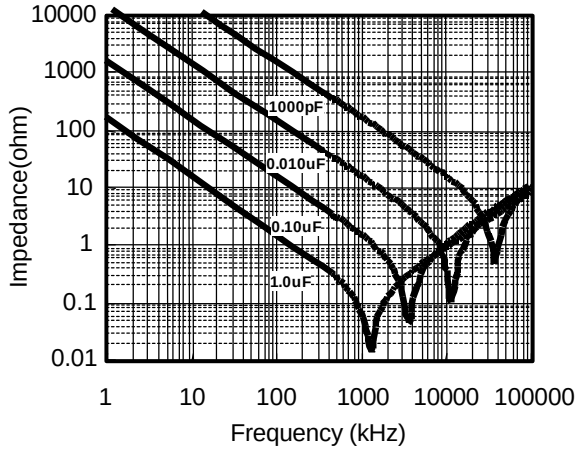
Frequency Characteristics









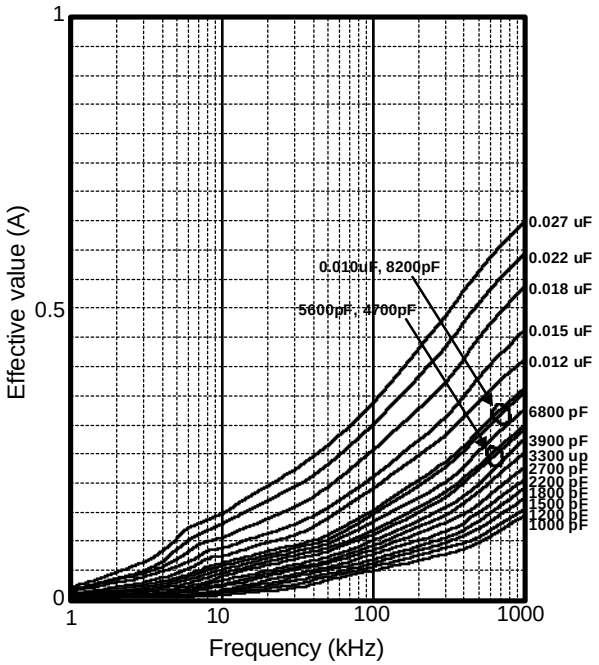


Panasonic

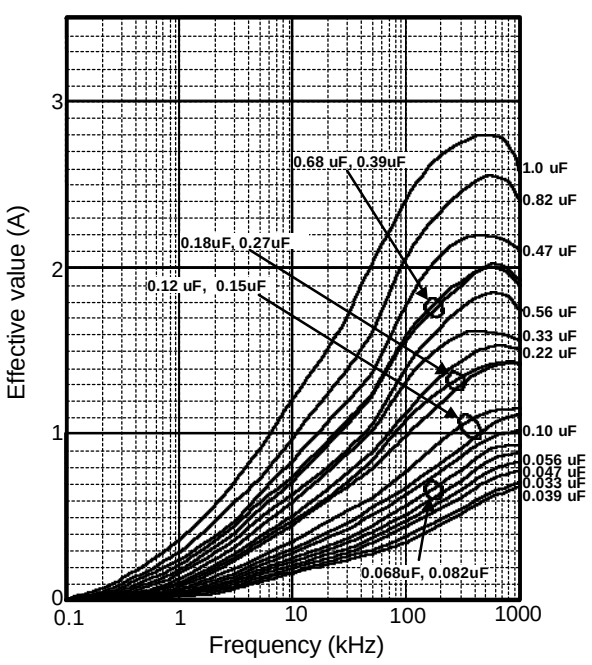
ECWU (C) Type DC250V series (Stacked Metallized Film)

Applicable Specifications

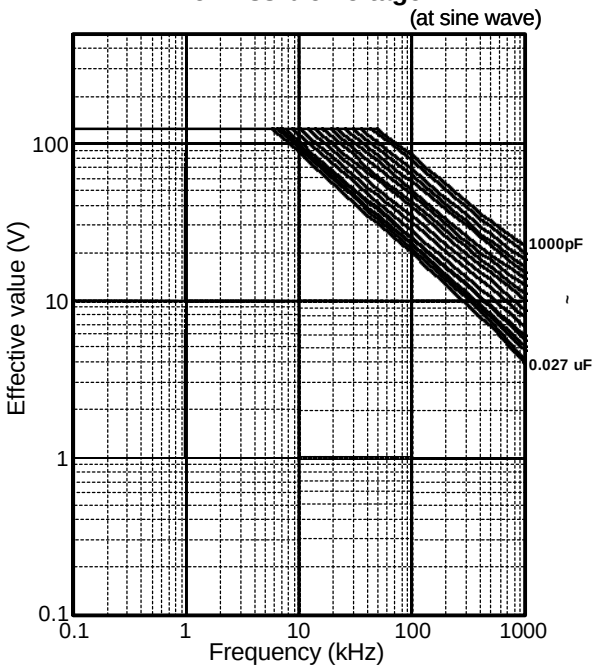
Permissible current



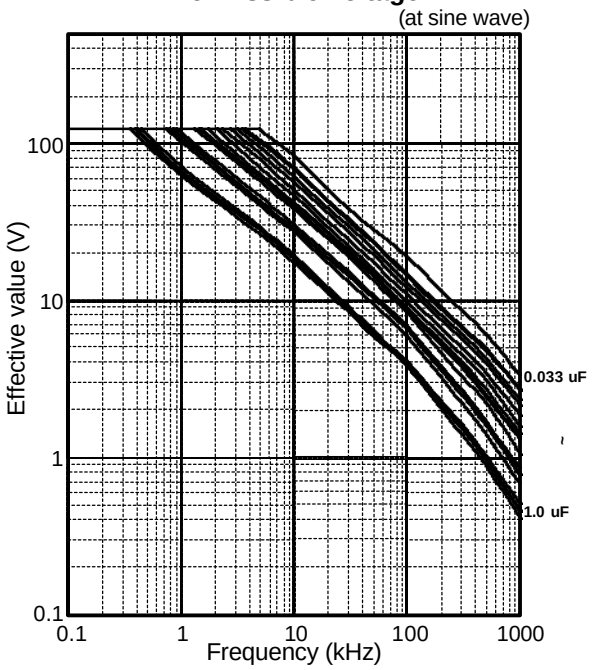
Permissible current



Permissible voltage (at sine wave)



Permissible voltage (at sine wave)



* 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($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

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

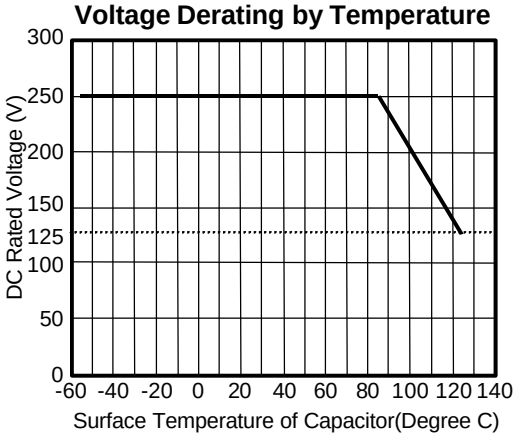
Applicable Specifications

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

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (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($_{0\text{-}P}$) (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
	0.15	154	190	28.50
	0.18	184		34.20
	0.22	224		41.80
	0.27	274	115	31.05
	0.33	334		37.95
	0.39	394		44.85
	0.47	474		54.05
	0.56	564	65	36.40
	0.68	684		44.20
	0.82	824		53.30
	1.0	105		65.00

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($_{0\text{-}P}$) value is calculated using nominal capacitance.