

## Metallized Polypropylene Film Capacitor

Type: **ECWF(L)**

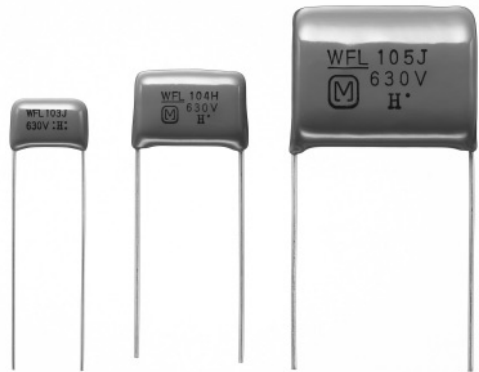
Designed for high frequency and current applications.

### ■ Features

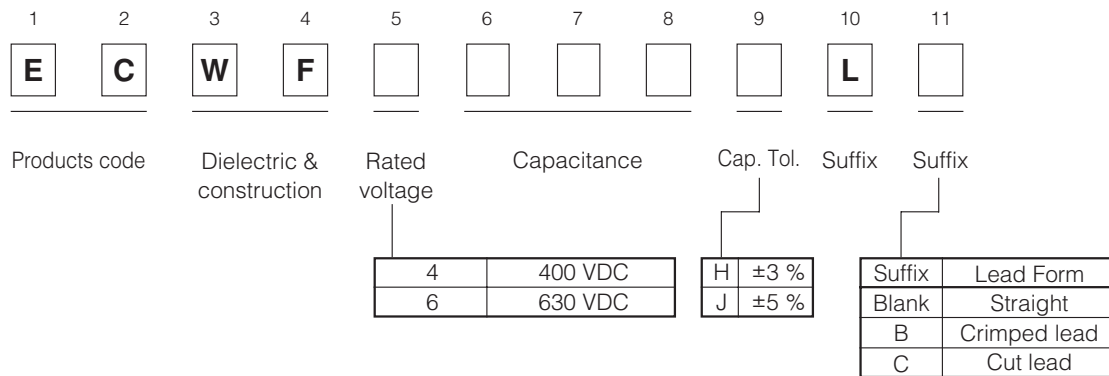
- Small size
- Excellent frequency characteristics
- Low loss
- 85 °C, 85 % RH, W.V.×1.0 for 500 hours
- RoHS directive compliant

### ■ Recommended Applications

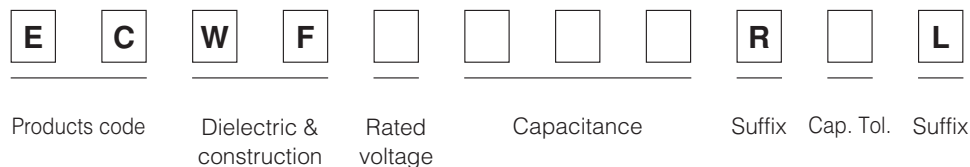
- Lighting
- High frequency and high current circuits  
(TVs, Monitors, Power Supplies, etc.)



### ■ Explanation of Part Numbers



### ● Explanation of Part Numbers for Odd Size Taping



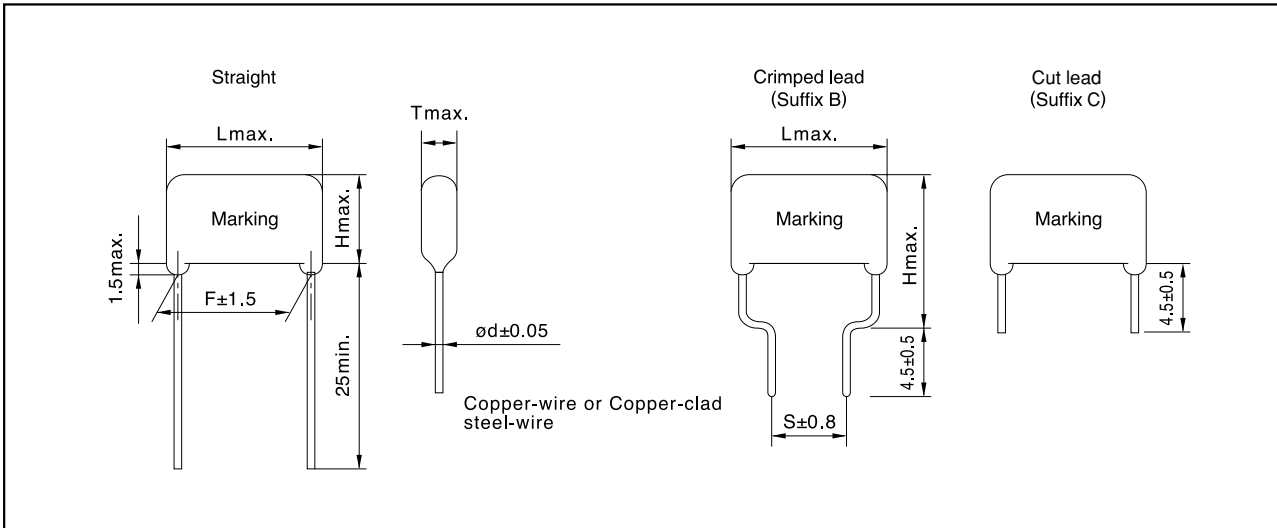
### ■ Specifications

Category temp. range (Including temperature-rise on unit surface)	-40 °C to +105 °C	
Rated voltage	400 VDC, 630 VDC	
Capacitance range	400 VDC	0.022 uF to 2.4 uF
	630 VDC	0.010 uF to 1.3 uF
Capacitance tolerance	±3 % (H), ±5 % (J)	
Withstand voltage	Between terminals : Rated voltage(VDC)×150 % 60 s	
Dissipation factor (tan δ)	tan δ ≤ 0.05% (20 °C, 1kHz)	
	tan δ ≤ 0.20% (20 °C, 10kHz)	
Insulation resistance (IR)	C ≤ 0.33 uF : IR ≥ 9000 MΩ (20 °C, 100 VDC, 60 s for 400 VDC)	
	C > 0.33 uF : IR ≥ 3000 MΩ · uF (20 °C, 500 VDC, 60 s for 630 VDC)	

\* 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".

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■ Dimensions in mm (not to scale)

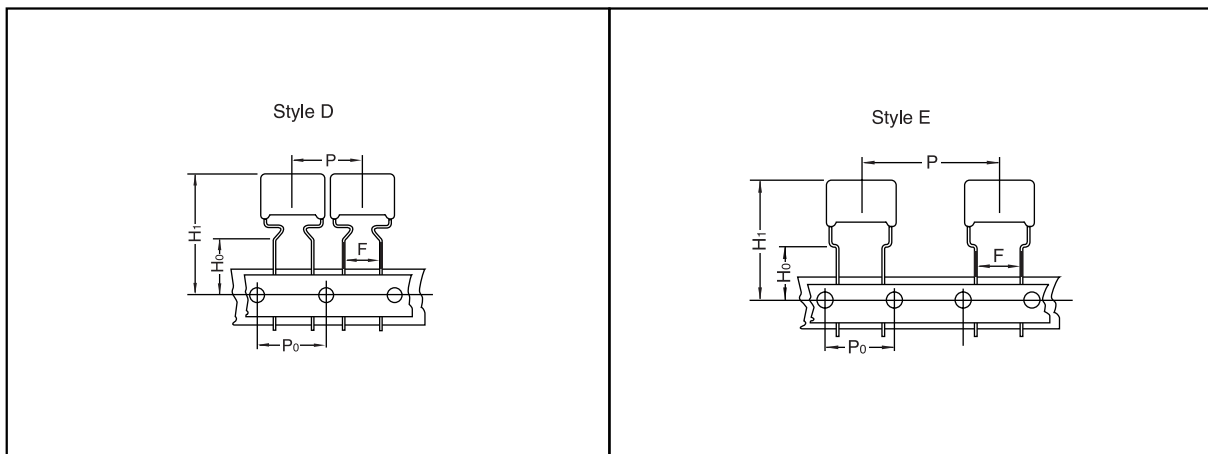


■ Packaging Specification for Bulk Package

Packing quantity: 100 pcs./bag

■ Taping Specifications for Automatic Insertion

● Taping style



\*Refer to the page of taping specifications.

● Packaging Specifications

Type	Rated volt.	Cap. range ( $\mu F$ )	Taping style					Packing	suffix	
			AD	AS	B	C	D			E
ECWF(L)	400 VDC	0.022 to 0.091					○		Ammo	R( )L
		0.10 to 1.0					○		Ammo	R( )L
	630 VDC	0.010 to 0.043					○		Ammo	R( )L
		0.047 to 0.43					○		Ammo	R( )L

● Lead Spacing

Style	Lead Spacing
D	7.5 mm
E	7.5 mm

Metallized Film

■ Rating, Dimensions & Quantity/Ammo Box

● Type ECWF(L) Rated voltage : 400 VDC

Part No.	Cap. ( $\mu$ F)	Dimensions (mm)							Min. order Q'ty		
		L <sup>max</sup>	T <sup>max</sup>	H <sup>max</sup>		F		S	$\phi$ d	Taping 7.5mm	Bulk
				Straight	Crimped lead	Straight	Crimped lead				
ECWF4223□L( )	0.022	12.5	5.8	8.6	13.6	10.0	7.5	0.6	1100	500	
ECWF4243□L( )	0.024	12.5	6.0	8.8	13.8	10.0	7.5	0.6			
ECWF4273□L( )	0.027	12.5	6.2	9.0	14.0	10.0	7.5	0.6	1000		
ECWF4303□L( )	0.030	12.5	6.4	9.3	14.3	10.0	7.5	0.6			
ECWF4333□L( )	0.033	12.5	6.7	9.5	14.5	10.0	7.5	0.6	900		
ECWF4363□L( )	0.036	12.5	5.7	8.4	13.4	10.0	7.5	0.6			
ECWF4393□L( )	0.039	12.5	5.8	8.6	13.6	10.0	7.5	0.6	1100		
ECWF4433□L( )	0.043	12.5	6.0	8.8	13.8	10.0	7.5	0.6			
ECWF4473□L( )	0.047	12.5	6.2	9.0	14.0	10.0	7.5	0.6	1000		
ECWF4513□L( )	0.051	12.5	6.4	9.2	14.2	10.0	7.5	0.6			
ECWF4563□L( )	0.056	12.5	6.6	9.4	14.4	10.0	7.5	0.6	900		
ECWF4623□L( )	0.062	13.0	6.8	9.6	14.6	10.0	7.5	0.8			
ECWF4683□L( )	0.068	13.0	7.0	9.9	14.9	10.0	7.5	0.8	800		
ECWF4753□L( )	0.075	13.0	7.3	10.1	15.1	10.0	7.5	0.8			
ECWF4823□L( )	0.082	13.0	7.5	10.4	15.4	10.0	7.5	0.8	500		
ECWF4913□L( )	0.091	13.0	7.8	10.7	15.7	10.0	7.5	0.8			
ECWF4104□L( )	0.10	15.5	6.5	11.0	16.0	12.5	7.5	0.8	400		
ECWF4114□L( )	0.11	15.5	6.8	11.3	16.3	12.5	7.5	0.8			
ECWF4124□L( )	0.12	15.5	7.0	11.5	16.5	12.5	7.5	0.8	300		
ECWF4134□L( )	0.13	15.5	7.2	11.8	16.8	12.5	7.5	0.8			
ECWF4154□L( )	0.15	15.5	7.6	12.2	17.2	12.5	7.5	0.8	200		
ECWF4164□L( )	0.16	15.5	7.8	12.4	17.4	12.5	7.5	0.8			
ECWF4184□L( )	0.18	15.5	8.2	12.8	17.8	12.5	7.5	0.8	300		
ECWF4204□L( )	0.20	15.5	8.6	13.3	18.3	12.5	7.5	0.8			
ECWF4224□L( )	0.22	15.5	9.0	13.6	18.6	12.5	7.5	0.8	200		
ECWF4244□L( )	0.24	18.0	8.3	13.0	18.0	15.0	10.0	0.8			
ECWF4274□L( )	0.27	18.0	8.8	13.4	18.4	15.0	10.0	0.8	300		
ECWF4304□L( )	0.30	18.0	9.2	13.9	18.9	15.0	10.0	0.8			
ECWF4334□L( )	0.33	18.0	9.6	14.3	19.3	15.0	10.0	0.8	200		
ECWF4364□L( )	0.36	18.0	9.9	14.7	19.7	15.0	10.0	0.8			
ECWF4394□L( )	0.39	18.0	10.3	15.1	20.1	15.0	10.0	0.8	300		
ECWF4434□L( )	0.43	18.0	10.7	15.6	20.6	15.0	10.0	0.8			
ECWF4474□L( )	0.47	18.0	11.2	16.1	21.1	15.0	10.0	0.8	200		
ECWF4514□L( )	0.51	20.5	10.3	16.8	21.8	17.5	12.5	0.8			
ECWF4564□L( )	0.56	20.5	10.7	17.3	22.3	17.5	12.5	0.8	300		
ECWF4624□L( )	0.62	20.5	11.3	17.9	22.9	17.5	12.5	0.8			
ECWF4684□L( )	0.68	20.5	11.8	18.5	23.5	17.5	12.5	0.8	200		
ECWF4754□L( )	0.75	20.5	12.3	19.1	24.1	17.5	12.5	0.8			
ECWF4824□L( )	0.82	23.0	11.8	18.5	23.5	20.0	12.5	0.8	300		
ECWF4914□L( )	0.91	23.0	12.4	19.2	24.2	20.0	12.5	0.8			
ECWF4105□L( )	1.0	23.0	13.0	19.8	24.8	20.0	12.5	0.8	—		
ECWF4115□L( )	1.1	23.0	13.6	20.5	25.5	20.0	12.5	0.8			
ECWF4125□L( )	1.2	28.0	12.3	19.1	24.1	25.0	17.5	0.8	—		
ECWF4135□L( )	1.3	28.0	12.8	19.6	24.6	25.0	17.5	0.8			
ECWF4155□L( )	1.5	28.0	13.7	20.7	25.7	25.0	17.5	0.8	—		
ECWF4165□L( )	1.6	28.0	14.2	21.2	26.2	25.0	17.5	0.8			
ECWF4185□L( )	1.8	28.0	15.2	22.2	27.2	25.0	17.5	0.8	—		
ECWF4205□L( )	2.0	28.0	16.0	23.1	28.1	25.0	17.5	0.8			
ECWF4225□L( )	2.2	28.0	16.8	24.0	29.0	25.0	17.5	0.8	—		
ECWF4245□L( )	2.4	28.0	17.5	24.8	29.8	25.0	17.5	0.8			

Suffix for lead crimped  
 Capacitance tolerance code

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■ Rating, Dimensions & Quantity/Ammo Box

● Type ECWF(L) Rated voltage : 630 VDC

Part No.	Cap. ( $\mu$ F)	Dimensions (mm)							Min. order Q'ty		
		L <sub>max</sub>	T <sub>max</sub>	H <sub>max</sub>		F		S	$\phi$ d	Taping 7.5mm	Bulk
				Straight	Crimped lead	Straight	Crimped lead				
ECWF6103□L( )	0.010	12.5	5.2	8.0	13.0	10.0	7.5	0.6	1200	500	
ECWF6113□L( )	0.011	12.5	5.4	8.2	13.2	10.0	7.5	0.6			
ECWF6123□L( )	0.012	12.5	5.5	8.3	13.3	10.0	7.5	0.6			
ECWF6133□L( )	0.013	12.5	5.6	8.5	13.5	10.0	7.5	0.6	1100		
ECWF6153□L( )	0.015	12.5	5.9	8.7	13.7	10.0	7.5	0.6			
ECWF6163□L( )	0.016	12.5	6.0	8.9	13.9	10.0	7.5	0.6			
ECWF6183□L( )	0.018	12.5	6.2	9.1	14.1	10.0	7.5	0.6	1000		
ECWF6203□L( )	0.020	12.5	6.5	9.3	14.3	10.0	7.5	0.6			
ECWF6223□L( )	0.022	12.5	6.2	9.0	14.0	10.0	7.5	0.6			
ECWF6243□L( )	0.024	12.5	6.4	9.2	14.2	10.0	7.5	0.6	900		
ECWF6273□L( )	0.027	13.0	6.6	9.5	14.5	10.0	7.5	0.8			
ECWF6303□L( )	0.030	13.0	6.9	9.7	14.7	10.0	7.5	0.8			
ECWF6333□L( )	0.033	13.0	7.1	10.0	15.0	10.0	7.5	0.8	800		
ECWF6363□L( )	0.036	13.0	7.3	10.2	15.2	10.0	7.5	0.8			
ECWF6393□L( )	0.039	13.0	7.6	10.4	15.4	10.0	7.5	0.8			
ECWF6433□L( )	0.043	13.0	7.9	10.7	15.7	10.0	7.5	0.8	500		
ECWF6473□L( )	0.047	15.5	6.4	10.8	15.8	12.5	7.5	0.8			
ECWF6513□L( )	0.051	15.5	6.6	11.0	16.0	12.5	7.5	0.8			
ECWF6563□L( )	0.056	15.5	6.8	11.2	16.2	12.5	7.5	0.8	400		
ECWF6623□L( )	0.062	15.5	7.1	11.5	16.5	12.5	7.5	0.8			
ECWF6683□L( )	0.068	15.5	7.4	11.8	16.8	12.5	7.5	0.8			
ECWF6753□L( )	0.075	15.5	7.7	12.1	17.1	12.5	7.5	0.8	300		
ECWF6823□L( )	0.082	15.5	8.0	12.4	17.4	12.5	7.5	0.8			
ECWF6913□L( )	0.091	15.5	8.3	12.7	17.7	12.5	7.5	0.8			
ECWF6104□L( )	0.10	18.0	7.7	12.1	17.1	15.0	10.0	0.8	200		
ECWF6114□L( )	0.11	18.0	8.0	12.4	17.4	15.0	10.0	0.8			
ECWF6124□L( )	0.12	18.0	8.3	12.7	17.7	15.0	10.0	0.8			
ECWF6134□L( )	0.13	18.0	8.5	13.0	18.0	15.0	10.0	0.8	300		
ECWF6154□L( )	0.15	18.0	9.1	13.5	18.5	15.0	10.0	0.8			
ECWF6164□L( )	0.16	18.0	9.3	13.8	18.8	15.0	10.0	0.8			
ECWF6184□L( )	0.18	18.0	9.8	14.2	19.1	15.0	10.0	0.8	200		
ECWF6204□L( )	0.20	18.0	10.3	14.7	19.7	15.0	10.0	0.8			
ECWF6224□L( )	0.22	18.0	10.8	15.5	20.5	15.0	10.0	0.8			
ECWF6244□L( )	0.24	18.0	11.2	15.9	20.9	15.0	10.0	0.8	300		
ECWF6274□L( )	0.27	20.5	10.4	16.7	21.7	17.5	12.5	0.8			
ECWF6304□L( )	0.30	20.5	10.9	17.2	22.2	17.5	12.5	0.8			
ECWF6334□L( )	0.33	20.5	11.4	17.7	22.7	17.5	12.5	0.8	200		
ECWF6364□L( )	0.36	20.5	11.9	18.5	23.5	17.5	12.5	0.8			
ECWF6394□L( )	0.39	20.5	12.4	19.0	24.0	17.5	12.5	0.8			
ECWF6434□L( )	0.43	20.5	13.0	19.5	24.5	17.5	12.5	0.8	—		
ECWF6474□L( )	0.47	20.5	13.5	20.1	25.1	17.5	12.5	0.8			
ECWF6514□L( )	0.51	28.0	11.1	17.3	22.3	25.0	17.5	0.8			
ECWF6564□L( )	0.56	28.0	11.6	17.8	22.8	25.0	17.5	0.8	—		
ECWF6624□L( )	0.62	28.0	12.1	18.7	23.7	25.0	17.5	0.8			
ECWF6684□L( )	0.68	28.0	12.7	19.3	24.3	25.0	17.5	0.8			
ECWF6754□L( )	0.75	28.0	13.3	19.9	24.9	25.0	17.5	0.8	—		
ECWF6824□L( )	0.82	28.0	13.9	20.5	25.5	25.0	17.5	0.8			
ECWF6914□L( )	0.91	28.0	14.6	21.2	26.2	25.0	17.5	0.8			
ECWF6105□L( )	1.0	28.0	15.5	22.3	27.3	25.0	17.5	0.8	—		
ECWF6115□L( )	1.1	28.0	16.3	23.0	28.0	25.0	17.5	0.8			
ECWF6125□L( )	1.2	28.0	17.0	23.7	28.7	25.0	17.5	0.8			
ECWF6135□L( )	1.3	28.0	17.6	24.4	29.4	25.0	17.5	0.8			

— Suffix for lead crimped
   
 — Capacitance tolerance code

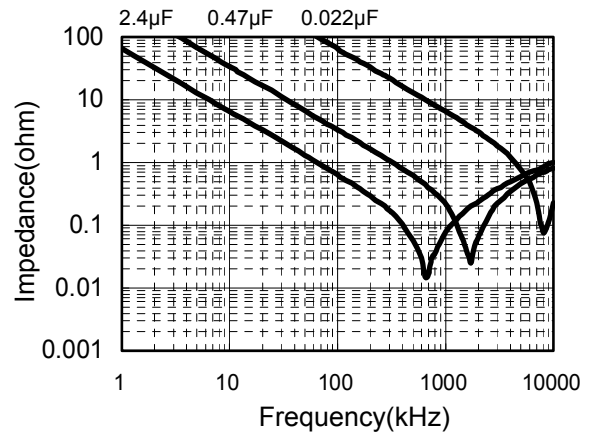
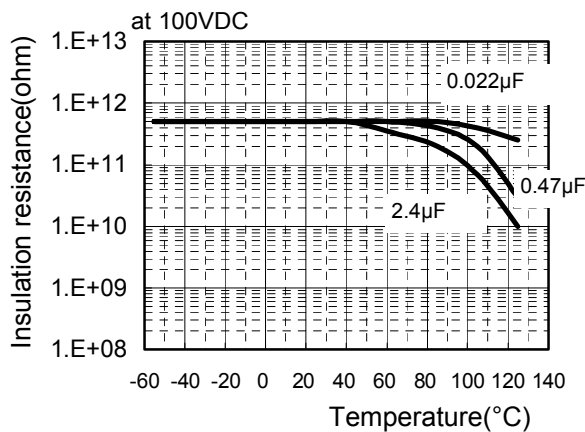
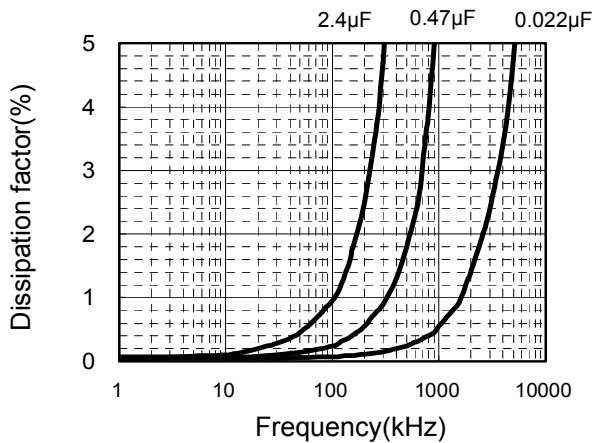
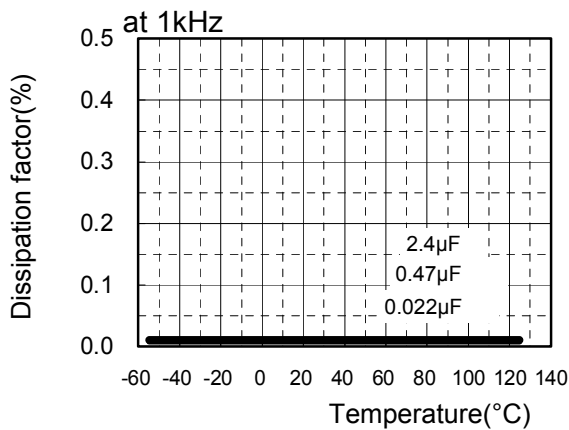
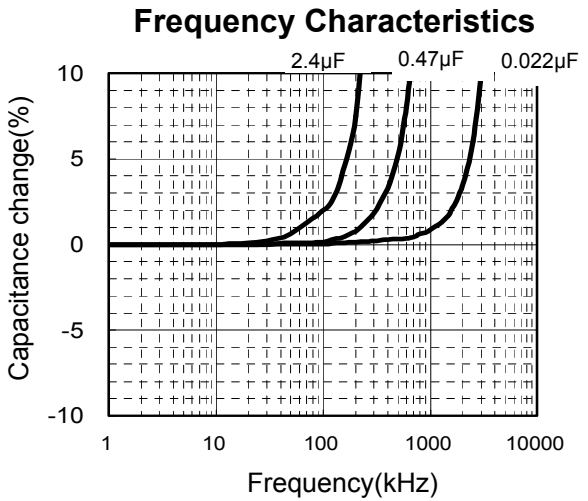
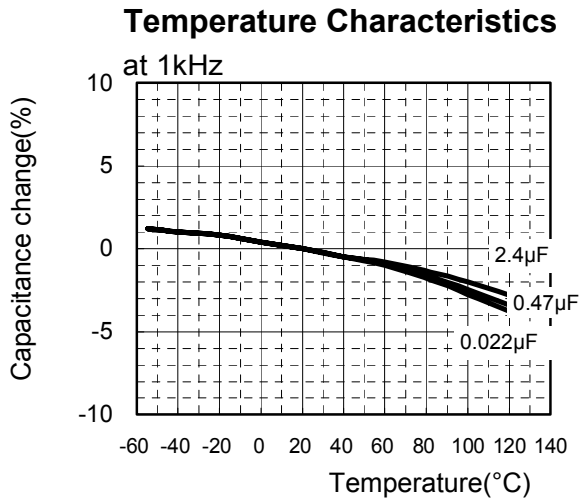
Metallized Film

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# ECWF(L) Type 400VDC series (Metallized Polypropylene Film)

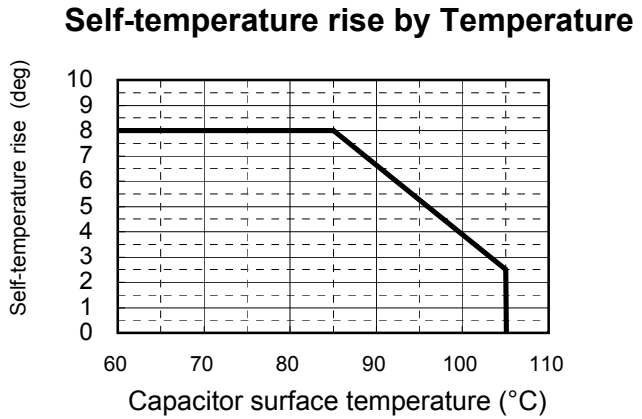
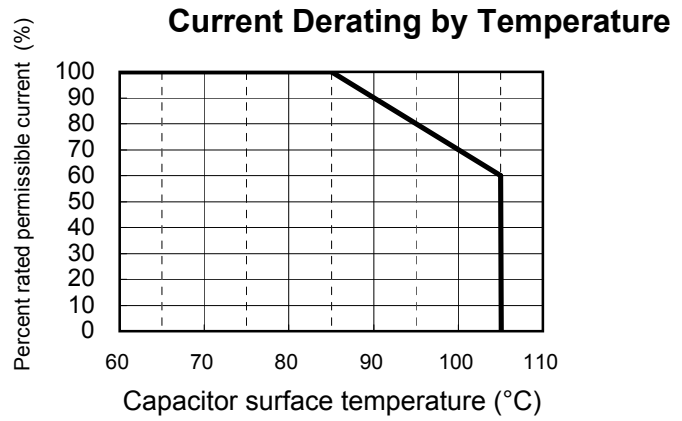
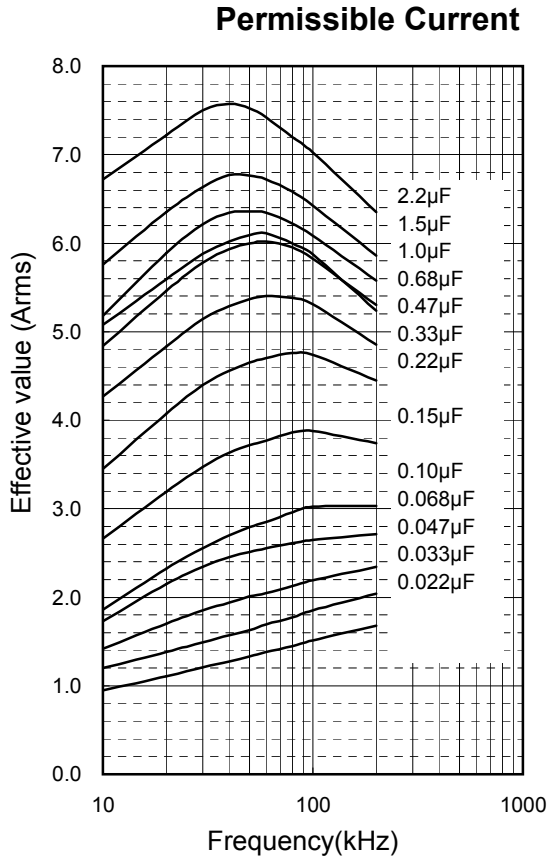
## Electrical Characteristics <Typical Data >





## ECWF(L) Type 400VDC series (Metallized Polypropylene Film)

### Applicable Specifications



### Pulse Handling Capability (dv/dt)

(Max 10000cycles)

Capacitance Value(µF)	code	dV/dt (V/µs)	Current(0-P) (A)	Capacitance Value(µF)	code	dV/dt (V/µs)	Current(0-P) (A)
0.022	223	412	9.1	0.27	274	154	41.6
0.027	273	412	11.1	0.33	334	154	50.8
0.033	333	412	13.6	0.39	394	154	60.1
0.039	393	283	11.0	0.47	474	154	72.4
0.047	473	283	13.3	0.56	564	136	76.2
0.056	563	283	15.8	0.68	684	136	92.5
0.068	683	283	19.2	0.82	824	113	92.7
0.082	823	283	23.2	1.00	105	113	113.0
0.10	104	200	20.0	1.20	125	85	102.0
0.12	124	200	24.0	1.50	155	85	127.5
0.15	154	200	30.0	1.80	185	85	153.0
0.18	184	200	36.0	2.20	225	85	187.0
0.22	224	200	44.0	2.40	245	85	204.0

\* Please consult Panasonic if your condition exceeds the above

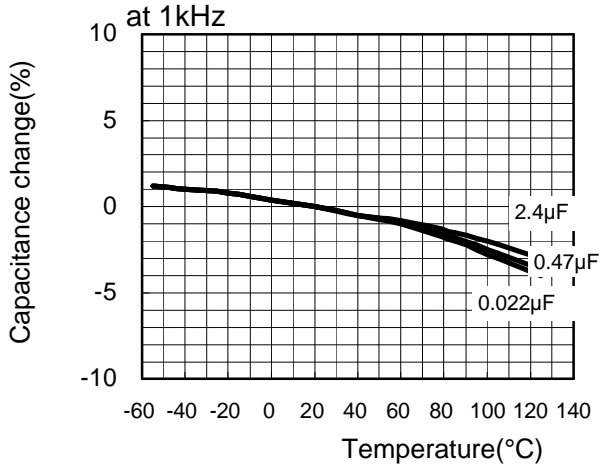
\*When you use this product, peak voltage must not exceed DC rated voltage.

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

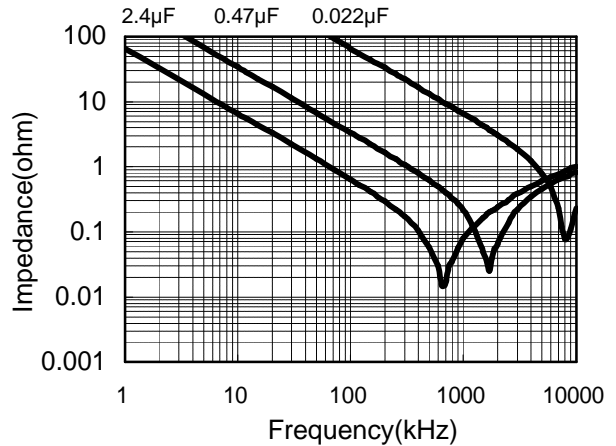
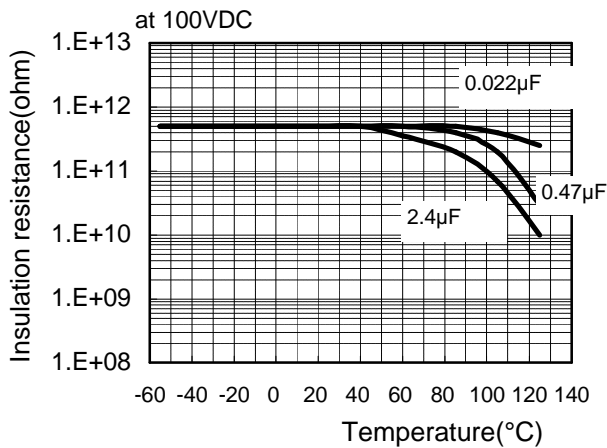
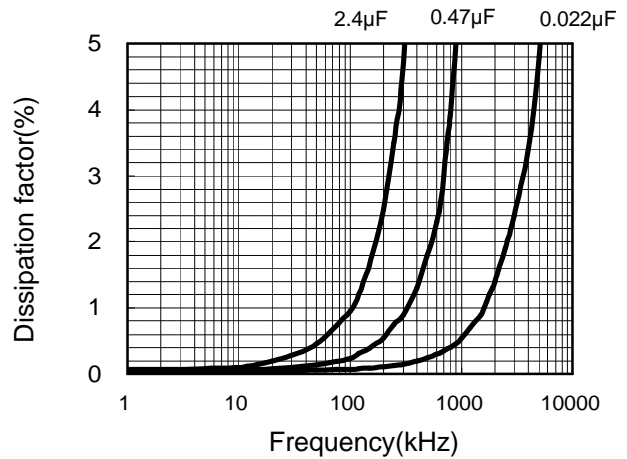
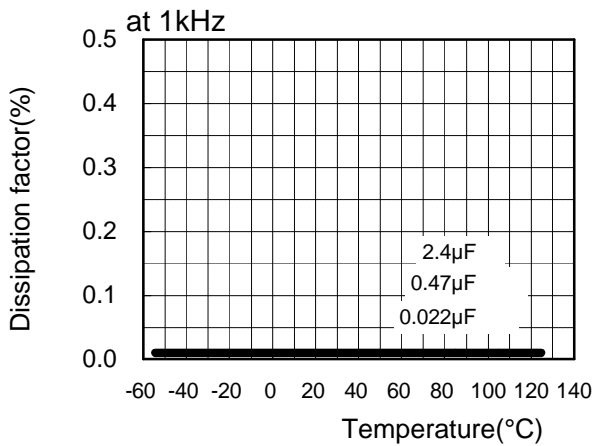
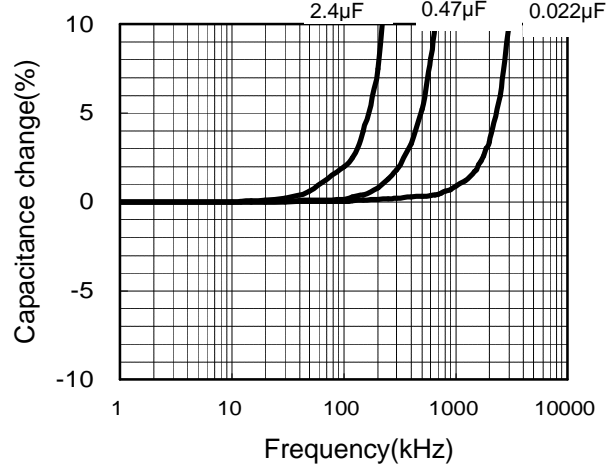
**ECWF(L) Type 450VDC series (Metallized Polypropylene Film)**

**Electrical Characteristics <Typical Data >**

**Temperature Characteristics**



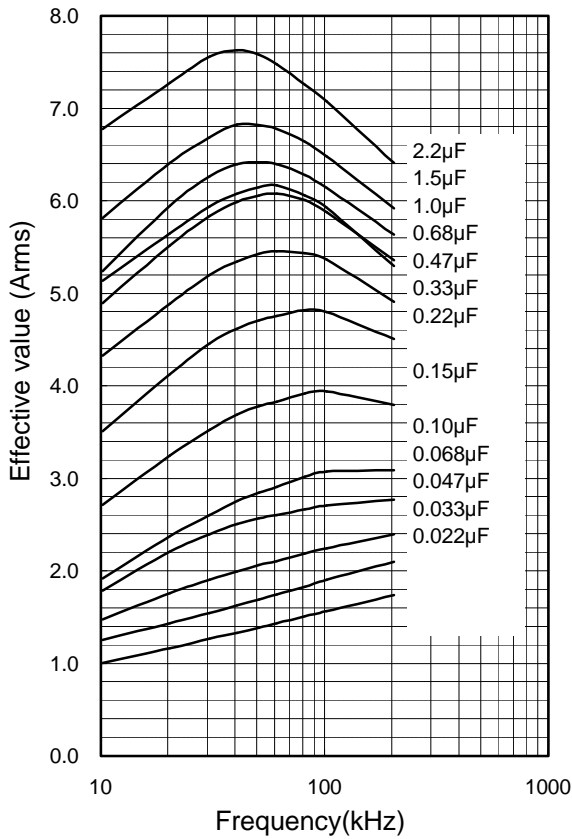
**Frequency Characteristics**



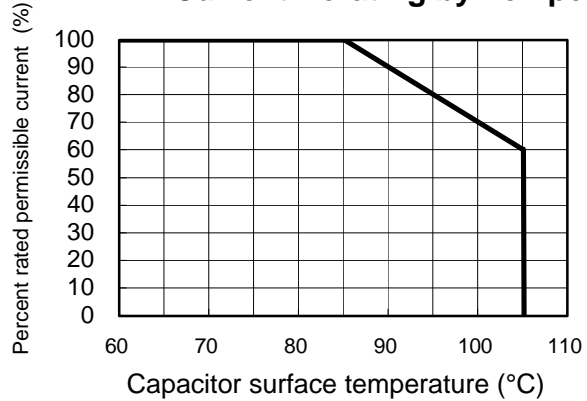
**ECWF(L) Type 450VDC series (Metallized Polypropylene Film)**

**Applicable Specifications**

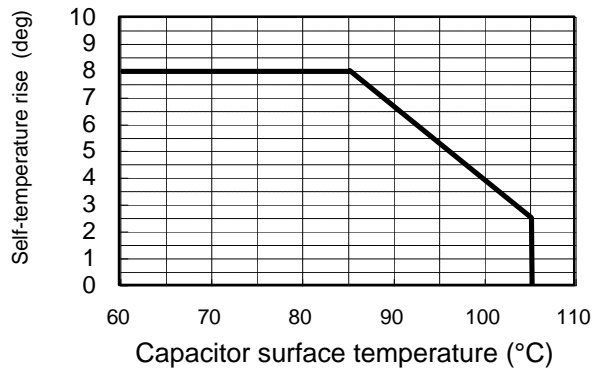
**Permissible Current**



**Current Derating by Temperature**



**Self-temperature rise by Temperature**



Caution : When capacitance is 1.1µF or more, use at 85 ° C or less in temperature.

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

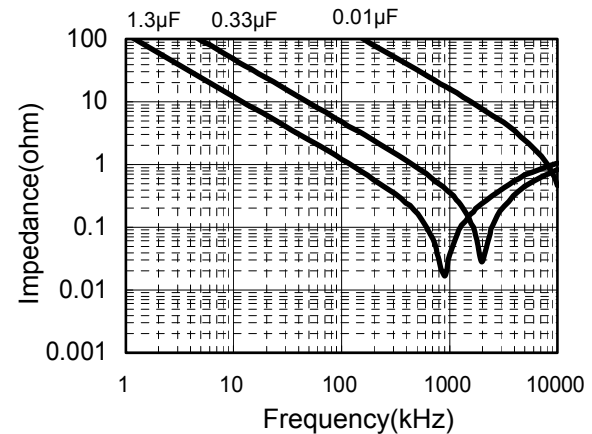
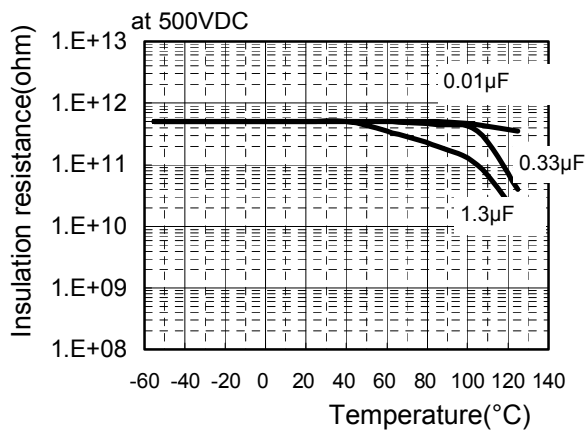
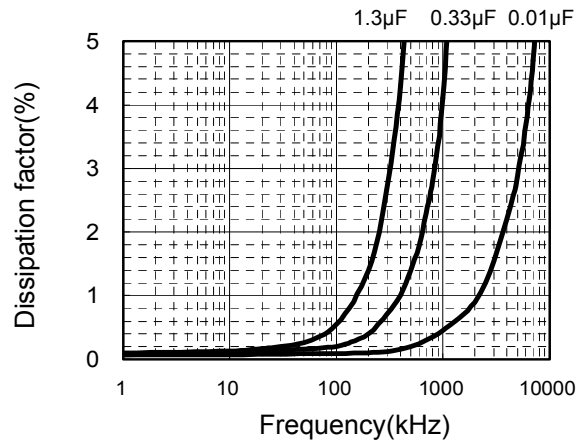
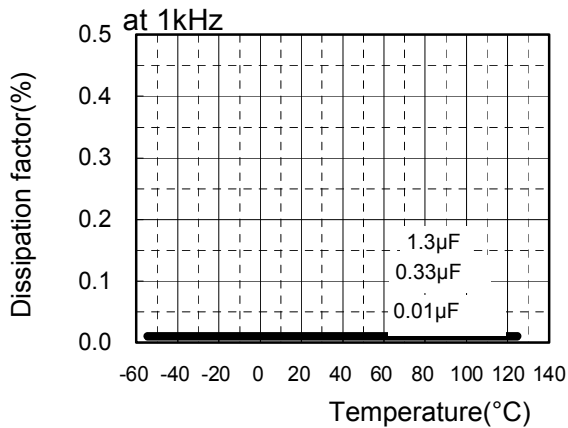
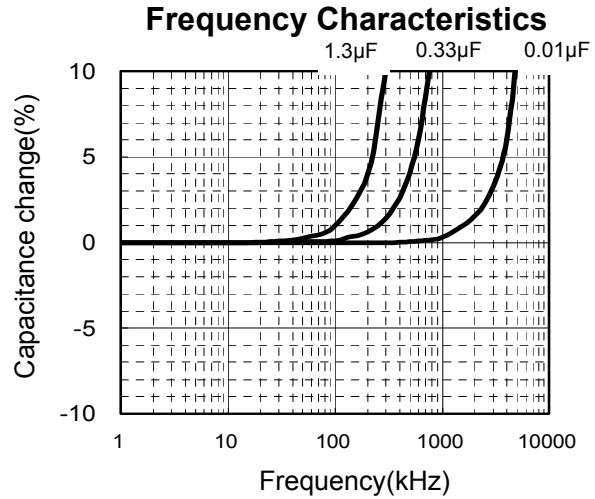
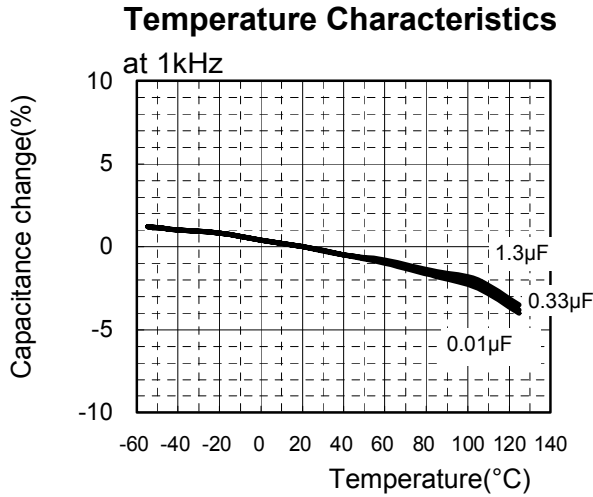
Capacitance Value(µF)	code	dV/dt (V/us)	Current(0-P) (A)	Capacitance Value(µF)	code	dV/dt (V/us)	Current(0-P) (A)
0.022	223	412	9.1	0.27	274	154	41.6
0.027	273	412	11.1	0.33	334	154	50.8
0.033	333	412	13.6	0.39	394	154	60.1
0.039	393	283	11.0	0.47	474	154	72.4
0.047	473	283	13.3	0.56	564	136	76.2
0.056	563	283	15.8	0.68	684	136	92.5
0.068	683	283	19.2	0.82	824	113	92.7
0.082	823	283	23.2	1.00	105	113	113.0
0.10	104	200	20.0	1.20	125	85	102.0
0.12	124	200	24.0	1.50	155	85	127.5
0.15	154	200	30.0	1.80	185	85	153.0
0.18	184	200	36.0	2.20	225	85	187.0
0.22	224	200	44.0	2.40	245	85	204.0

\* Please consult Panasonic if your condition exceeds the above  
 \*When you use this product, peak voltage must not exceed DC rated voltage.  
 \*The current(0-P) value is calculated using nominal capacitance.



**ECWF(L) Type 630VDC series (Metallized Polypropylene Film)**

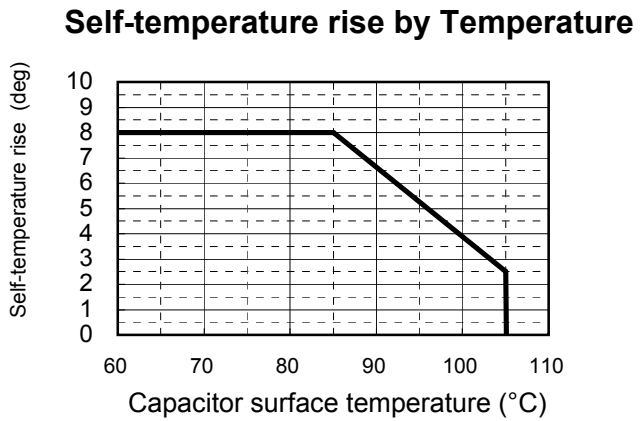
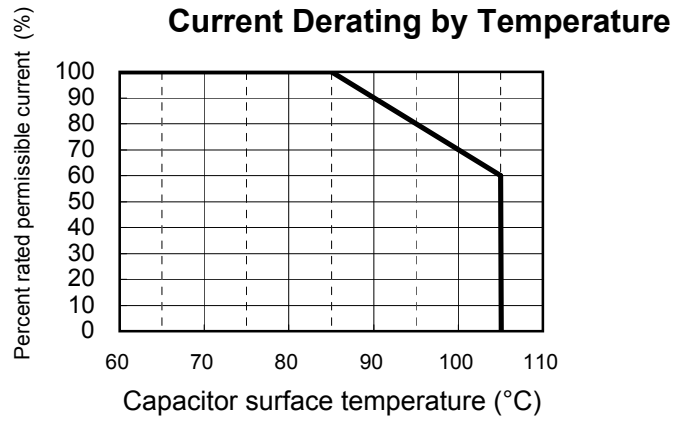
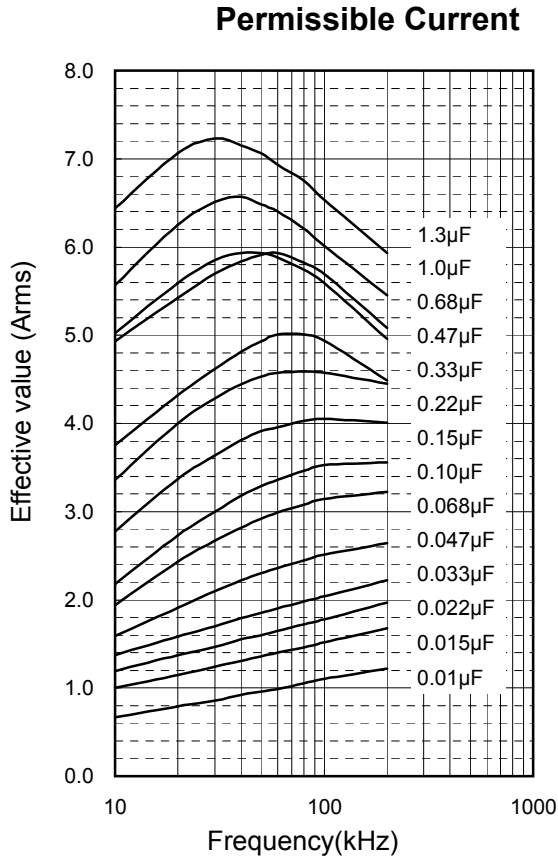
**Electrical Characteristics <Typical Data >**





## ECWF(L) Type 630VDC series (Metallized Polypropylene Film)

### Applicable Specifications



### Pulse Handling Capability (dv/dt)

(Max 10000cycles)

Capacitance Value(µF)	code	dV/dt (V/us)	Current(0-P) (A)	Capacitance Value(µF)	code	dV/dt (V/us)	Current(0-P) (A)
0.01	103	561	5.6	0.12	124	249	29.9
0.012	123	561	6.7	0.15	154	249	37.4
0.015	153	561	8.4	0.18	184	249	44.8
0.018	183	561	10.1	0.22	224	249	54.8
0.022	223	451	9.9	0.27	274	216	58.3
0.027	273	451	12.2	0.33	334	216	71.3
0.033	333	451	14.9	0.39	394	216	84.2
0.039	393	451	17.6	0.47	474	216	101.5
0.047	473	332	15.6	0.56	564	131	73.4
0.056	563	332	18.6	0.68	684	131	89.1
0.068	683	332	22.6	0.82	824	131	107.4
0.082	823	332	27.2	1.00	105	131	131.0
0.10	104	249	24.9	1.20	125	131	157.2

\* Please consult Panasonic if your condition exceeds the above

\*When you use this product, peak voltage must not exceed DC rated voltage.

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