Film Chip Capacitor

Type : **ECHU(X)**

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

■Features

- ■Small in size (minimum size 1.6mm x 0.8mm)
- ■85 degree C , 85%RH , W.V. x 1.0 , 500 hours
- ■Applicable for reflow soldering

■Recommended Applications

- ■Time-constant
- ■ Filtering
- ■Oscillation and resonance

■Explanation of Numbers

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

01	10VDC
1C	16VDC
1H	50VDC

G	±2%
J	±5%

	Tape width Reel diameter
5	8mm Φ180mm

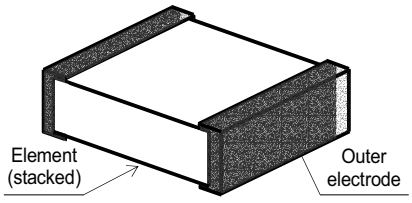
*Φ330mm reel is prepared.

■Specification

Category temp.range	-55 to +125 ℃
Rated voltage	10VDC , 16VDC , 50VDC
Capacitance range	0.0001μF to 0.033μF (E12)
Capacitance tolerance	±2%(G) , ±5%(J)
Withstand voltage	Between terminals : Rated volt. (VDC)X150% , 60s
Dissipation factor	0.6% or less (20℃ , 1kHz)
Insulation resistance	10VDC : 3000MΩ or more (20℃ , 10VDC , 60s) 16VDC : 3000MΩ or more (20℃ , 10VDC , 60s) 50VDC : 3000MΩ or more (20℃ , 50VDC , 60s)
Soldering conditions	Reflow soldering : 260℃ max. and 30s max. at more than 230℃ (Temp. at cap. Surface)

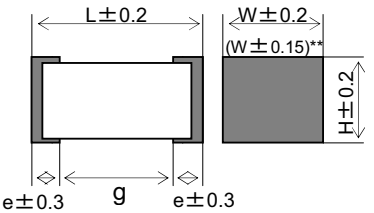
Note : Use ECHU(B) for Flow Soldering.

■Construction



■

■Dimensions in mm (not to scale)



* To be applied only for size code J1 & J2
** To be applied only for size code K1

Size code	L	W	H	e	g
k1	1.6	0.8	0.7	0.35	min.0.4
J1	2.0	1.25	0.9	0.45	min.0.6
J2	2.0	1.25	1.1	0.45	min.0.6
H1	3.2	1.6	0.9	0.65	min.1.0
H2	3.2	1.6	1.1	0.65	min.1.0
H3	3.2	1.6	1.5	0.65	min.1.0
G1	3.2	2.5	1.1	0.65	min.1.0
G2	3.2	2.5	1.5	0.65	min.1.0
G3	3.2	2.5	2.1	0.65	min.1.0

■Rating , Dimensions & quantity / Reel

■Rated voltage : 16VDC , 50VDC **Capacitance tolerance : ±2%(G) , ±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		
0.0001	ECHU1C101( )X5	1.6	0.8	0.7	K1	4000	ECHU1H101( )X5	2.0	1.25	0.9	J1	3000
0.00012	ECHU1C121( )X5	1.6	0.8	0.7	K1		ECHU1H121( )X5	2.0	1.25	0.9	J1	
0.00015	ECHU1C151( )X5	1.6	0.8	0.7	K1		ECHU1H151( )X5	2.0	1.25	0.9	J1	
0.00018	ECHU1C181( )X5	1.6	0.8	0.7	K1		ECHU1H181( )X5	2.0	1.25	0.9	J1	
0.00022	ECHU1C221( )X5	1.6	0.8	0.7	K1		ECHU1H221( )X5	2.0	1.25	0.9	J1	
0.00027	ECHU1C271( )X5	1.6	0.8	0.7	K1		ECHU1H271( )X5	2.0	1.25	0.9	J1	
0.00033	ECHU1C331( )X5	1.6	0.8	0.7	K1		ECHU1H331( )X5	2.0	1.25	0.9	J1	
0.00039	ECHU1C391( )X5	1.6	0.8	0.7	K1		ECHU1H391( )X5	2.0	1.25	0.9	J1	
0.00047	ECHU1C471( )X5	1.6	0.8	0.7	K1		ECHU1H471( )X5	2.0	1.25	0.9	J1	
0.00056	ECHU1C561( )X5	1.6	0.8	0.7	K1		ECHU1H561( )X5	2.0	1.25	0.9	J1	
0.00068	ECHU1C681( )X5	1.6	0.8	0.7	K1		ECHU1H681( )X5	2.0	1.25	0.9	J1	
0.00082	ECHU1C821( )X5	1.6	0.8	0.7	K1		ECHU1H821( )X5	2.0	1.25	0.9	J1	
0.001	ECHU1C102( )X5	1.6	0.8	0.7	K1		ECHU1H102( )X5	2.0	1.25	0.9	J1	
0.0012	ECHU1C122( )X5	1.6	0.8	0.7	K1		ECHU1H122( )X5	2.0	1.25	0.9	J1	
0.0015	ECHU1C152( )X5	1.6	0.8	0.7	K1		ECHU1H152( )X5	2.0	1.25	0.9	J1	
0.0018	ECHU1C182( )X5	1.6	0.8	0.7	K1		ECHU1H182( )X5	2.0	1.25	0.9	J1	
0.0022	ECHU1C222( )X5	1.6	0.8	0.7	K1		ECHU1H222( )X5	2.0	1.25	0.9	J1	
0.0027	ECHU1C272( )X5	1.6	0.8	0.7	K1		ECHU1H272( )X5	2.0	1.25	0.9	J1	
0.0033	ECHU1C332( )X5	2.0	1.25	0.9	J1	3000	ECHU1H332( )X5	3.2	1.6	0.9	H1	
0.0039	ECHU1C392( )X5	2.0	1.25	0.9	J1		ECHU1H392( )X5	3.2	1.6	0.9	H1	
0.0047	ECHU1C472( )X5	2.0	1.25	0.9	J1		ECHU1H472( )X5	3.2	1.6	0.9	H1	
0.0056	ECHU1C562( )X5	2.0	1.25	0.9	J1		ECHU1H562( )X5	3.2	1.6	0.9	H1	
0.0068	ECHU1C682( )X5	2.0	1.25	0.9	J1		ECHU1H682( )X5	3.2	1.6	0.9	H1	
0.0082	ECHU1C822( )X5	2.0	1.25	1.1	J2		ECHU1H822( )X5	3.2	1.6	1.1	H2	
0.01	ECHU1C103( )X5	2.0	1.25	1.1	J2		ECHU1H103( )X5	3.2	1.6	1.1	H2	
0.012	ECHU1C123( )X5	3.2	1.6	0.9	H1		ECHU1H123( )X5	3.2	2.5	1.1	G1	2000
0.015	ECHU1C153( )X5	3.2	1.6	0.9	H1		ECHU1H153( )X5	3.2	2.5	1.1	G1	
0.018	ECHU1C183( )X5	3.2	1.6	0.9	H1		ECHU1H183( )X5	3.2	2.5	1.5	G2	
0.022	ECHU1C223( )X5	3.2	1.6	0.9	H1		ECHU1H223( )X5	3.2	2.5	1.5	G2	
0.027	ECHU1C273( )X5	3.2	1.6	1.1	H2		ECHU1H273( )X5	3.2	2.5	1.5	G2	
0.033	ECHU1C333( )X5	3.2	1.6	1.1	H2		ECHU1H333( )X5	3.2	2.5	2.1	G3	
0.039	ECHU1C393( )X5	3.2	1.6	1.5	H3	2000	ECHU1H393( )X5	3.2	2.5	2.1	G3	
0.047	ECHU1C473( )X5	3.2	1.6	1.5	H3							
0.056	ECHU1C563( )X5	3.2	2.5	1.5	G2							
0.068	ECHU1C683( )X5	3.2	2.5	1.5	G2							
0.082	ECHU1C823( )X5	3.2	2.5	2.1	G3							
0.1	ECHU1C104( )X5	3.2	2.5	2.1	G3							

Please use 50VDC rating of ECHU(C)

Capacitance tolerance code

■Rating , Dimensions & quantity / Reel

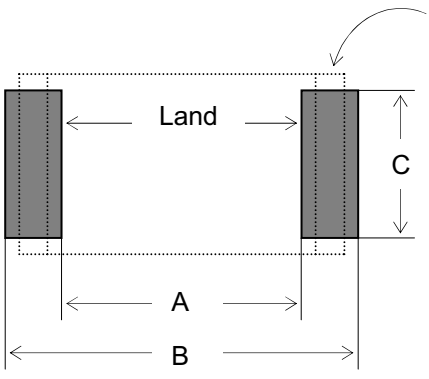
■Rated voltage : 10VDC Capacitance tolerance : ±2%(G) , ±5%(J)

Cap. (μF)	Rated volt. 10VDC						
	Part No.	Dimensions (mm)			Size code	Q'ty	
		L	W	H			
0.0001							
0.00012							
0.00015							
0.00018							
0.00022							
0.00027							
0.00033							
0.00039							
0.00047	Please use 16VDC rating of ECHU(X)						
0.00056							
0.00068							
0.00082							
0.001							
0.0012							
0.0015							
0.0018							
0.0022							
0.0027							
0.0033	ECHU01332( )X5	1.6	0.8	0.7	K1	4000	
0.0039	ECHU01392( )X5	1.6	0.8	0.7	K1		
0.0047	ECHU01472( )X5	1.6	0.8	0.7	K1		
0.0056	ECHU01562( )X5	1.6	0.8	0.7	K1		
0.0068	ECHU01682( )X5	2.0	1.25	0.9	J1	3000	
0.0082	ECHU01822( )X5	2.0	1.25	0.9	J1		
0.01	ECHU01103( )X5	2.0	1.25	0.9	J1		
0.012	ECHU01123( )X5	2.0	1.25	0.9	J1		
0.015	ECHU01153( )X5	2.0	1.25	0.9	J1		
0.018	ECHU01183( )X5	2.0	1.25	0.9	J1		
0.022	ECHU01223( )X5	2.0	1.25	1.1	J2		
0.027	ECHU01273( )X5	2.0	1.25	1.1	J2		
0.033							
0.039							
0.047							
0.056	Please use 16VDC rating of ECHU(X)						
0.068							
0.082							
0.1							

New!

Capacitance tolerance code

►Example for Land Dimensions (mm)

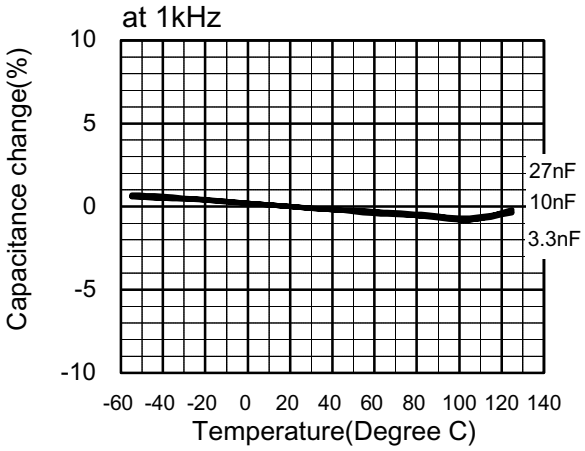


Size code	Land dimensions Reflow soldering		
	A	B	C
K1	0.6	2.0	0.7
J1J2	0.8	2.4	1.1
H1,H2,H3	1.8	3.6	1.4
G1,G2,G3	1.8	3.6	2.3

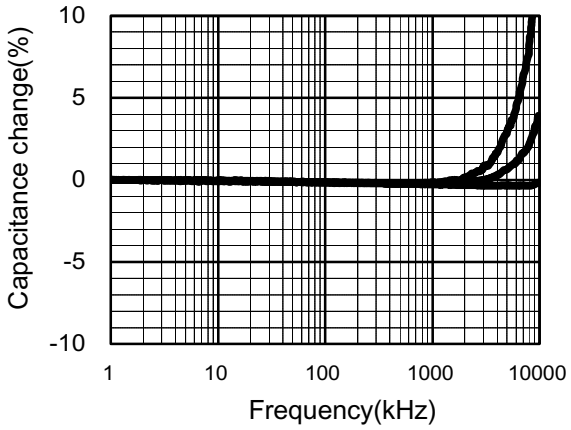
ECHU (X) Type DC10V series (Stacked Metallized Film)

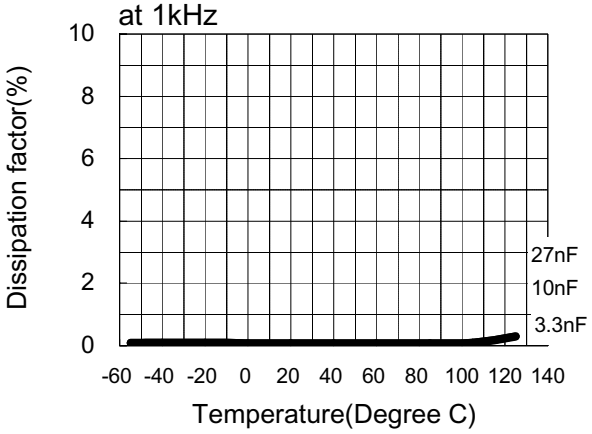
Electrical Characteristics < Typical Data >

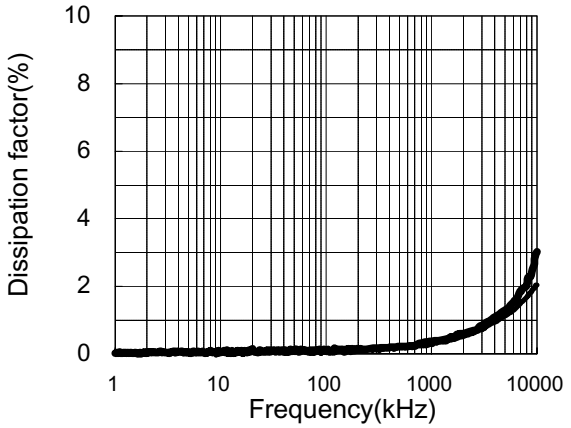
Temperature Characteristics

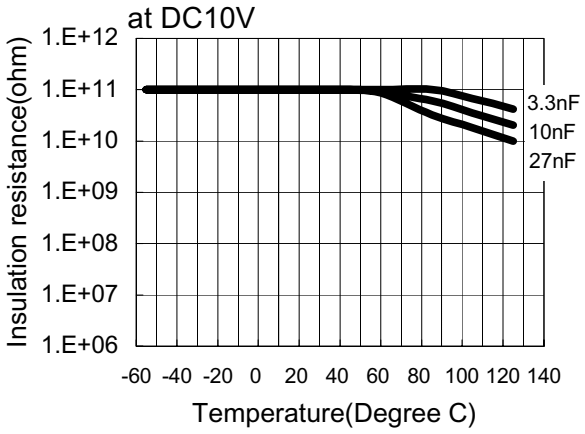


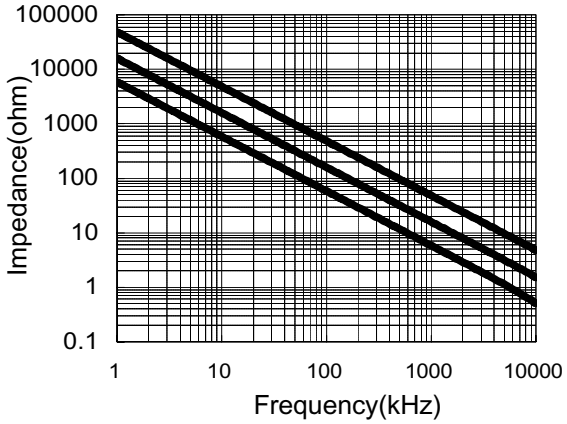
Frequency Characteristics







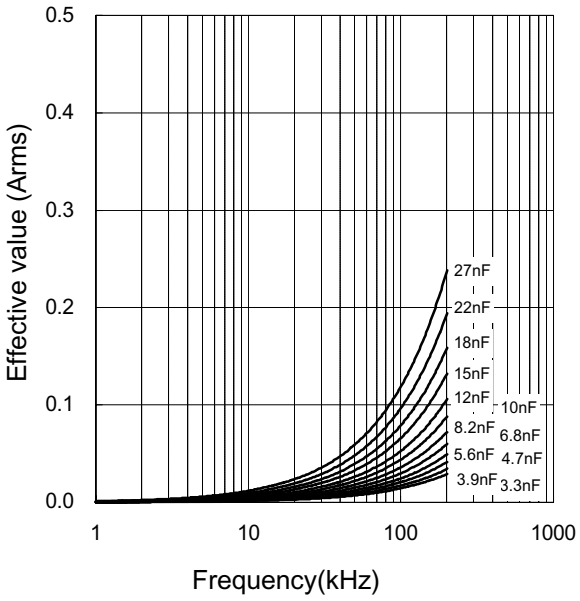




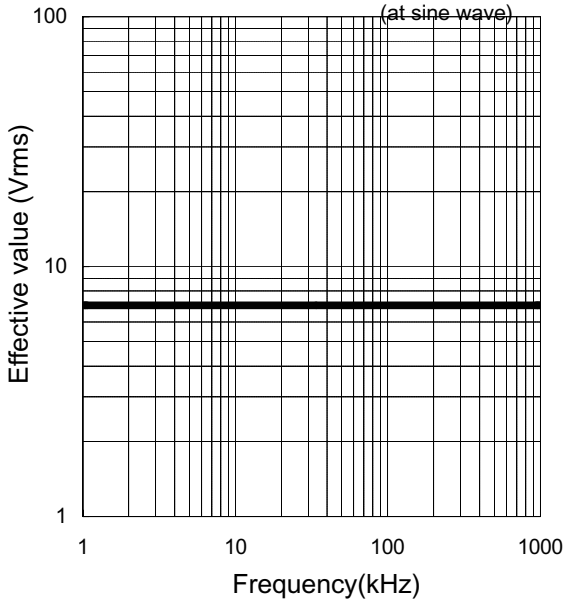
ECHU (X) Type DC10V series (Stacked Metallized Film)

Applicable Specifications

Permissible Current



Permissible Voltage

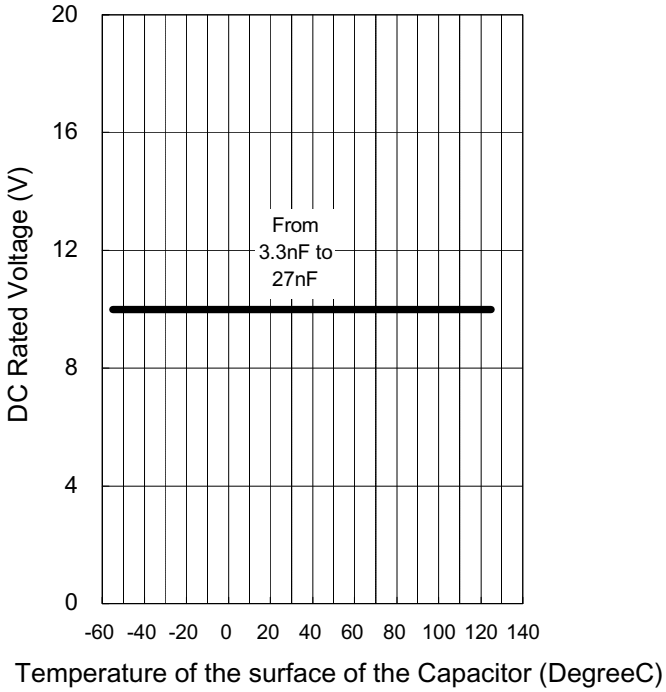


Pulse Handling Capability (dv/dt)

(Max 10000cycles)

Rating Voltage	Capacitance Value(uF)	code	dV/dt (V/us)	Current(0-P) (A)
DC 10V	0.0033	332	47	0.16
	0.0039	392	44	0.17
	0.0047	472	40	0.19
	0.0056	562	37	0.21
	0.0068	682	34	0.23
	0.0082	822	31	0.25
	0.01	103	28	0.28
	0.012	123	26	0.31
	0.015	153	24	0.36
	0.018	183	22	0.40
	0.022	223	20	0.44
	0.027	273	18	0.49

Voltage Derating by Temperature



* Please consult Panasonic if your condition exceeds the above

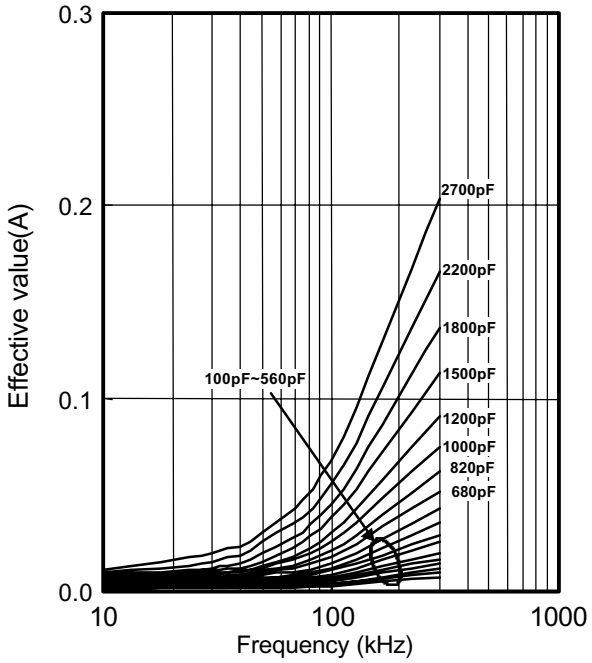
*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.

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

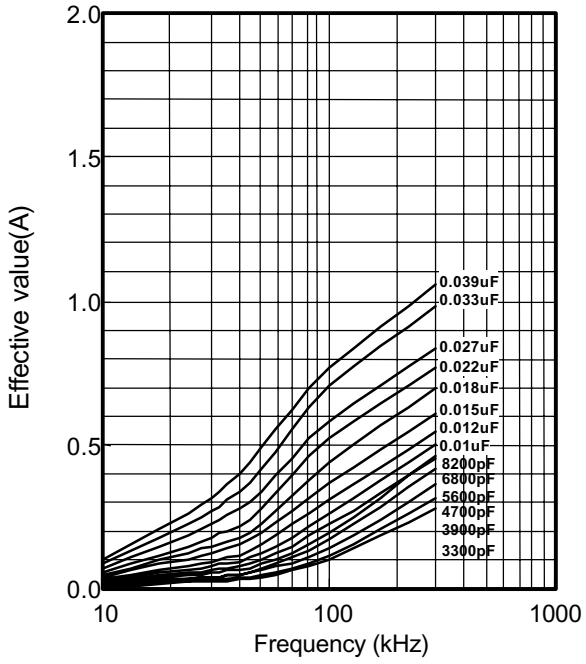
ECHU (X) Type DC50V series (Stacked Metallized Film)

Applicable Specifications

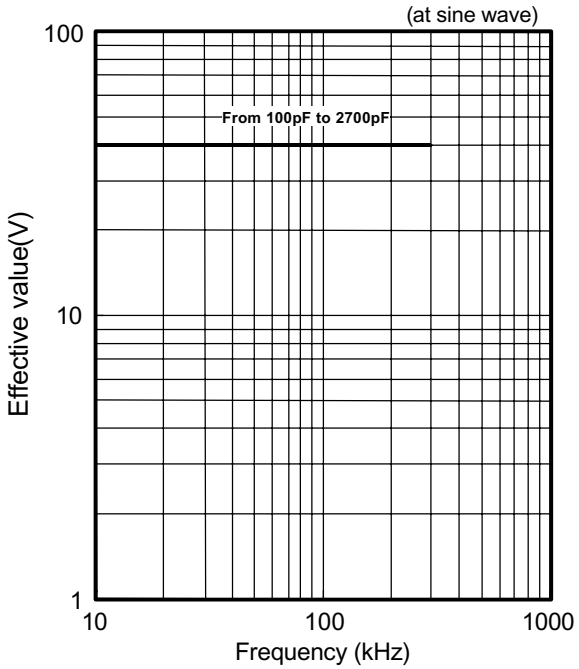
Permissible Current



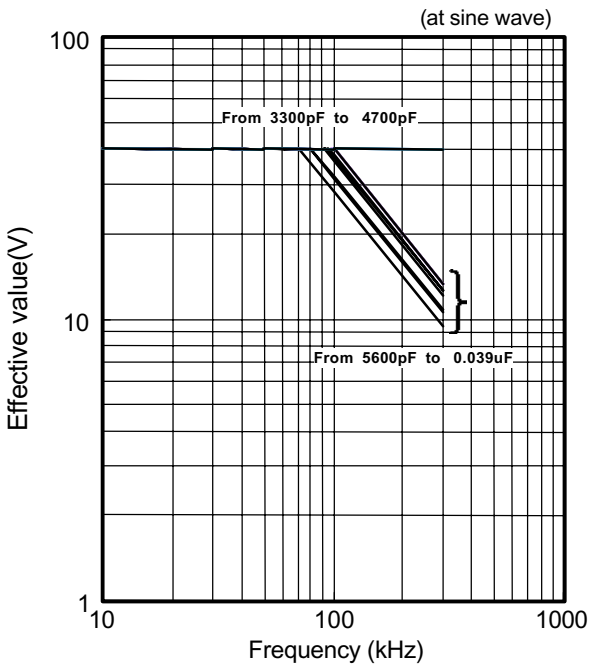
Permissible Current



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.

ECHU (X) Type DC50V series (Stacked Metallized Film)

Applicable Specifications

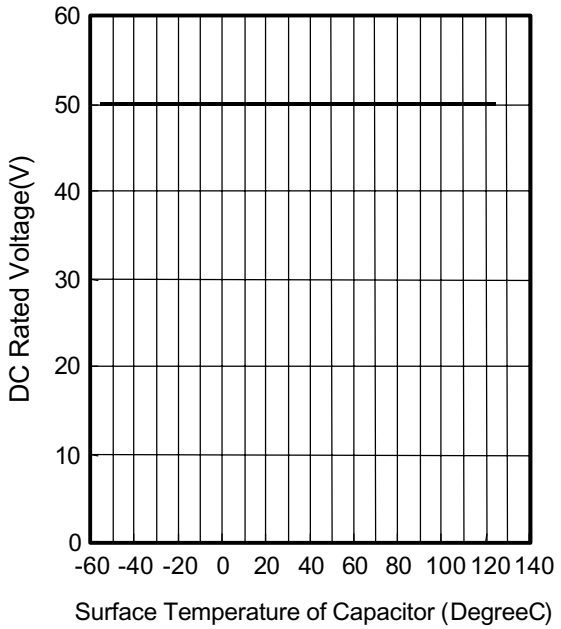
Pulse Handling Capability (dv/dt)
(Max 10000 cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$) (A)
DC 50V	0.00010	101	1100	0.11
	0.00012	121	1050	0.13
	0.00015	151	940	0.14
	0.00018	181	890	0.16
	0.00022	221	800	0.18
	0.00027	271	730	0.20
	0.00033	331	690	0.23
	0.00039	391	610	0.24
	0.00047	471	580	0.27
	0.00056	561	520	0.29
	0.00068	681	480	0.33
	0.00082	821	440	0.36
	0.0010	102	400	0.40
	0.0012	122	370	0.44
	0.0015	152	340	0.51
	0.0018	182	310	0.56
	0.0022	222	270	0.59
	0.0027	272	260	0.70

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

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current($_{0\text{-}P}$ (A)
DC 50V	0.0033	332	240	0.79)
	0.0039	392	220	0.86
	0.0047	472	200	0.94
	0.0056	562	190	1.06
	0.0068	682	170	1.16
	0.0082	822	160	1.31
	0.010	103	145	1.45
	0.012	123	135	1.62
	0.015	153	120	1.80
	0.018	183	110	1.98
	0.022	223	100	2.20
	0.027	273	94	2.54
	0.033	333	86	2.84
	0.039	393	78	3.04

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.