

Film Chip Capacitor

Type: **ECHU(X)**

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

New!!!
1608 / 0603 case size
 16VDC 100pF ~ 2700pF

■ **Features**

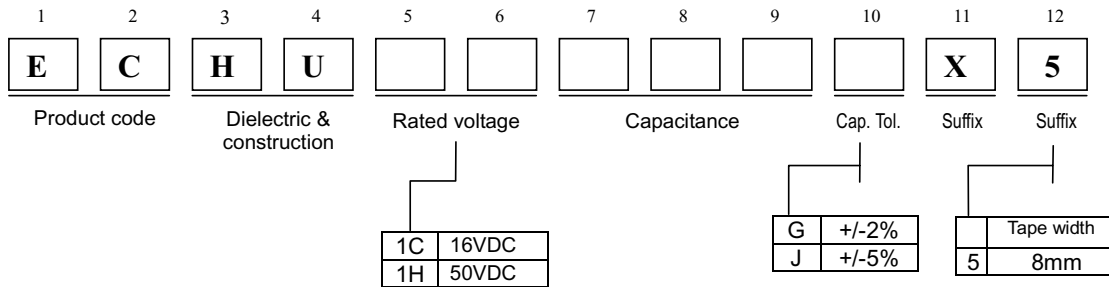
Small in size (minimum size 1.6×0.8mm)
 85 degree C,85%RH, W.V X 1.0 ,500 hours
 Applicable for reflow soldering



■ **Recommended Applications**

Time-constant
 Filtering
 Oscillation and resonance

■ **Explanation of Numbers**

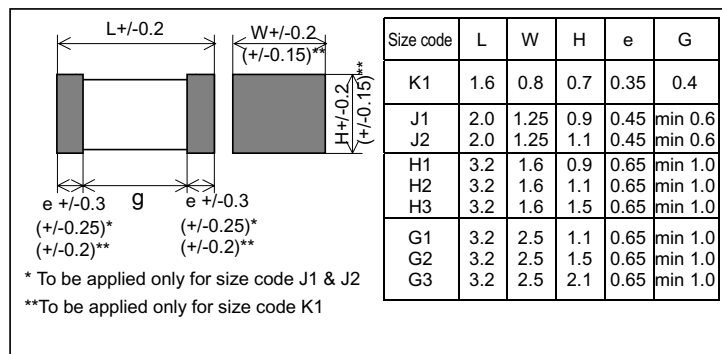
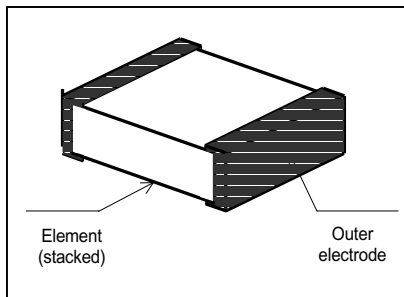


■ **Specification**

Category temp.range	-55 to +125 degree C
Rated voltage	16VDC, 50VDC
Capacitance range	0.0001 to 0.1uF (E12)
Capacitance tolerance	+/-2%(G), +/-5%(J)
Withstand voltage	Between Terminals : Rated volt. (VDC)×175% 1 to 5 sec
Dissipation factor	0.6% or less (20 degree C, 1kHz)
Insulation resistance	16VDC : 3000M Ohm or more (20 degree C, 10VDC, 60 sec) 50VDC : 3000M Ohm or more (20 degree C, 50VDC, 60 sec)
Soldering conditions	Reflow soldering : 260 degree C max., 30 sec max. at 230 degree C and above (Temp. at cap. surface)

Flow Soldering Type is available. Please check our web sight (<http://www.maco.panasonic.co.jp>)

■ **Construction**



■ **Rating, Dimensions & Quantity / Reel**
 # Capacitance tolerance : +/-2%(G), +/-5%(J)

Cap. (.uF)	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	NEW! 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	2000	
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		
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

■ **Example for Land Dimensions(mm)**

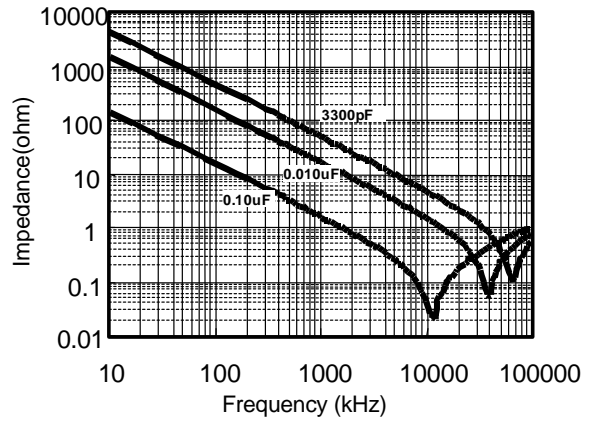
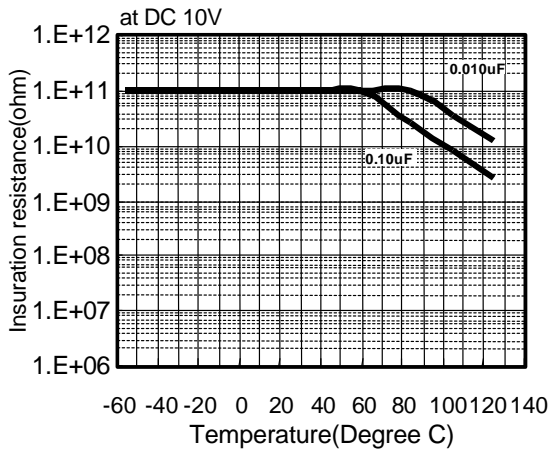
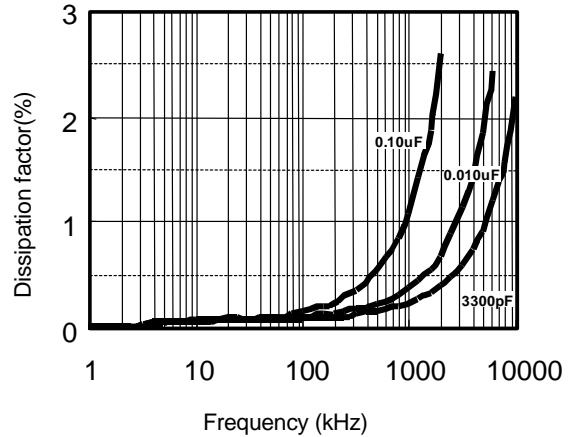
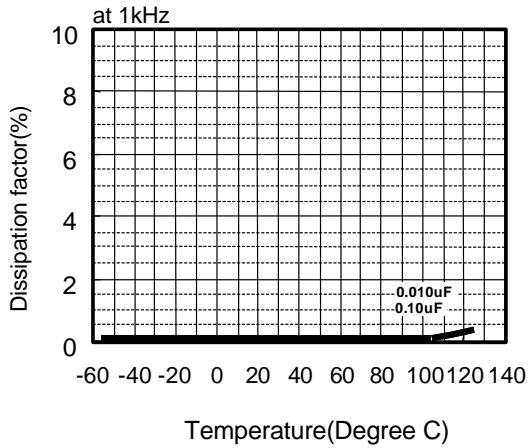
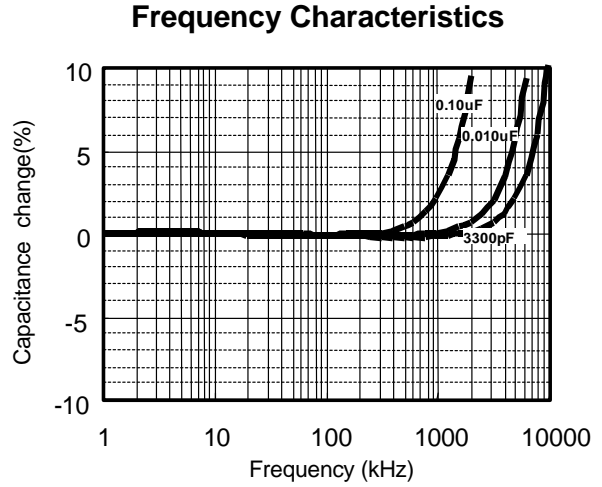
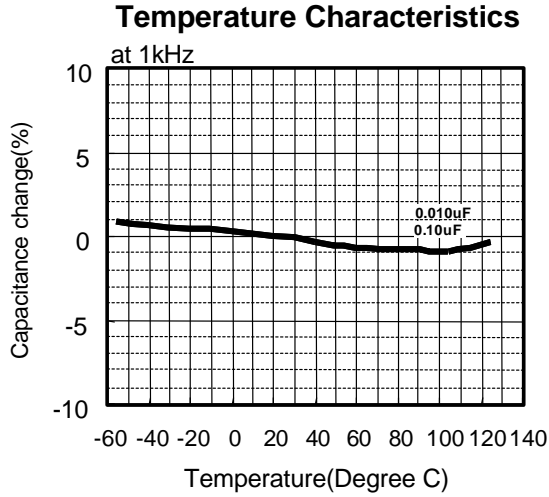
The diagram illustrates the pad layout for reflow soldering. It shows two rectangular pads. The distance between the inner edges of the pads is labeled 'A'. The distance between the outer edges of the pads is labeled 'B'. The height of the pads is labeled 'C'. The area between the pads is labeled 'Land'. One of the pads is labeled 'Electrode'.

Size code	Pad Layout for Reflow soldering		
	A	B	C
K1	0.6	2.0	0.7
J1,J2	0.8	2.4	1.1
H1,H2,H3	1.8	3.6	1.4
G1,G2,G3	1.8	3.6	2.3

Design and 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 contact us immediately for technical consultation.

ECHU (X) Type DC16V series (Stacked Metallized Film)

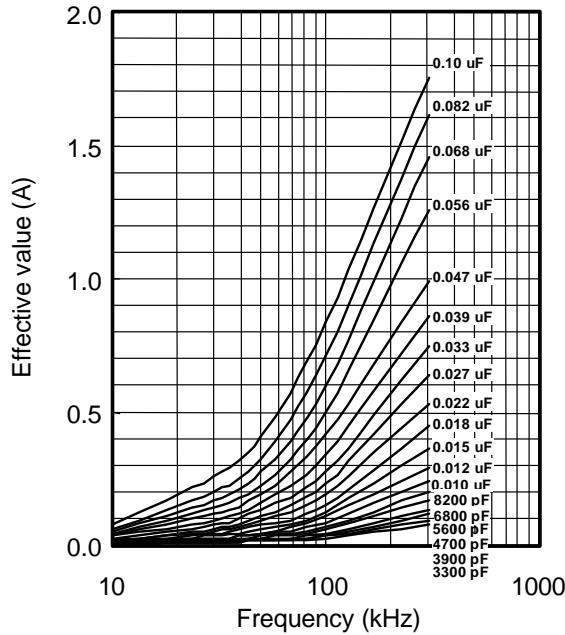
Electrical Characteristics < Typical Data >



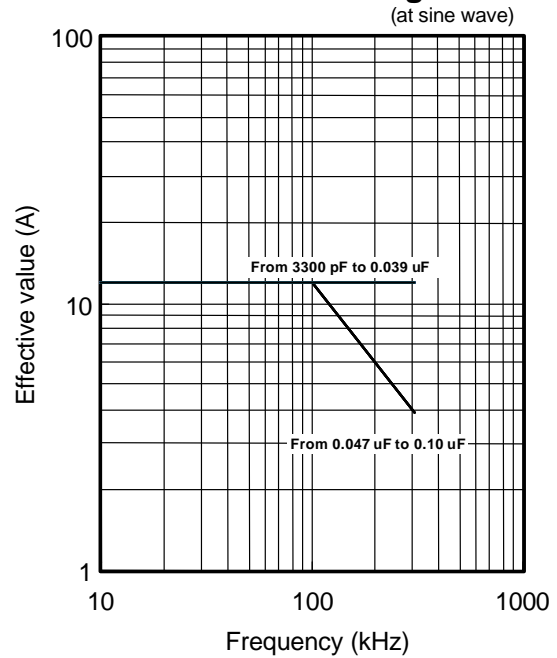
ECHU (X) Type DC16V series (Stacked Metallized Film)

Applicable Specifications

Permissible Current



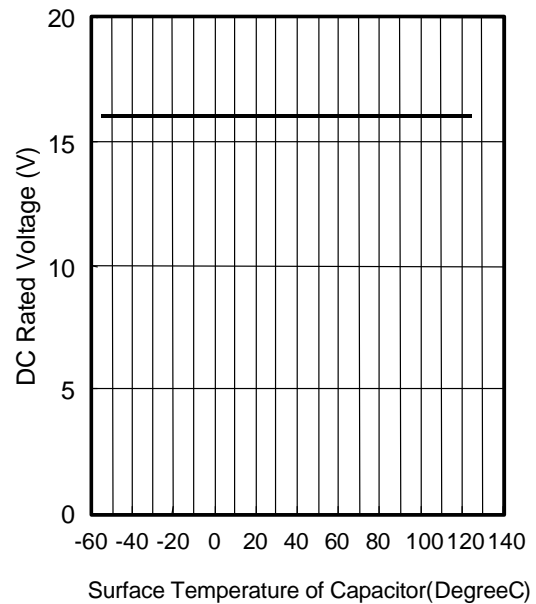
Permissible Voltage



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

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current _(o,p) (A)
DC 16V	0.0033	332	86	0.28
	0.0039	392	80	0.31
	0.0047	472	74	0.35
	0.0056	562	68	0.38
	0.0068	682	62	0.42
	0.0082	822	58	0.48
	0.010	103	52	0.52
	0.012	123	48	0.58
	0.015	153	43	0.65
	0.018	183	40	0.72
	0.022	223	37	0.81
	0.027	273	33	0.89
	0.033	333	31	1.02
	0.039	393	28	1.09
	0.047	473	26	1.22
	0.056	563	24	1.34
0.068	683	22	1.50	
0.082	823	20	1.64	
0.10	104	19	1.90	

Voltage Derating by Temperature



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

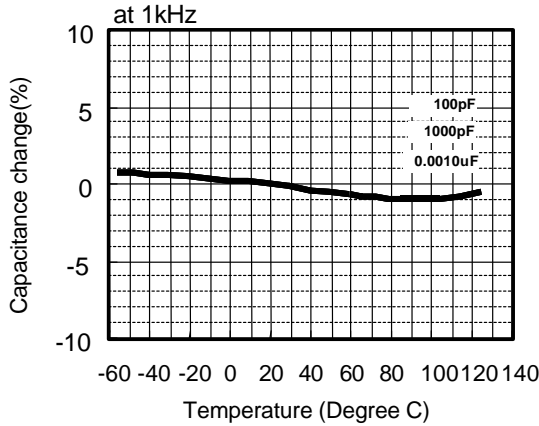
*Permissible voltage graph is the case of sine waveform. When you use this product, peak voltage must not exceed DC rated voltage.

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

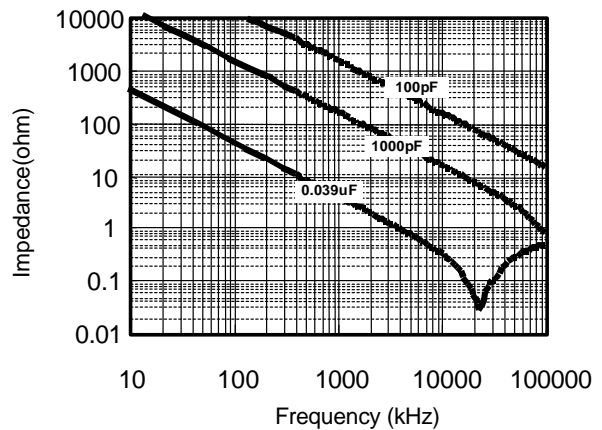
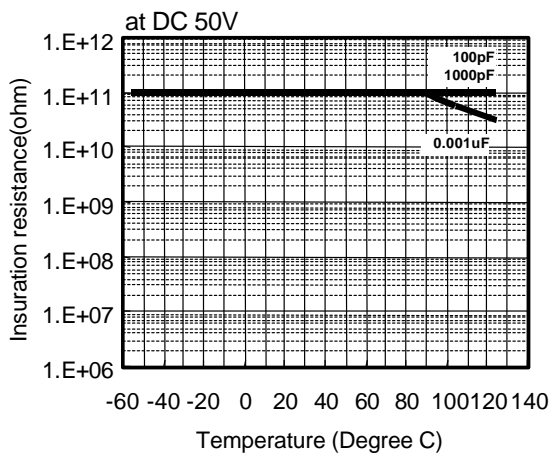
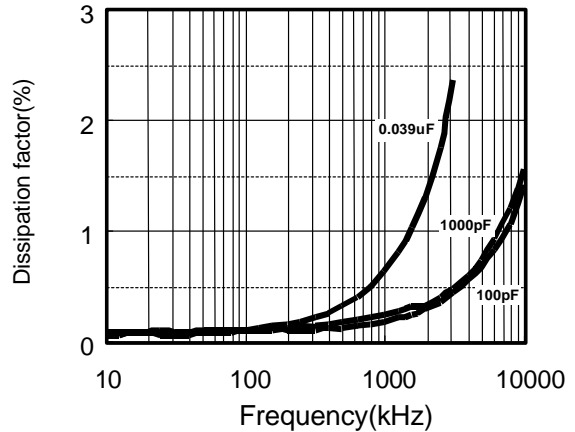
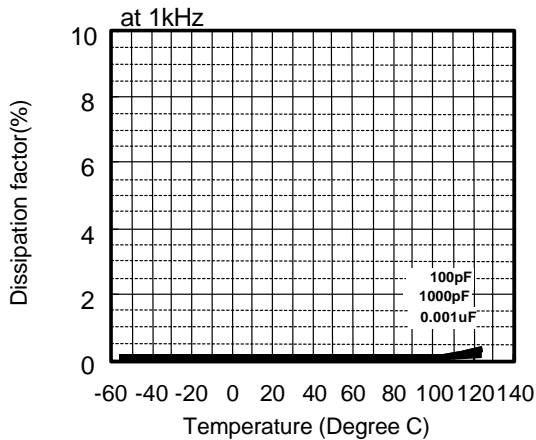
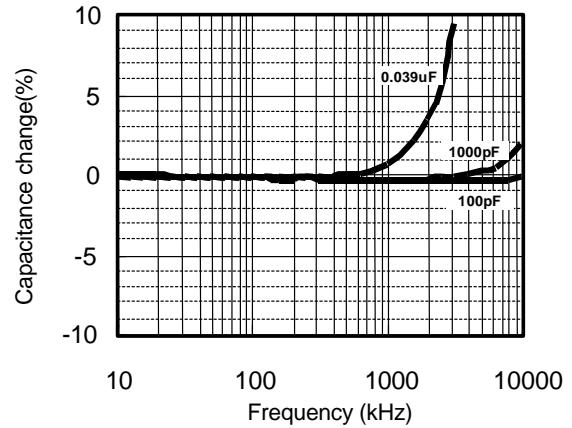
ECHU (X) Type DC50V series (Stacked Metallized Film)

Electrical Characteristics < Typical Data >

Temperature Characteristics



Frequency Characteristics

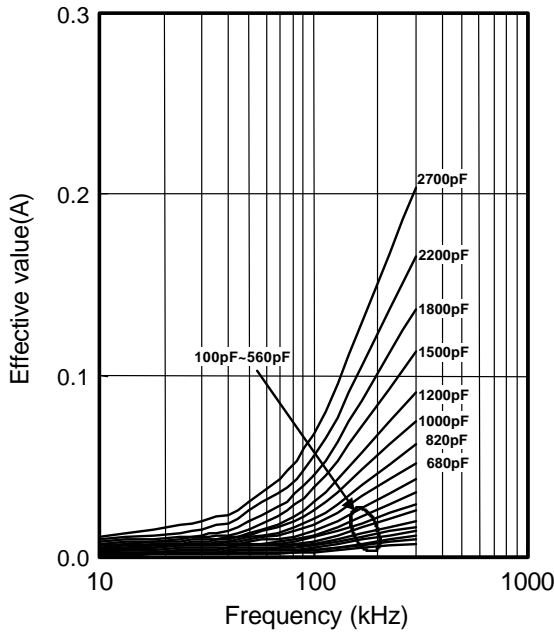


* Please consult Panasonic if your condition exceeds the above spec.

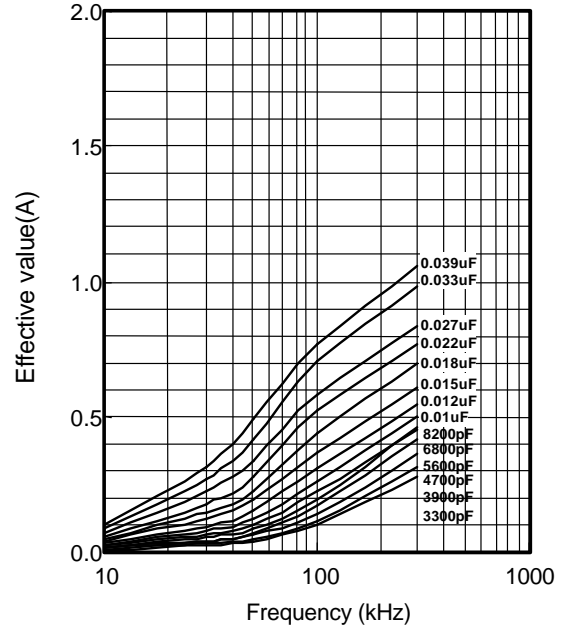
ECHU (X) Type DC50V series (Stacked Metallized Film)

Applicable Specifications

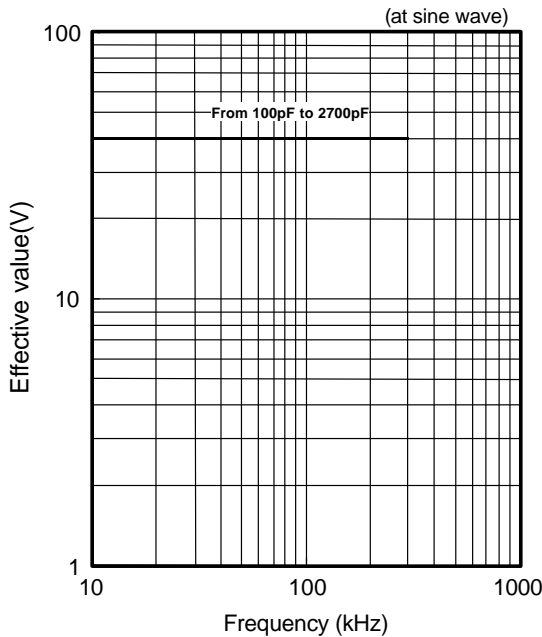
Permissible Current



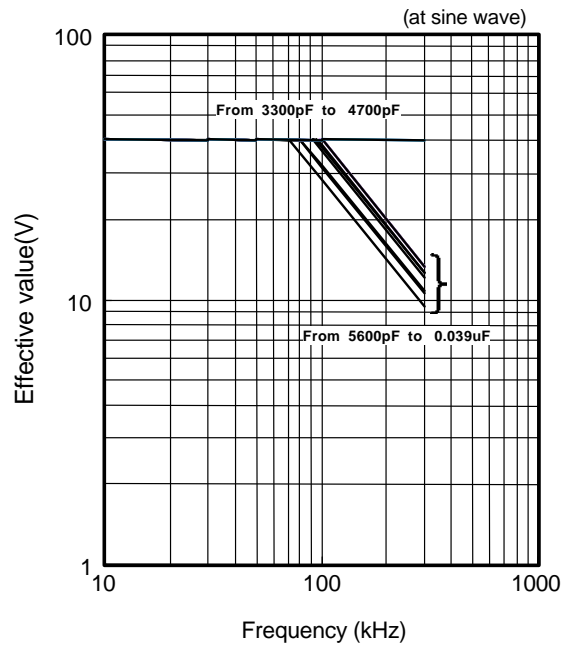
Permissible Current



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-p) value is calculated using nominal capacitance.



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

Applicable Specifications

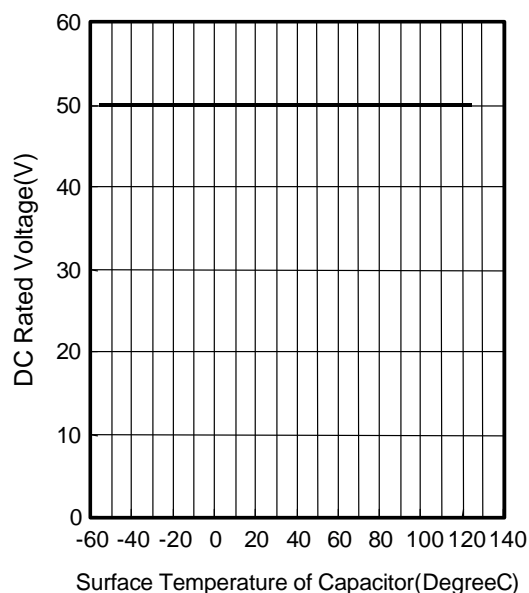
Pulse Handling Capability (dv/dt)
(Max 10000cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current _(o,p) (A)
DC 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 10000cycles)

Rating Voltage	Capacitance Value(uF)	Code	dv/dt(V/us)	Current _(o,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_(o,p) value is calculated using nominal capacitance.