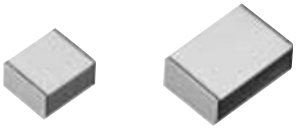
Film Chip Capacitor

Type: **ECWU(C)**

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



■Features
- Small in size
- Applicable for reflow soldering

■Recommended Applications
- Coupling
- By - pass
- General purpose

■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

1C	16VDC
1H	50VDC
1	100VDC
2	250VDC

J	±5%
K	±10%

	Tape width
9	12mm
V	16mm
Z	24mm

■Specifications

Category temp.range	16VDC, 50VDC: - 55 to + 105℃	
	100VDC, 250VDC: - 40 to + 85℃	
Rated voltage	16VDC, 50VDC, 100VDC, 250VDC	
Capacitance range	16VDC	0.12 to 0.47 μF (E12)
	50VDC	0.056 to 0.22 μF (E12)
	100VDC	0.012 to 1.0 μF (E12)
	250VDC	0.001 to 1.0 μF (E12)
Capacitance tolerance	16VDC,50VDC	± 5%(J)
	100VDC,250VDC	± 10%(K) (100VDC, C≦0.15 μF ± 5%(J), ± 10%(K))
Withstand voltage	Between terminals 16VDC, 50VDC:Rated volt. (VDC)×175% 1 to 5s 100VDC, 250VDC:Rated volt. (VDC)×150% 60s	
Dissipation factor	≦ 1.0%(20℃,1kHz)	
Insulation resistance	C≦ 0.33 μF	16VDC:≧ 3000MΩ • (20℃,10VDC, 60s) 50VDC:≧ 3000MΩ • (20℃,50VDC, 60s) 100VDC, 250VDC:≧ 3000MΩ • (20℃,100VDC,60s)
	C>0.33 μF	16VDC:1000MΩ • μF min. (20℃,10VDC, 60s) 100VDC, 250VDC:1000MΩ • μF min. (20℃,100VDC,60s)
Soldering conditions	Reflow soldering 16VDC, 50VDC:240℃ max. and 30 sec max. at more than 210℃ (Temp. at cap. surface) 100VDC, 250VDC:230℃ max. and 30 sec max.at more than 210℃ (Temp.at cap.surface)	

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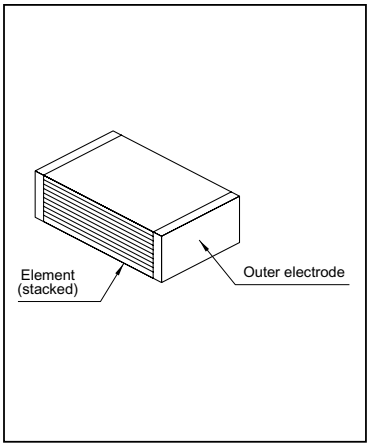
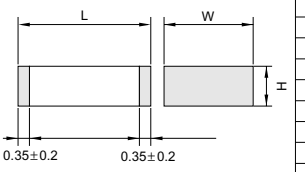
■Construction



■Dimensions in mm (not to scale)



Size code	L	Tol.	W	Tol.	H	Tol.
E1	4.8	± 0.2	3.3	± 0.3	1.4	± 0.2
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	± 0.4	❉	± 0.3
Z	7.1	± 0.4	5.0			
X	7.7		5.5			
Y	7.1		6.3			
V	9.8	± 0.5	6.3			
U	9.8		8.0			
T	15.2		8.0			
S	15.2		10.0			

❉Refer to the column "Rating, Dimensions & Quantity".

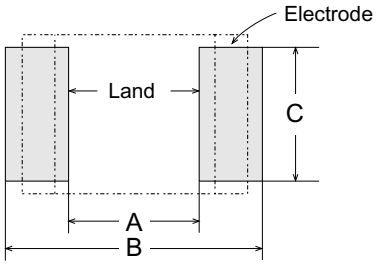
■Taping Specification for Automatic Insertion(Mounting)
Refer to the PDF file of taping specifications.

■Rating, Dimensions & Quantity/Reel

●Capacitance tolerance : ±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		
0.056							ECWU1H563JC9	4.8	3.3	2.0	E2	3000
0.068							ECWU1H683JC9	4.8	3.3	2.0	E2	
0.082							ECWU1H823JC9	4.8	3.3	2.4	E3a	2000
0.1							ECWU1H104JC9	4.8	3.3	2.8	E3	
0.12	ECWU1C124JC9	4.8	3.3	1.4	E1	3000	ECWU1H124JC9	6.0	4.1	1.8	D1	3000
0.15	ECWU1C154JC9	4.8	3.3	2.0	E2		ECWU1H154JC9	6.0	4.1	2.0	D2	
0.18	ECWU1C184JC9	4.8	3.3	2.0	E2		ECWU1H184JC9	6.0	4.1	2.4	D3	2000
0.22	ECWU1C224JC9	4.8	3.3	2.4	E3a	2000	ECWU1H224JC9	6.0	4.1	2.8	D4	
0.27	ECWU1C274JC9	6.0	4.1	1.8	D1	3000						
0.33	ECWU1C334JC9	6.0	4.1	2.0	D2							
0.39	ECWU1C394JC9	6.0	4.1	2.4	D3	2000						
0.47	ECWU1C474JC9	6.0	4.1	2.8	D4							

■Example for Land Dimensions (mm)



Size code	Land dimensions 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
Y	4.5	9.0	5.7
V	7.2	11.9	5.7
U	7.2	11.9	7.2
T	12.6	17.3	7.2
S	12.6	17.3	9.0

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■ Rating, Dimensions & Quantity/Reel

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

Cap. (μF)	Rated volt. 100VDC						Rated volt. 250VDC					
	Part No	Dimensions (mm) L	W	H	Size code	Q'ty	Part No	Dimensions (mm) L	W	H	Size code	Q'ty
0.001	Please use 100VDC rating ECWU(X)						ECWU2102KC9	4.8	3.3	1.4	E1	3000
0.0012							ECWU2122KC9	4.8	3.3	1.4	E1	
0.0015							ECWU2152KC9	4.8	3.3	1.4	E1	
0.0018							ECWU2182KC9	4.8	3.3	1.4	E1	
0.0022							ECWU2222KC9	4.8	3.3	1.4	E1	
0.0027							ECWU2272KC9	4.8	3.3	1.4	E1	
0.0033							ECWU2332KC9	4.8	3.3	1.4	E1	
0.0039							ECWU2392KC9	4.8	3.3	1.4	E1	
0.0047							ECWU2472KC9	4.8	3.3	1.4	E1	
0.0056							ECWU2562KC9	4.8	3.3	1.4	E1	
0.0068							ECWU2682KC9	4.8	3.3	1.4	E1	
0.0082							ECWU2822KC9	4.8	3.3	1.4	E1	
0.01							ECWU2103KC9	4.8	3.3	1.4	E1	
0.012	ECWU1123□C9	4.8	3.3	1.4	E1	3000	ECWU2123KC9	4.8	3.3	1.4	E1	
0.015	ECWU1153□C9	4.8	3.3	1.4	E1		ECWU2153KC9	4.8	3.3	1.4	E1	
0.018	ECWU1183□C9	4.8	3.3	1.4	E1		ECWU2183KC9	4.8	3.3	2.0	E2	
0.022	ECWU1223□C9	4.8	3.3	1.4	E1		ECWU2223KC9	4.8	3.3	2.0	E2	
0.027	ECWU1273□C9	4.8	3.3	1.4	E1		ECWU2273KC9	4.8	3.3	2.4	E3a	2000
0.033	ECWU1333□C9	4.8	3.3	1.4	E1		ECWU2333KC9	4.8	3.3	2.8	E3	
0.039	ECWU1393□C9	4.8	3.3	1.4	E1		ECWU2393KC9	6.0	4.1	2.0	D2	3000
0.047	ECWU1473□C9	4.8	3.3	2.0	E2		ECWU2473KC9	6.0	4.1	2.4	D3	
0.056	ECWU1563□C9	4.8	3.3	2.0	E2		ECWU2563KC9	6.0	4.1	2.8	D4	2000
0.068	ECWU1683□C9	4.8	3.3	2.4	E3a	2000	ECWU2683KC9	6.0	4.1	3.2	D5	
0.082	ECWU1823□C9	4.8	3.3	2.8	E3		ECWU2823KC9	6.0	5.0	3.2	B	1500
0.1	ECWU1104□C9	6.0	4.1	1.8	D1	3000	ECWU2104KC9	6.0	5.0	3.8	B	
0.12	ECWU1124□C9	6.0	4.1	2.4	D3	2000	ECWU2124KCV	7.1	6.3	2.8	Y	1000
0.15	ECWU1154□C9	6.0	4.1	2.8	D4		ECWU2154KCV	7.1	6.3	3.5	Y	
0.18	ECWU1184KC9	7.1	5.0	2.0	Z	1500	ECWU2184KCV	7.1	6.3	4.1	Y	
0.22	ECWU1224KC9	7.1	5.0	2.4	Z		ECWU2224KCV	7.1	6.3	5.1	Y	
0.27	ECWU1274KC9	7.1	5.0	2.9	Z		ECWU2274KCV	9.8	6.3	3.9	V	
0.33	ECWU1334KC9	7.1	5.0	3.5	Z		ECWU2334KCV	9.8	6.3	4.8	V	
0.39	ECWU1394KCV	7.7	5.5	3.4	X	1000	ECWU2394KCV	9.8	8.0	4.4	U	
0.47	ECWU1474KCV	7.7	5.5	4.0	X		ECWU2474KCV	9.8	8.0	5.3	U	
0.56	ECWU1564KCV	9.8	6.3	3.0	V		ECWU2564KCZ	15.2	8.0	3.7	T	750
0.68	ECWU1684KCV	9.8	6.3	3.6	V		ECWU2684KCZ	15.2	8.0	4.4	T	
0.82	ECWU1824KCV	9.8	6.3	4.3	V		ECWU2824KCZ	15.2	10.0	4.2	S	
1.0	ECWU1105KCV	9.8	6.3	5.1	V		ECWU2105KCZ	15.2	10.0	5.1	S	

Capacitance tolerance code

❉ Please consult us for capacitance tolerance ± 5%(J).

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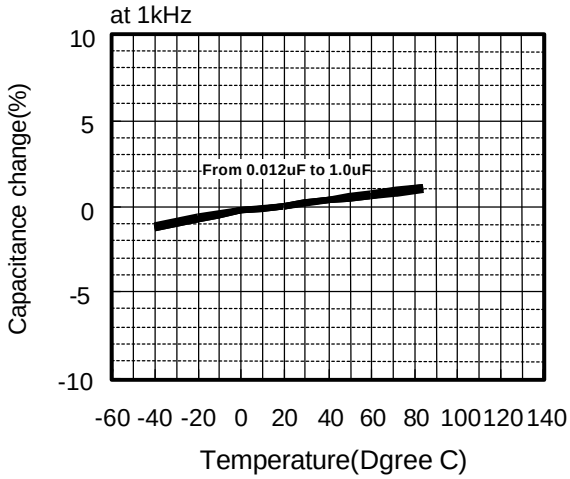
Panasonic

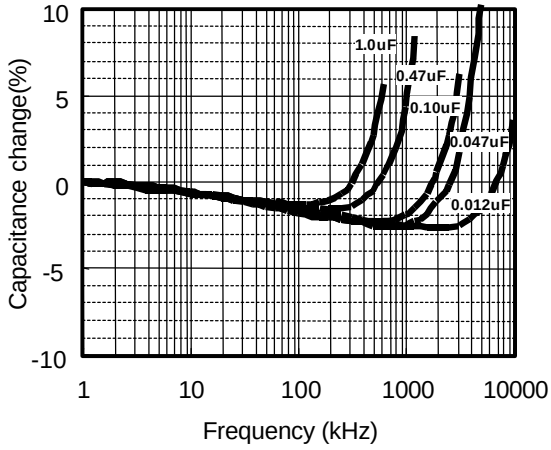
ECWU (C) Type DC100V series (Stacked Metallized Film)

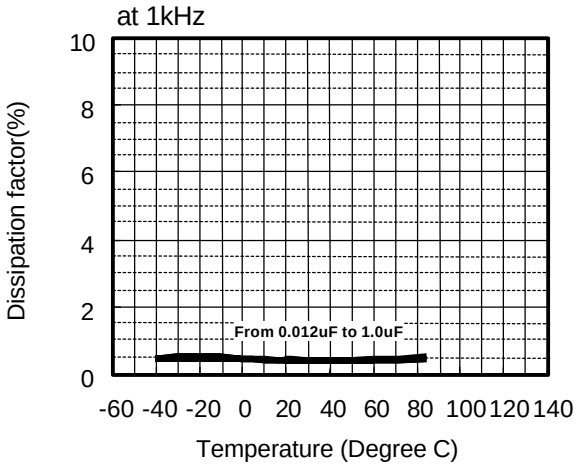
Electrical Characteristics < Typical Data >

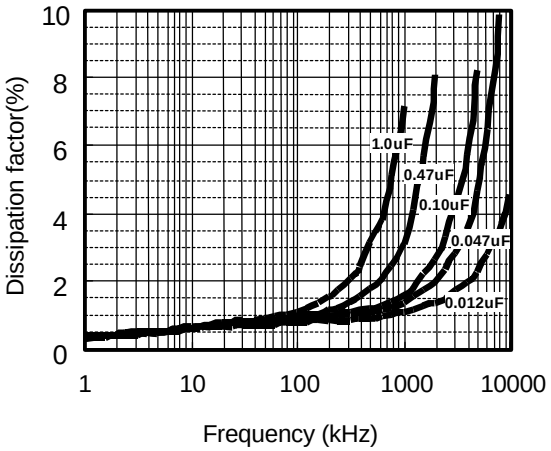
Temperature Characteristics

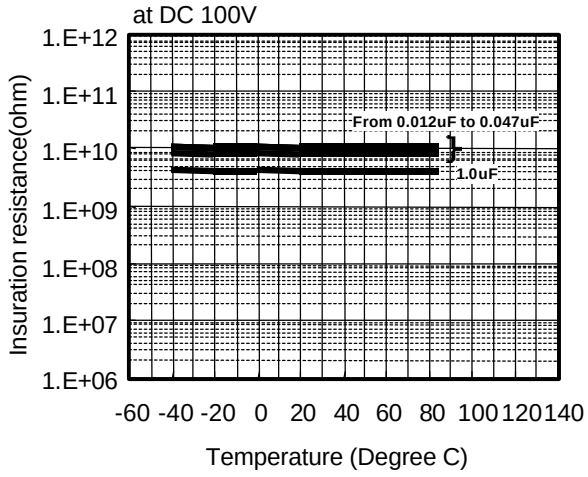


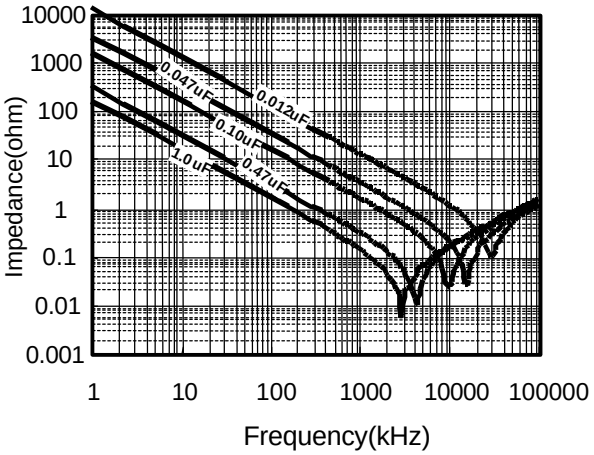
Frequency Characteristics









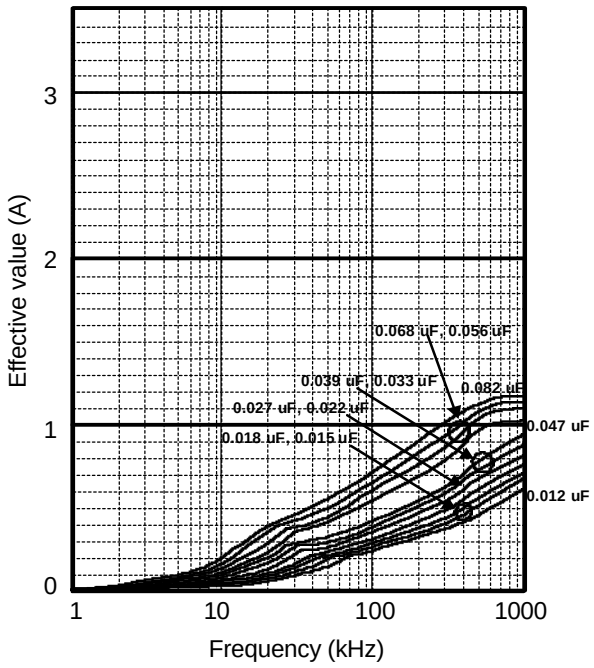


Panasonic

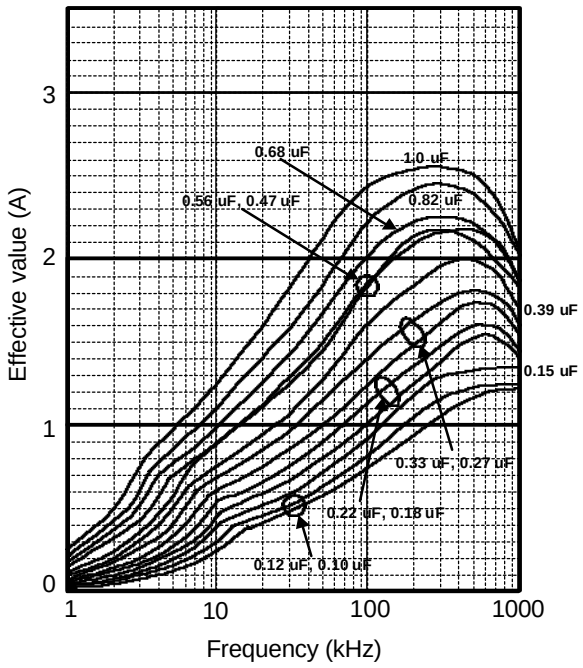
ECWU (C) Type DC100V series (Stacked Metallized Film)

Applicable Specifications

Permissible current

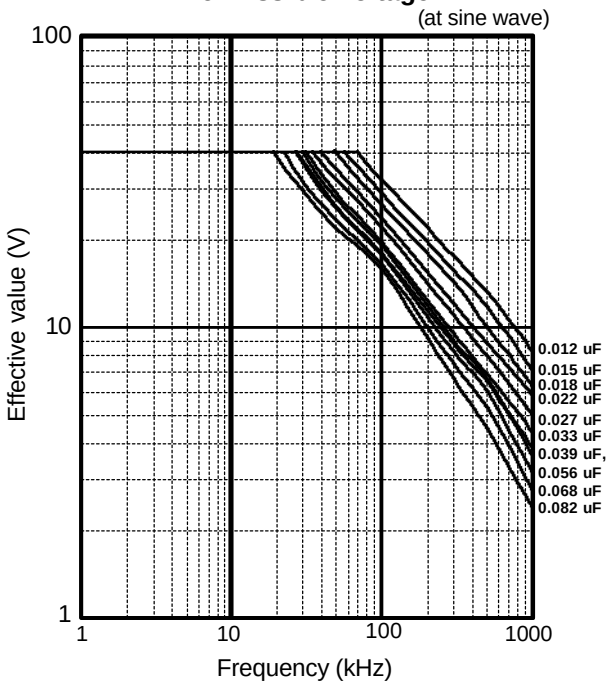


Permissible current



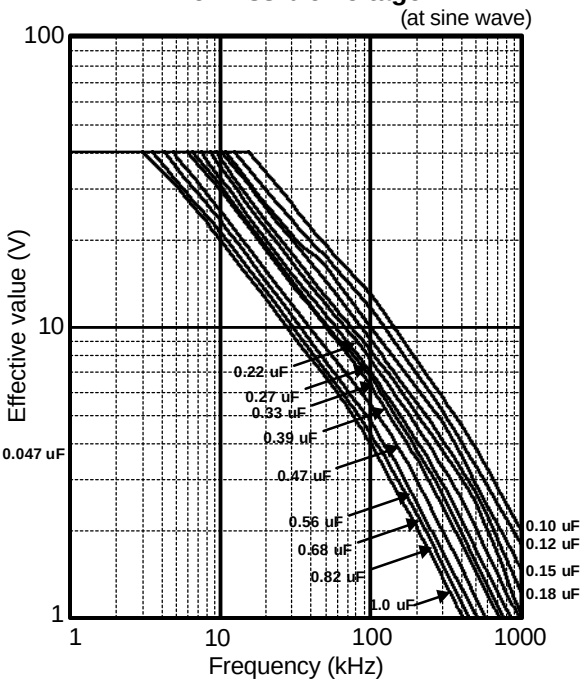
Permissible voltage

(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

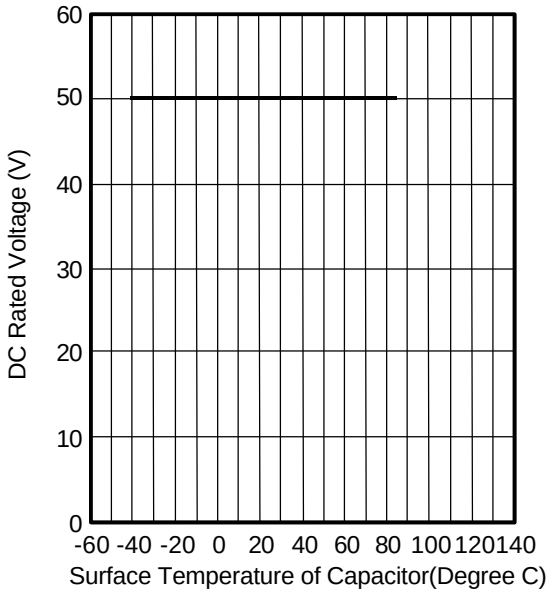
Pulse Handling Capability (dv/dt)
(Max 10000cycles)

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



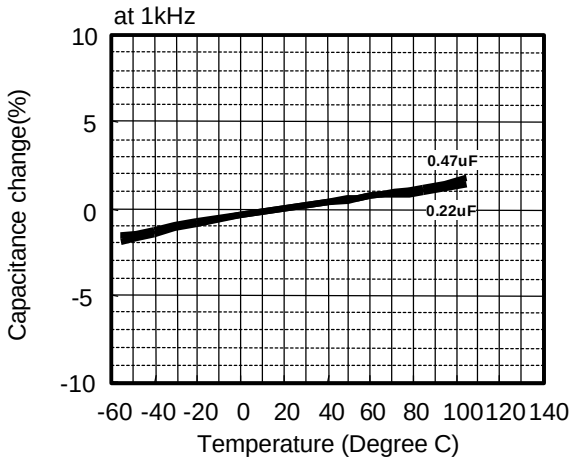
* Please consult Panasonic if your condition exceeds the above spec.
*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

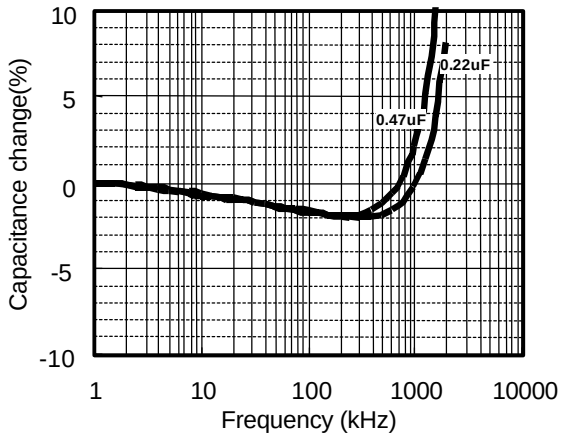
ECWU (C) Type DC16V series (Stacked Metallized Film)

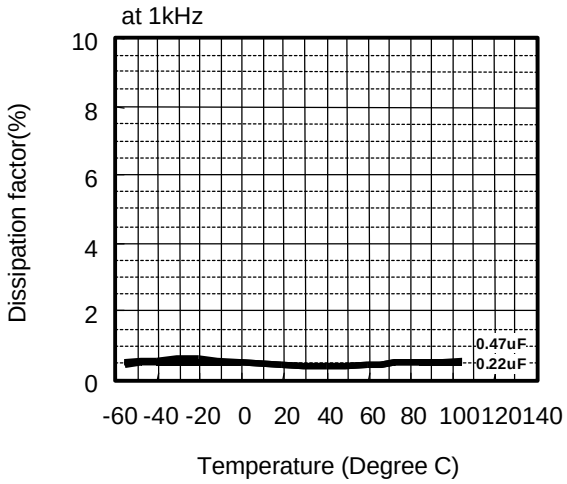
Electrical Characteristics < Typical Data >

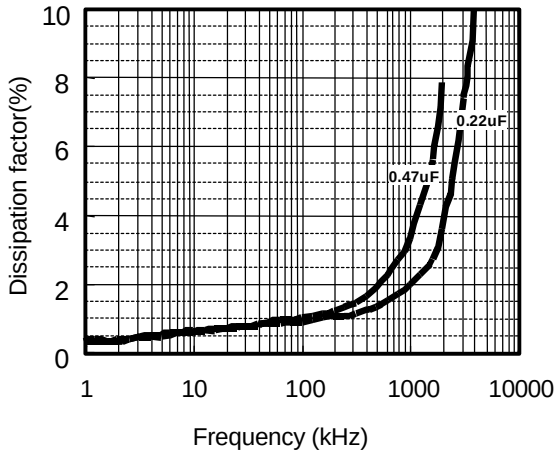
Temperature Characteristics

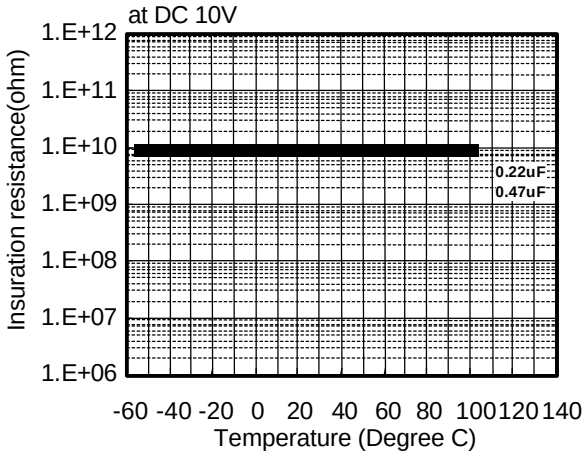


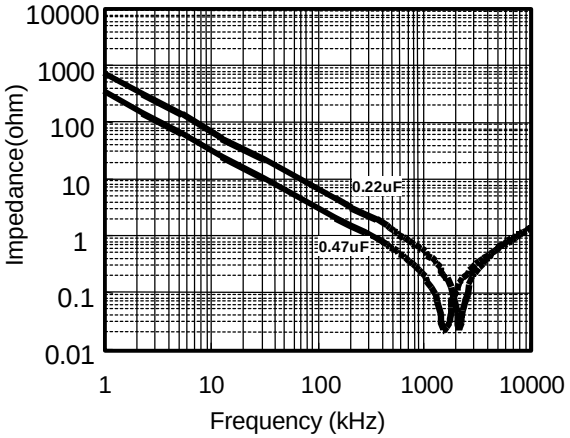
Frequency Characteristics









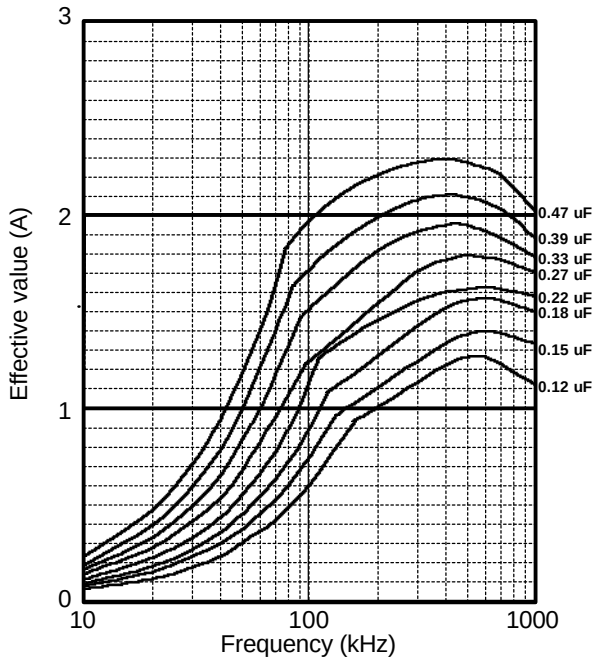


Panasonic

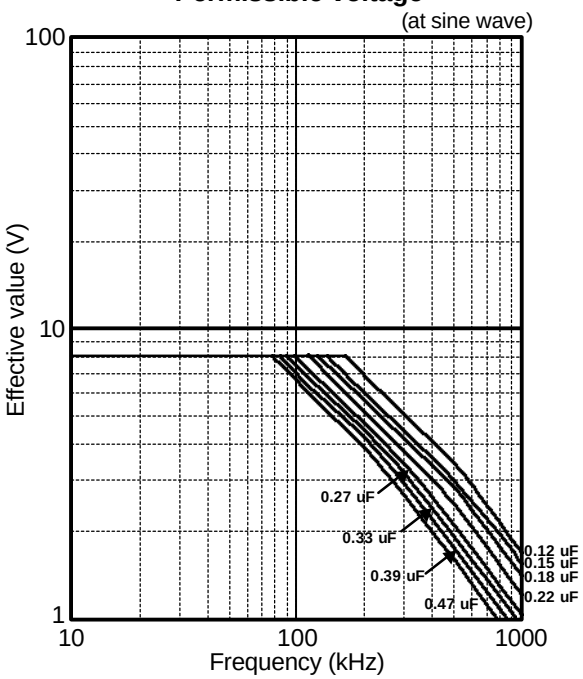
ECWU (C) Type DC16V series (Stacked Metallized Film)

Applicable Specifications

Permissible current



Permissible voltage

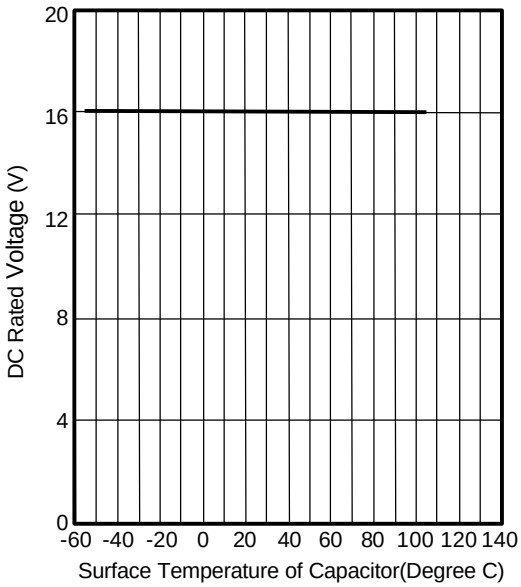


Pulse Handling Capability (dv/dt)

(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.

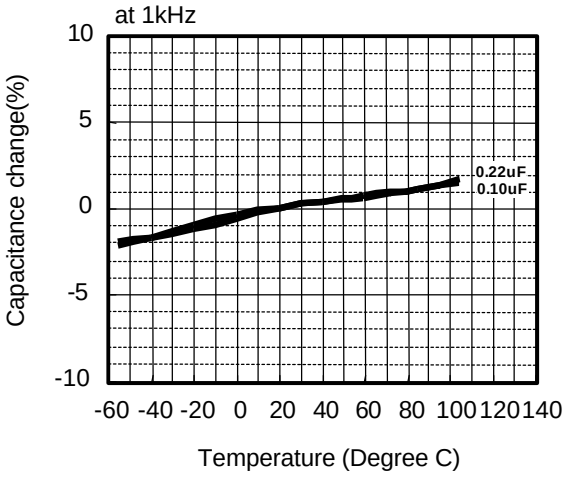
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

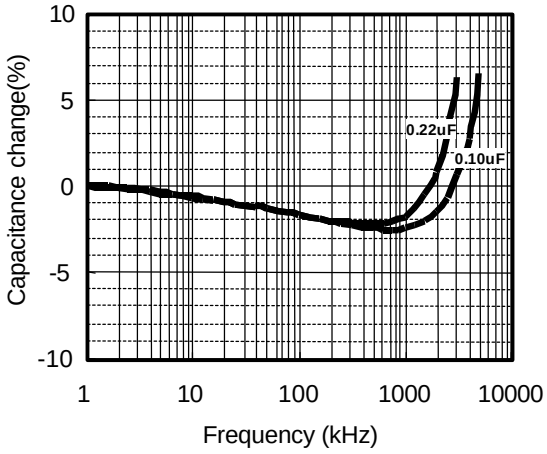
ECWU (C) Type DC50V series (Stacked Metallized Film)

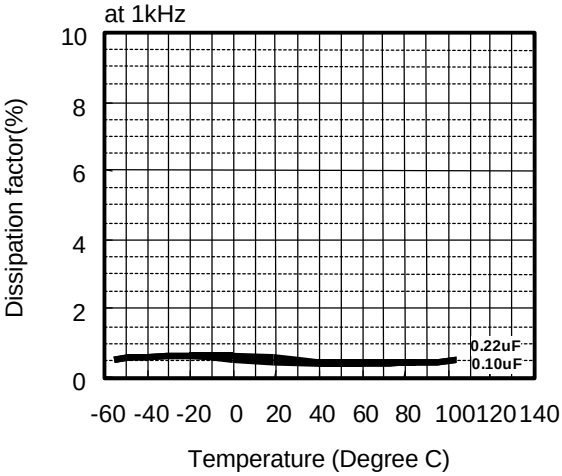
Electrical Characteristics < Typical Data >

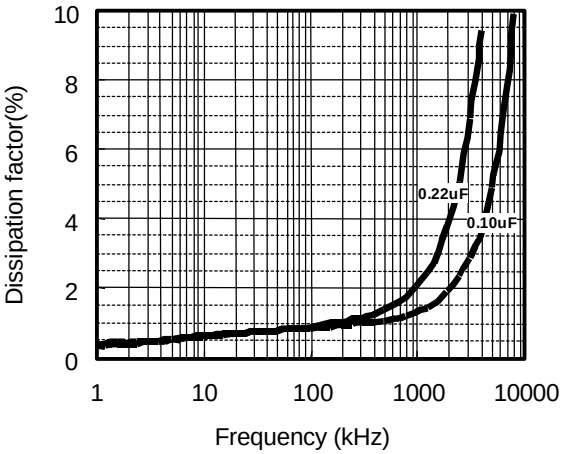
Temperature Characteristics

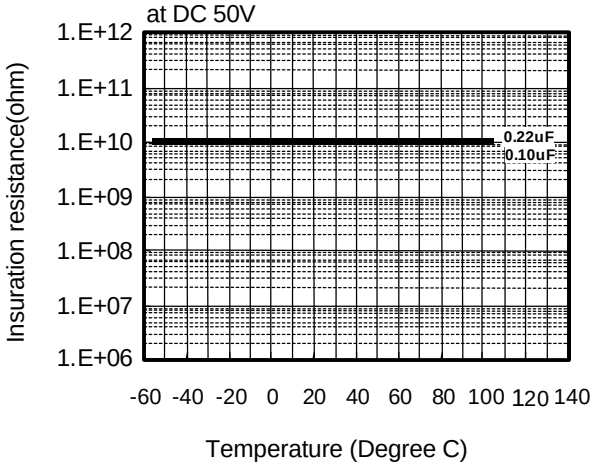


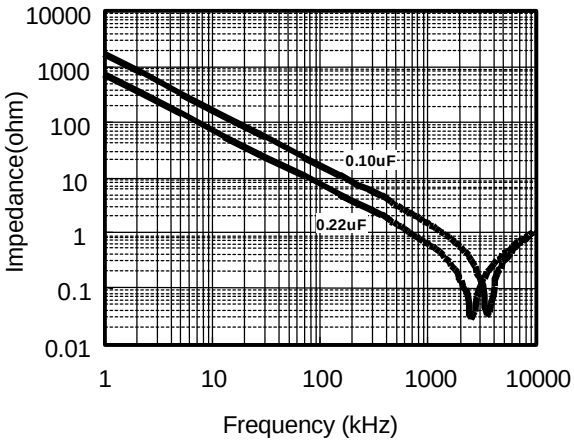
Frequency Characteristics









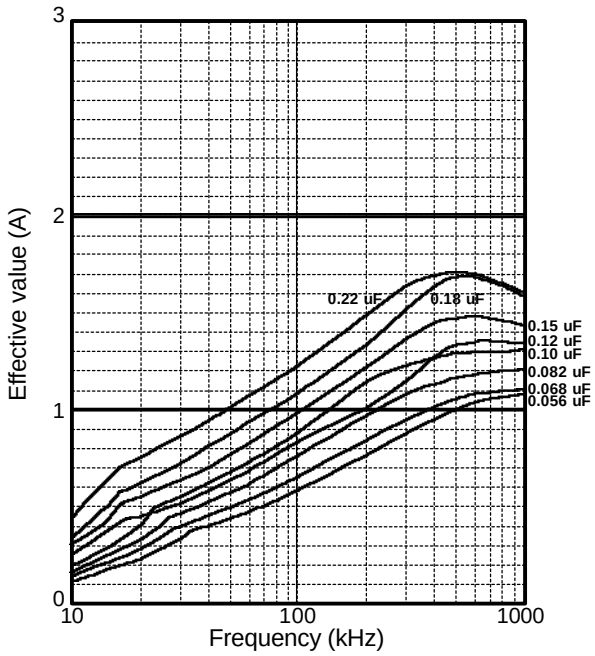


Panasonic

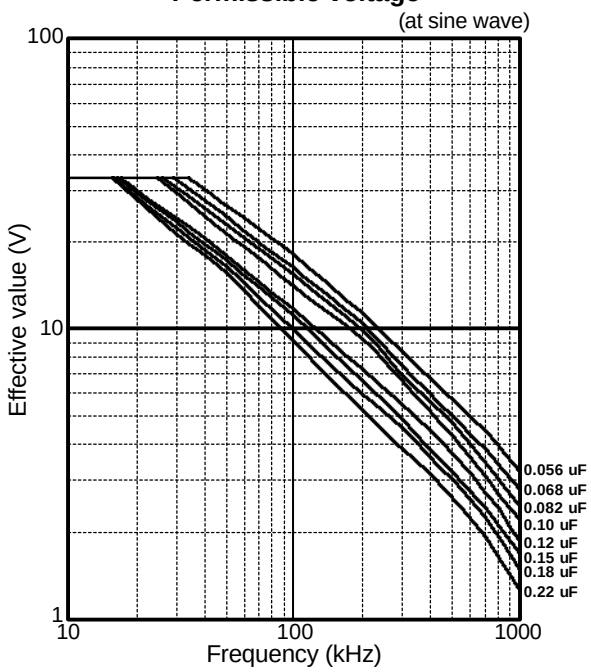
ECWU (C) Type DC50V series (Stacked Metallized Film)

Applicable Specifications

Permissible current



Permissible voltage

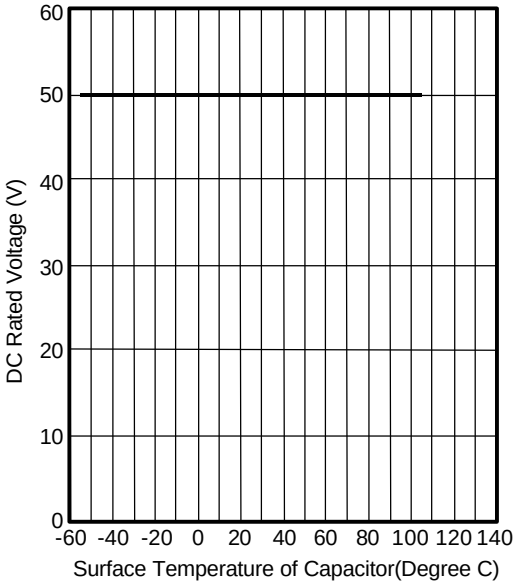


Pulse Handling Capability (dv/dt)

(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.

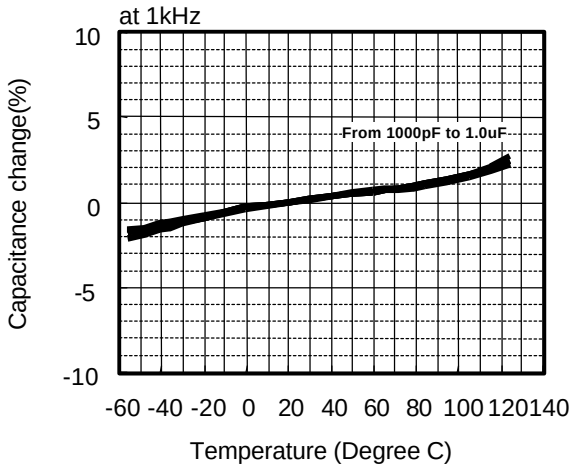
*The current($_{0\text{-}P}$) value is calculated using nominal capacitance.

Panasonic

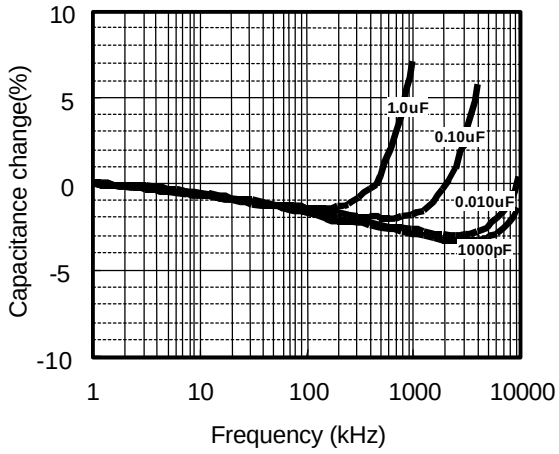
ECWU (C) Type DC250V series (Stacked Metallized Film)

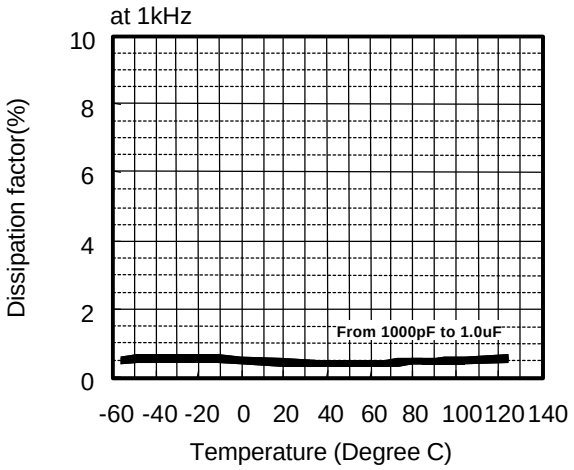
Electrical Characteristics < Typical Data >

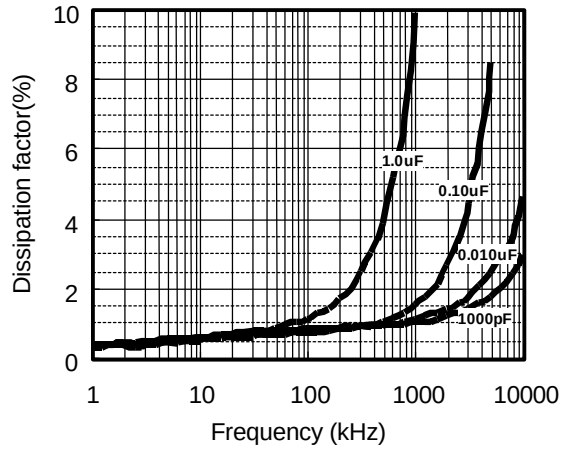
Temperature Characteristics

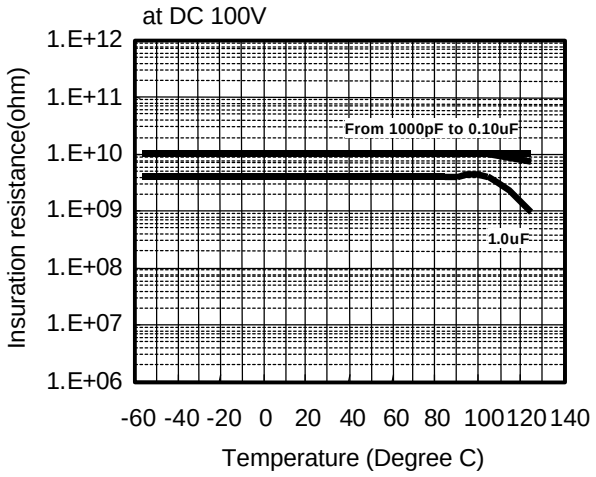


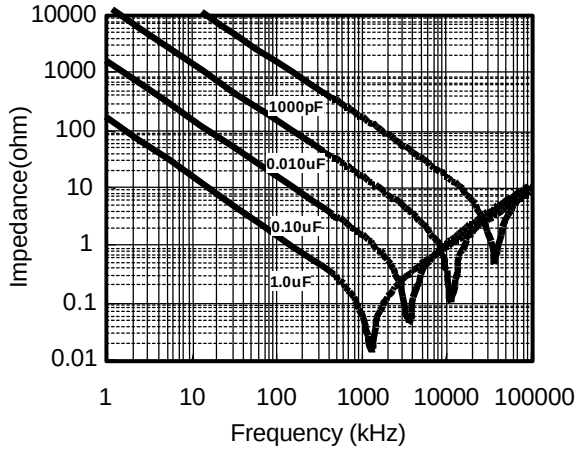
Frequency Characteristics









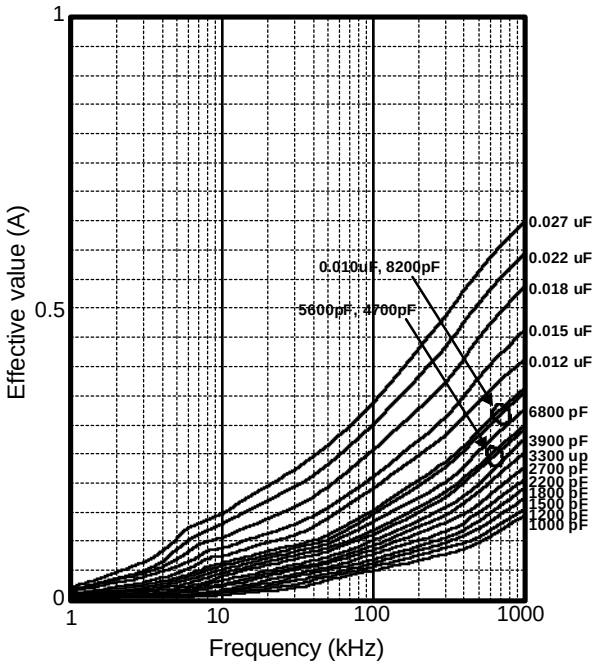


Panasonic

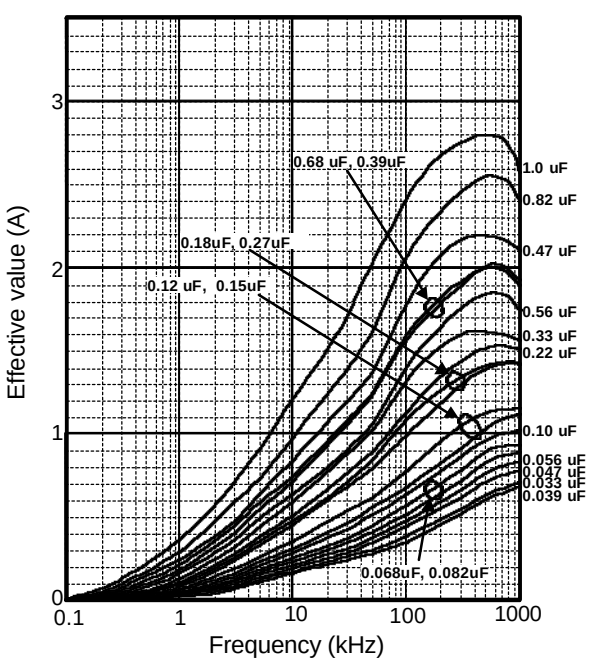
ECWU (C) Type DC250V series (Stacked Metallized Film)

Applicable Specifications

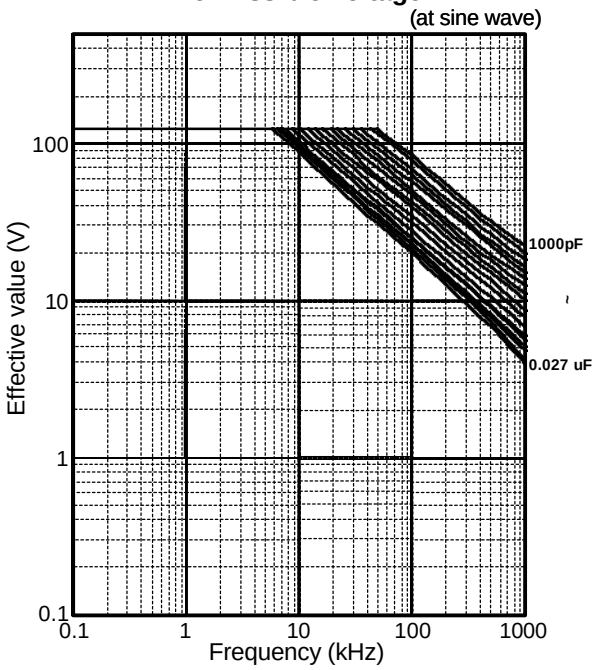
Permissible current



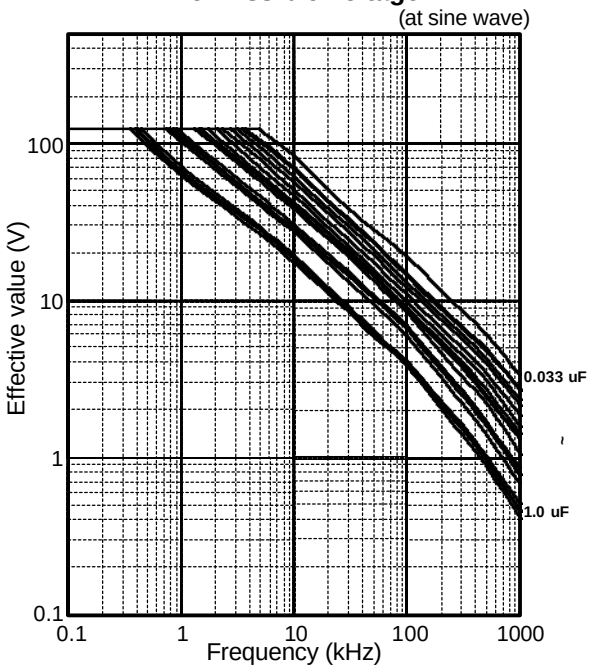
Permissible current



Permissible voltage



Permissible voltage



* 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)

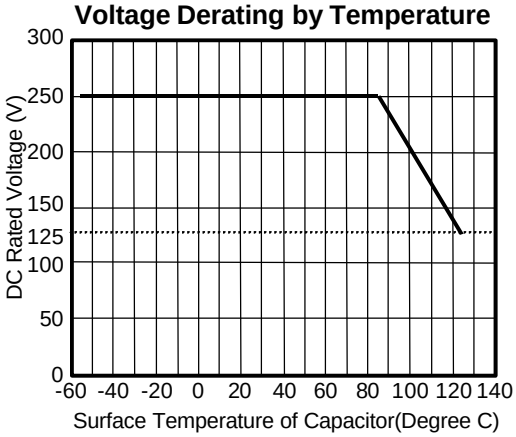
Applicable Specifications

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.