

TS-UP Series 85°C, 3000 hours

- Compact size for general purpose and industrial applications
- 2 and 3 pin versions available
- 20mm lengths for low profile applications



Rated Working Voltage:	16 ~ 250 VDC						350 ~ 500 VDC			
Operating Temperature:	-40 ~ +85°C						-25 ~ +85°C			
Nominal Capacitance:	120 ~ 68000μF						33 ~ 820μF			
Capacitance Tolerance:	± 20%									
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:		16	25	35	50	63	80	100	160 ~ 500
	Max. D.F. (%):		50	40	35	30	25	20	20	15
	For capacitance values > 33000μF, add the value of: (rated cap. [μF] - 33000) 1000									
Leakage Current:	3√CV (μA) max. after 5 minutes; C = Capacitance in μF, V = WV									
Ripple Current Multipliers:	Frequency(Hz):		50	60	100~120	500	1k	10k	Ripple Current Ambient Temperature Factors**	
	16~100WV:		0.93	0.95	1.0	1.05	1.08	1.15	Temperature (°C): 85°C 70°C 60°C ≤45°C	
	160~450WV:		0.75	0.8	1.0	1.2	1.25	1.4	Multiplier: 1.0 1.3 1.4 1.5	
Endurance:	3000 hours* at +85°C with maximum specified ripple current (see page 4) *2000 hours for 20mm length sizes									

**Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System

E

C

O

S

P

Suffix

A

Standard Ratings

X

Extended CV Ratings

L

20mm Length Ratings

Series Code

Capacitance Code

Terminal Style

Prefix

Length

of Pins

ECOS

6.3mm

2

ECEC

4.0mm

2

ECE3

4.0mm

3

Voltage Code

1C

1E

1V

1H

1J

1K

2A

2C

2D

2E

2V

2T

2G

2S

2W

2H

16

25

35

50

63

80

100

160

200

250

350

385

400

420

450

500

Diameter

Diameter

Code

22

B

25

C

30

D

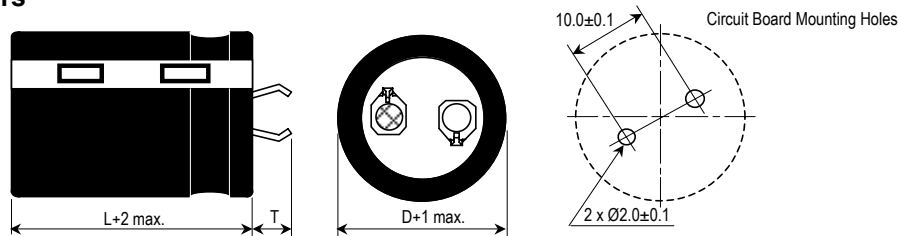
35

E

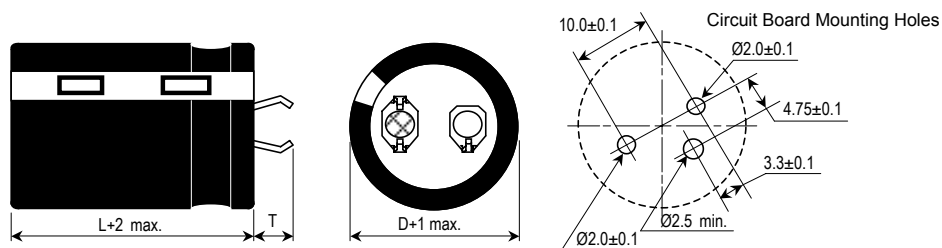
RoHS compliant PVC sleeve and top plate is standard. PET sleeve is available without top plate.

Dimensions in millimeters

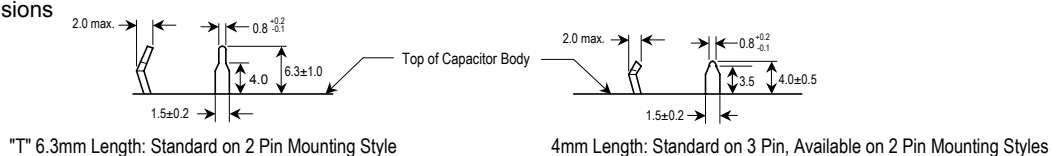
2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
16 VDC Working, 20 VDC Surge							
4700	22 x 20	1.60	1.84	0.159	0.135	ECOS1CP472BL	ECEC1CP472BL
	22 x 25	1.77	2.04	0.159	0.135	ECOS1CP472BA	ECEC1CP472BA
6800	22 x 25	2.57	2.96	0.110	0.093	ECOS1CP682BA	ECEC1CP682BA
	25 x 20	1.80	2.07	0.110	0.093	ECOS1CP682CL	ECEC1CP682CL
8200	22 x 25	3.10	3.57	0.091	0.077	ECOS1CP822BA	ECEC1CP822BA
10000	22 x 30	3.78	4.35	0.075	0.063	ECOS1CP103BA	ECEC1CP103BA
	25 x 25	3.78	4.35	0.075	0.063	ECOS1CP103CA	ECEC1CP103CA
	30 x 20	2.40	2.76	0.083	0.070	ECOS1CP103DL	ECEC1CP103DL
12000	22 x 30	4.52	5.20	0.062	0.053	ECOS1CP123BA	ECEC1CP123BA
	25 x 25	4.52	5.20	0.062	0.053	ECOS1CP123CA	ECEC1CP123CA
15000	22 x 35	5.26	6.05	0.053	0.045	ECOS1CP153BA	ECEC1CP153BA
	25 x 30	5.26	6.05	0.053	0.045	ECOS1CP153CA	ECEC1CP153CA
	35 x 20	3.20	3.68	0.055	0.047	ECOS1CP153EL	ECEC1CP153EL
18000	22 x 40	5.57	6.41	0.046	0.039	ECOS1CP183BA	ECEC1CP183BA
	25 x 30	5.57	6.41	0.046	0.039	ECOS1CP183CA	ECEC1CP183CA
22000	22 x 45	6.10	7.02	0.038	0.032	ECOS1CP223BA	ECEC1CP223BA
	25 x 35	6.10	7.02	0.038	0.032	ECOS1CP223CA	ECEC1CP223CA
	30 x 30	6.10	7.02	0.038	0.032	ECOS1CP223DA	ECEC1CP223DA
27000	25 x 45	6.31	7.26	0.031	0.026	ECOS1CP273CA	ECEC1CP273CA
	30 x 35	6.31	7.26	0.031	0.026	ECOS1CP273DA	ECEC1CP273DA
33000	25 x 50	6.84	7.87	0.025	0.021	ECOS1CP333CA	ECEC1CP333CA
	30 x 40	6.84	7.87	0.025	0.021	ECOS1CP333DA	ECEC1CP333DA
	35 x 30	6.84	7.87	0.025	0.021	ECOS1CP333EA	ECEC1CP333EA
39000	30 x 45	6.94	7.98	0.021	0.018	ECOS1CP393DA	ECEC1CP393DA
	35 x 35	6.94	7.98	0.021	0.018	ECOS1CP393EA	ECEC1CP393EA
47000	30 x 50	7.47	8.59	0.019	0.017	ECOS1CP473DA	ECEC1CP473DA
	35 x 40	7.47	8.59	0.021	0.019	ECOS1CP473EA	ECEC1CP473EA
56000	35 x 45	8.73	10.04	0.019	0.018	ECOS1CP563EA	ECEC1CP563EA
68000	35 x 50	9.05	10.41	0.018	0.017	ECOS1CP683EA	ECEC1CP683EA
25 VDC Working, 32 VDC Surge							
3300	22 x 20	1.60	1.84	0.176	0.141	ECOS1EP332BL	ECEC1EP332BL
	22 x 25	1.68	1.93	0.161	0.129	ECOS1EP332BA	ECEC1EP332BA
4700	22 x 25	2.39	2.75	0.113	0.090	ECOS1EP472BA	ECEC1EP472BA
	25 x 20	1.80	2.07	0.123	0.099	ECOS1EP472CL	ECEC1EP472CL
5600	22 x 25	2.86	3.29	0.095	0.076	ECOS1EP562BA	ECEC1EP562BA
6800	22 x 30	3.47	3.99	0.078	0.062	ECOS1EP682BA	ECEC1EP682BA
	25 x 25	3.47	3.99	0.078	0.062	ECOS1EP682CA	ECEC1EP682CA
	30 x 20	2.30	2.65	0.078	0.062	ECOS1EP682DL	ECEC1EP682DL
8200	22 x 30	3.57	4.11	0.065	0.052	ECOS1EP822BA	ECEC1EP822BA
	25 x 25	3.57	4.11	0.065	0.052	ECOS1EP822CA	ECEC1EP822CA
10000	22 x 35	3.78	4.35	0.058	0.046	ECOS1EP103BA	ECEC1EP103BA
	25 x 30	3.78	4.35	0.058	0.046	ECOS1EP103CA	ECEC1EP103CA
	30 x 25	3.78	4.35	0.058	0.046	ECOS1EP103DA	ECEC1EP103DA
	35 x 20	2.70	3.11	0.061	0.049	ECOS1EP103EL	ECEC1EP103EL
12000	22 x 40	4.10	4.72	0.048	0.039	ECOS1EP123BA	ECEC1EP123BA
	25 x 35	4.10	4.72	0.048	0.039	ECOS1EP123CA	ECEC1EP123CA
	30 x 30	4.10	4.72	0.048	0.039	ECOS1EP123DA	ECEC1EP123DA
15000	22 x 50	4.63	5.32	0.039	0.031	ECOS1EP153BA	ECEC1EP153BA
	25 x 40	4.63	5.32	0.039	0.031	ECOS1EP153CA	ECEC1EP153CA
	30 x 30	4.63	5.32	0.039	0.031	ECOS1EP153DA	ECEC1EP153DA
18000	25 x 45	5.47	6.29	0.035	0.028	ECOS1EP183CA	ECEC1EP183CA
	30 x 35	5.47	6.29	0.035	0.028	ECOS1EP183DA	ECEC1EP183DA
22000	25 x 50	6.10	7.02	0.029	0.023	ECOS1EP223CA	ECEC1EP223CA
	30 x 40	6.10	7.02	0.029	0.023	ECOS1EP223DA	ECEC1EP223DA
27000	30 x 45	6.21	7.14	0.023	0.019	ECOS1EP273DA	ECEC1EP273DA
	35 x 35	6.21	7.14	0.025	0.020	ECOS1EP273EA	ECEC1EP273EA
33000	30 x 50	6.84	7.87	0.020	0.017	ECOS1EP333DA	ECEC1EP333DA
	35 x 40	6.84	7.87	0.020	0.017	ECOS1EP333EA	ECEC1EP333EA
39000	35 x 45	7.36	8.46	0.019	0.017	ECOS1EP393EA	ECEC1EP393EA
47000	35 x 50	8.00	9.20	0.017	0.015	ECOS1EP473EA	ECEC1EP473EA
35 VDC Working, 44 VDC Surge							
2200	22 x 20	1.40	1.61	0.181	0.136	ECOS1VP222BL	ECEC1VP222BL
	22 x 25	1.52	1.75	0.166	0.124	ECOS1VP222BA	ECEC1VP222BA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
35 VDC Working, 44 VDC Surge (continued)							
3300	22 x 25	2.29	2.63	0.111	0.083	ECOS1VP332BA	ECEC1VP332BA
	25 x 20	1.70	1.96	0.121	0.090	ECOS1VP332CL	ECEC1VP332CL
3900	22 x 25	2.71	3.12	0.094	0.070	ECOS1VP392BA	ECEC1VP392BA
4700	22 x 30	3.26	3.75	0.078	0.058	ECOS1VP472BA	ECEC1VP472BA
	25 x 25	3.26	3.75	0.078	0.058	ECOS1VP472CA	ECEC1VP472CA
	30 x 20	2.00	2.30	0.088	0.066	ECOS1VP472DL	ECEC1VP472DL
5600	22 x 30	3.36	3.86	0.080	0.060	ECOS1VP562BA	ECEC1VP562BA
	25 x 25	3.36	3.86	0.080	0.060	ECOS1VP562CA	ECEC1VP562CA
6800	22 x 35	3.68	4.23	0.066	0.049	ECOS1VP682BA	ECEC1VP682BA
	25 x 30	3.68	4.23	0.066	0.049	ECOS1VP682CA	ECEC1VP682CA
	35 x 20	2.40	2.76	0.071	0.053	ECOS1VP682EL	ECEC1VP682EL
8200	22 x 40	4.00	4.60	0.057	0.042	ECOS1VP822BA	ECEC1VP822BA
	25 x 35	4.00	4.60	0.057	0.042	ECOS1VP822CA	ECEC1VP822CA
10000	22 x 45	4.42	5.08	0.050	0.037	ECOS1VP103BA	ECEC1VP103BA
	25 x 40	4.42	5.08	0.050	0.037	ECOS1VP103CA	ECEC1VP103CA
	30 x 30	4.42	5.08	0.050	0.037	ECOS1VP103DA	ECEC1VP103DA
	35 x 25	4.42	5.08	0.050	0.037	ECOS1VP103EA	ECEC1VP103EA
12000	25 x 45	5.05	5.81	0.044	0.033	ECOS1VP123CA	ECEC1VP123CA
	30 x 35	5.05	5.81	0.044	0.033	ECOS1VP123DA	ECEC1VP123DA
	35 x 30	5.05	5.81	0.044	0.033	ECOS1VP123EA	ECEC1VP123EA
15000	25 x 50	5.57	6.41	0.036	0.027	ECOS1VP153CA	ECEC1VP153CA
	30 x 40	5.57	6.41	0.036	0.027	ECOS1VP153DA	ECEC1VP153DA
	35 x 30	5.57	6.41	0.036	0.027	ECOS1VP153EA	ECEC1VP153EA
18000	30 x 45	5.68	6.53	0.030	0.023	ECOS1VP183DA	ECEC1VP183DA
	35 x 35	5.68	6.53	0.030	0.023	ECOS1VP183EA	ECEC1VP183EA
22000	30 x 50	6.10	7.02	0.026	0.020	ECOS1VP223DA	ECEC1VP223DA
	35 x 40	6.10	7.02	0.026	0.020	ECOS1VP223EA	ECEC1VP223EA
27000	35 x 45	6.84	7.87	0.021	0.017	ECOS1VP273EA	ECEC1VP273EA
33000	35 x 50	7.15	8.22	0.018	0.014	ECOS1VP333EA	ECEC1VP333EA
50 VDC Working, 63 VDC Surge							
1500	22 x 20	1.20	1.38	0.254	0.191	ECOS1HP152BL	ECEC1HP152BL
	22 x 25	1.24	1.43	0.221	0.166	ECOS1HP152BA	ECEC1HP152BA
2200	22 x 25	1.82	2.09	0.151	0.113	ECOS1HP222BA	ECEC1HP222BA
	25 x 20	1.40	1.61	0.173	0.130	ECOS1HP222CL	ECEC1HP222CL
2700	22 x 25	2.23	2.56	0.123	0.092	ECOS1HP272BA	ECEC1HP272BA
3300	22 x 30	2.73	3.14	0.100	0.075	ECOS1HP332BA	ECEC1HP332BA
	25 x 25	2.73	3.14	0.100	0.075	ECOS1HP332CA	ECEC1HP332CA
	30 x 20	1.70	1.96	0.116	0.087	ECOS1HP332DL	ECEC1HP332DL
3900	22 x 30	2.75	3.16	0.085	0.064	ECOS1HP392BA	ECEC1HP392BA
	25 x 25	2.75	3.16	0.085	0.064	ECOS1HP392CA	ECEC1HP392CA
4700	22 x 35	3.03	3.48	0.071	0.053	ECOS1HP472BA	ECEC1HP472BA
	25 x 30	3.03	3.48	0.071	0.053	ECOS1HP472CA	ECEC1HP472CA
	30 x 25	3.03	3.48	0.071	0.053	ECOS1HP472DA	ECEC1HP472DA
	35 x 20	2.10	2.42	0.081	0.061	ECOS1HP472EL	ECEC1HP472EL
5600	22 x 40	3.42	3.93	0.059	0.044	ECOS1HP562BA	ECEC1HP562BA
	25 x 35	3.42	3.93	0.059	0.044	ECOS1HP562CA	ECEC1HP562CA
	30 x 30	3.42	3.93	0.059	0.044	ECOS1HP562DA	ECEC1HP562DA
6800	22 x 50	3.85	4.43	0.049	0.037	ECOS1HP682BA	ECEC1HP682BA
	25 x 40	3.85	4.43	0.049	0.037	ECOS1HP682CA	ECEC1HP682CA
	30 x 30	3.85	4.43	0.049	0.037	ECOS1HP682DA	ECEC1HP682DA
8200	25 x 45	4.41	5.07	0.040	0.030	ECOS1HP822CA	ECEC1HP822CA
	30 x 35	4.41	5.07	0.040	0.030	ECOS1HP822DA	ECEC1HP822DA
10000	25 x 50	4.97	5.72	0.036	0.027	ECOS1HP103CA	ECEC1HP103CA
	30 x 40	4.97	5.72	0.036	0.027	ECOS1HP103DA	ECEC1HP103DA
	35 x 30	4.97	5.72	0.036	0.027	ECOS1HP103EA	ECEC1HP103EA
12000	30 x 45	5.58	6.42	0.032	0.024	ECOS1HP123DA	ECEC1HP123DA
	35 x 35	5.58	6.42	0.032	0.024	ECOS1HP123EA	ECEC1HP123EA
15000	30 x 50	6.44	7.41	0.028	0.021	ECOS1HP153DA	ECEC1HP153DA
	35 x 40	6.44	7.41	0.028	0.021	ECOS1HP153EA	ECEC1HP153EA
18000	35 x 45	6.94	7.98	0.023	0.018	ECOS1HP183EA	ECEC1HP183EA
22000	35 x 50	7.57	8.71	0.021	0.017	ECOS1HP223EA	ECEC1HP223EA
63 VDC Working, 79 VDC Surge							
1000	22 x 20	1.20	1.38	0.381	0.286	ECOS1JP102BL	ECEC1JP102BL

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
63 VDC Working, 79 VDC Surge (continued)							
1000	22 x 25	1.20	1.38	0.332	0.249	ECOS1JP102BA	ECEC1JP102BA
1500	22 x 25	1.72	1.98	0.221	0.166	ECOS1JP152BA	ECEC1JP152BA
	25 x 20	1.30	1.50	0.254	0.191	ECOS1JP152CL	ECEC1JP152CL
1800	22 x 25	2.06	2.37	0.184	0.138	ECOS1JP182BA	ECEC1JP182BA
2200	22 x 30	2.52	2.90	0.151	0.113	ECOS1JP222BA	ECEC1JP222BA
	25 x 25	2.52	2.90	0.151	0.113	ECOS1JP222CA	ECEC1JP222CA
	30 x 20	1.50	1.73	0.173	0.130	ECOS1JP222DL	ECEC1JP222DL
2700	22 x 35	3.73	4.29	0.123	0.092	ECOS1JP272BA	ECEC1JP272BA
	25 x 30	3.73	4.29	0.123	0.092	ECOS1JP272CA	ECEC1JP272CA
3300	22 x 40	4.10	4.72	0.105	0.079	ECOS1JP332BA	ECEC1JP332BA
	25 x 30	4.10	4.72	0.105	0.079	ECOS1JP332CA	ECEC1JP332CA
	30 x 25	4.10	4.72	0.105	0.079	ECOS1JP332DA	ECEC1JP332DA
	35 x 20	1.70	1.96	0.126	0.094	ECOS1JP332EL	ECEC1JP332EL
3900	22 x 45	4.44	5.11	0.098	0.073	ECOS1JP392BA	ECEC1JP392BA
	25 x 35	4.44	5.11	0.098	0.073	ECOS1JP392CA	ECEC1JP392CA
	30 x 30	4.44	5.11	0.098	0.073	ECOS1JP392DA	ECEC1JP392DA
4700	22 x 50	4.86	5.59	0.081	0.061	ECOS1JP472BA	ECEC1JP472BA
	25 x 40	4.86	5.59	0.081	0.061	ECOS1JP472CA	ECEC1JP472CA
	30 x 30	4.86	5.59	0.081	0.061	ECOS1JP472DA	ECEC1JP472DA
	35 x 25	4.86	5.59	0.081	0.061	ECOS1JP472EA	ECEC1JP472EA
5600	25 x 45	5.36	6.16	0.068	0.051	ECOS1JP562CA	ECEC1JP562CA
	30 x 35	5.36	6.16	0.068	0.051	ECOS1JP562DA	ECEC1JP562DA
	35 x 30	5.36	6.16	0.068	0.051	ECOS1JP562EA	ECEC1JP562EA
6800	25 x 50	5.84	6.72	0.061	0.046	ECOS1JP682CA	ECEC1JP682CA
	30 x 40	5.84	6.72	0.061	0.046	ECOS1JP682DA	ECEC1JP682DA
	35 x 30	5.84	6.72	0.061	0.046	ECOS1JP682EA	ECEC1JP682EA
8200	30 x 45	6.00	6.90	0.051	0.038	ECOS1JP822DA	ECEC1JP822DA
	35 x 35	6.00	6.90	0.051	0.038	ECOS1JP822EA	ECEC1JP822EA
10000	35 x 40	6.52	7.50	0.041	0.033	ECOS1JP103EA	ECEC1JP103EA
12000	35 x 50	7.15	8.22	0.035	0.028	ECOS1JP123EA	ECEC1JP123EA
80 VDC Working, 105 VDC Surge (continued)							
680	22 x 20	1.00	1.15	0.439	0.329	ECOS1KP681BL	ECEC1KP681BL
	22 x 25	1.02	1.17	0.390	0.293	ECOS1KP681BA	ECEC1KP681BA
1000	22 x 25	1.51	1.74	0.265	0.199	ECOS1KP102BA	ECEC1KP102BA
	25 x 20	1.20	1.38	0.298	0.224	ECOS1KP102CL	ECEC1KP102CL
1200	22 x 25	1.81	2.08	0.221	0.166	ECOS1KP122BA	ECEC1KP122BA
1500	22 x 30	2.26	2.60	0.177	0.133	ECOS1KP152BA	ECEC1KP152BA
	25 x 25	2.26	2.60	0.177	0.133	ECOS1KP152CA	ECEC1KP152CA
	30 x 20	1.40	1.61	0.199	0.149	ECOS1KP152DL	ECEC1KP152DL
1800	22 x 35	2.52	2.90	0.147	0.111	ECOS1KP182BA	ECEC1KP182BA
	25 x 30	2.52	2.90	0.147	0.111	ECOS1KP182CA	ECEC1KP182CA
2200	22 x 40	2.73	3.14	0.121	0.090	ECOS1KP222BA	ECEC1KP222BA
	25 x 30	2.73	3.14	0.121	0.090	ECOS1KP222CA	ECEC1KP222CA
	30 x 25	2.73	3.14	0.121	0.090	ECOS1KP222DA	ECEC1KP222DA
	35 x 20	1.70	1.96	0.136	0.102	ECOS1KP222EL	ECEC1KP222EL
2700	22 x 45	2.78	3.20	0.098	0.074	ECOS1KP272BA	ECEC1KP272BA
	25 x 35	2.78	3.20	0.098	0.074	ECOS1KP272CA	ECEC1KP272CA
	30 x 30	2.78	3.20	0.098	0.074	ECOS1KP272DA	ECEC1KP272DA
3300	22 x 50	3.21	3.69	0.085	0.064	ECOS1KP332BA	ECEC1KP332BA
	25 x 40	3.21	3.69	0.085	0.064	ECOS1KP332CA	ECEC1KP332CA
	30 x 30	3.21	3.69	0.085	0.064	ECOS1KP332DA	ECEC1KP332DA
3900	25 x 45	3.59	4.13	0.077	0.057	ECOS1KP392CA	ECEC1KP392CA
	30 x 35	3.59	4.13	0.077	0.057	ECOS1KP392DA	ECEC1KP392DA
4700	25 x 50	4.09	4.70	0.063	0.048	ECOS1KP472CA	ECEC1KP472CA
	30 x 40	4.09	4.70	0.063	0.048	ECOS1KP472DA	ECEC1KP472DA
5600	30 x 45	4.55	5.23	0.056	0.042	ECOS1KP562DA	ECEC1KP562DA
	35 x 35	4.55	5.23	0.056	0.042	ECOS1KP562EA	ECEC1KP562EA
6800	30 x 50	5.16	5.93	0.046	0.035	ECOS1KP682DA	ECEC1KP682DA
	35 x 40	5.16	5.93	0.046	0.035	ECOS1KP682EA	ECEC1KP682EA
8200	35 x 50	5.83	6.70	0.038	0.029	ECOS1KP822EA	ECEC1KP822EA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
100 VDC Working, 125 VDC Surge							
470	22 x 20	1.00	1.15	0.459	0.298	ECOS2AP471BL	ECEC2AP471BL
	22 x 25	1.11	1.28	0.459	0.298	ECOS2AP471BA	ECEC2AP471BA
560	22 x 25	1.32	1.52	0.385	0.250	ECOS2AP561BA	ECEC2AP561BA
680	22 x 25	1.61	1.85	0.317	0.206	ECOS2AP681BA	ECEC2AP681BA
	25 x 20	1.10	1.27	0.366	0.238	ECOS2AP681CL	ECEC2AP681CL
1000	22 x 30	1.96	2.25	0.216	0.140	ECOS2AP102BA	ECEC2AP102BA
	25 x 25	1.96	2.25	0.216	0.140	ECOS2AP102CA	ECEC2AP102CA
	30 x 20	1.20	1.38	0.249	0.162	ECOS2AP102DL	ECEC2AP102DL
1200	22 x 35	2.31	2.66	0.193	0.126	ECOS2AP122BA	ECEC2AP122BA
	25 x 30	2.31	2.66	0.180	0.117	ECOS2AP122CA	ECEC2AP122CA
1500	22 x 40	2.57	2.96	0.155	0.101	ECOS2AP152BA	ECEC2AP152BA
	25 x 30	2.57	2.96	0.155	0.101	ECOS2AP152CA	ECEC2AP152CA
	30 x 25	2.57	2.96	0.155	0.101	ECOS2AP152DA	ECEC2AP152DA
	35 x 20	1.50	1.73	0.177	0.115	ECOS2AP152EL	ECEC2AP152EL
1800	22 x 45	2.84	3.27	0.129	0.084	ECOS2AP182BA	ECEC2AP182BA
	25 x 35	2.84	3.27	0.138	0.090	ECOS2AP182CA	ECEC2AP182CA
	30 x 30	2.84	3.27	0.138	0.090	ECOS2AP182DA	ECEC2AP182DA
2200	22 x 50	3.14	3.61	0.121	0.078	ECOS2AP222BA	ECEC2AP222BA
	25 x 40	3.14	3.61	0.121	0.078	ECOS2AP222CA	ECEC2AP222CA
	30 x 30	3.14	3.61	0.121	0.078	ECOS2AP222DA	ECEC2AP222DA
	35 x 25	3.14	3.61	0.121	0.078	ECOS2AP222EA	ECEC2AP222EA
2700	25 x 45	3.71	4.27	0.104	0.068	ECOS2AP272CA	ECEC2AP272CA
	30 x 35	3.71	4.27	0.104	0.068	ECOS2AP272DA	ECEC2AP272DA
	35 x 30	3.71	4.27	0.104	0.068	ECOS2AP272EA	ECEC2AP272EA
3300	25 x 50	4.06	4.67	0.090	0.059	ECOS2AP332CA	ECEC2AP332CA
	30 x 40	4.06	4.67	0.090	0.059	ECOS2AP332DA	ECEC2AP332DA
3900	30 x 45	4.54	5.22	0.077	0.050	ECOS2AP392DA	ECEC2AP392DA
	35 x 35	4.54	5.22	0.081	0.052	ECOS2AP392EA	ECEC2AP392EA
4700	30 x 50	5.13	5.90	0.071	0.049	ECOS2AP472DA	ECEC2AP472DA
	35 x 40	5.13	5.90	0.071	0.049	ECOS2AP472EA	ECEC2AP472EA
5600	35 x 45	5.75	6.61	0.059	0.041	ECOS2AP562EA	ECEC2AP562EA
6800	35 x 50	6.60	7.59	0.049	0.037	ECOS2AP682EA	ECEC2AP682EA
160 VDC Working, 200 VDC Surge							
220	22 x 20	0.75	1.05	0.980	0.490	ECOS2CP221BL	ECEC2CP221BL
	22 x 25	0.91	1.27	0.829	0.414	ECOS2CP221BA	ECEC2CP221BA
270	22 x 25	1.19	1.67	0.675	0.338	ECOS2CP271BA	ECEC2CP271BA
	25 x 20	0.87	1.22	0.798	0.399	ECOS2CP271CL	ECEC2CP271CL
330	22 x 25	1.45	2.03	0.553	0.276	ECOS2CP331BA	ECEC2CP331BA
390	22 x 25	1.62	2.27	0.468	0.234	ECOS2CP391BX	ECEC2CP391BX
	25 x 25	1.62	2.27	0.468	0.234	ECOS2CP391CA	ECEC2CP391CA
	30 x 20	1.10	1.54	0.595	0.298	ECOS2CP391DL	ECEC2CP391DL
470	22 x 30	2.11	2.95	0.423	0.212	ECOS2CP471BA	ECEC2CP471BA
	25 x 25	2.11	2.95	0.423	0.212	ECOS2CP471CA	ECEC2CP471CA
560	22 x 30	2.25	3.15	0.355	0.178	ECOS2CP561BX	ECEC2CP561BX
	22 x 35	2.25	3.15	0.355	0.178	ECOS2CP561BA	ECEC2CP561BA
	25 x 25	2.25	3.15	0.355	0.178	ECOS2CP561CX	ECEC2CP561CX
	25 x 30	2.25	3.15	0.355	0.178	ECOS2CP561CA	ECEC2CP561CA
	35 x 20	1.30	1.82	0.414	0.207	ECOS2CP561EL	ECEC2CP561EL
680	22 x 35	2.50	3.50	0.293	0.146	ECOS2CP681BX	ECEC2CP681BX
	22 x 40	2.50	3.50	0.293	0.146	ECOS2CP681BA	ECEC2CP681BA
	25 x 30	2.50	3.50	0.293	0.146	ECOS2CP681CX	ECEC2CP681CX
	30 x 25	2.50	3.50	0.293	0.146	ECOS2CP681DA	ECEC2CP681DA
820	22 x 40	2.50	3.50	0.243	0.121	ECOS2CP821BX	ECEC2CP821BX
	22 x 45	2.75	3.85	0.263	0.131	ECOS2CP821BA	ECEC2CP821BA
	25 x 35	2.75	3.85	0.263	0.131	ECOS2CP821CA	ECEC2CP821CA
	30 x 25	2.75	3.85	0.263	0.131	ECOS2CP821DX	ECEC2CP821DX
	30 x 30	2.75	3.85	0.263	0.131	ECOS2CP821DA	ECEC2CP821DA
1000	22 x 45	3.00	4.20	0.216	0.108	ECOS2CP102BX	ECEC2CP102BX
	25 x 40	3.00	4.20	0.216	0.108	ECOS2CP102CX	ECEC2CP102CX
	25 x 45	3.00	4.20	0.232	0.128	ECOS2CP102CA	ECEC2CP102CA
	30 x 30	3.00	4.20	0.232	0.128	ECOS2CP102DX	ECEC2CP102DX
	30 x 35	3.00	4.20	0.232	0.128	ECOS2CP102DA	ECEC2CP102DA
	35 x 30	3.00	4.20	0.232	0.128	ECOS2CP102EA	ECEC2CP102EA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
160 VDC Working, 200 VDC Surge (continued)							
1200	25 x 50	3.25	4.55	0.207	0.114	ECOS2CP122CA	ECEC2CP122CA
	30 x 35	3.25	4.55	0.207	0.114	ECOS2CP122DA	ECEC2CP122DA
	35 x 30	3.25	4.55	0.207	0.114	ECOS2CP122EA	ECEC2CP122EA
1500	25 x 50	3.73	5.22	0.166	0.091	ECOS2CP152CX	ECEC2CP152CX
	30 x 45	3.73	5.22	0.166	0.091	ECOS2CP152DA	ECEC2CP152DA
	35 x 30	3.73	5.22	0.166	0.091	ECOS2CP152EX	ECEC2CP152EX
	35 x 35	3.73	5.22	0.166	0.091	ECOS2CP152EA	ECEC2CP152EA
1800	30 x 50	4.20	5.88	0.138	0.083	ECOS2CP182DA	ECEC2CP182DA
	35 x 35	4.20	5.88	0.138	0.083	ECOS2CP182EX	ECEC2CP182EX
2200	30 x 50	4.78	6.69	0.105	0.053	ECOS2CP222DX	ECEC2CP222DX
	35 x 40	4.78	6.69	0.113	0.073	ECOS2CP222EX	ECEC2CP222EX
	35 x 45	4.78	6.69	0.113	0.073	ECOS2CP222EA	ECEC2CP222EA
2700	35 x 50	5.45	7.63	0.092	0.060	ECOS2CP272EA	ECEC2CP272EA
200 VDC Working, 250 VDC Surge							
150	22 x 20	0.65	0.91	1.326	0.597	ECOS2DP151BL	ECEC2DP151BL
	22 x 25	0.71	0.99	1.216	0.547	ECOS2DP151BA	ECEC2DP151BA
220	22 x 25	1.04	1.46	0.829	0.373	ECOS2DP221BA	ECEC2DP221BA
	25 x 20	0.87	1.22	0.904	0.407	ECOS2DP221CL	ECEC2DP221CL
270	22 x 25	1.41	1.97	0.614	0.276	ECOS2DP271BA	ECEC2DP271BA
330	22 x 25	1.56	2.18	0.553	0.249	ECOS2DP331BX	ECEC2DP331BX
	30 x 20	1.00	1.40	0.603	0.271	ECOS2DP331DL	ECEC2DP331DL
390	22 x 30	1.68	2.35	0.468	0.210	ECOS2DP391BA	ECEC2DP391BA
	25 x 25	1.68	2.35	0.468	0.210	ECOS2DP391CA	ECEC2DP391CA
470	22 x 35	1.85	2.59	0.388	0.175	ECOS2DP471BA	ECEC2DP471BA
	25 x 30	1.85	2.59	0.388	0.175	ECOS2DP471CA	ECEC2DP471CA
	35 x 20	1.30	1.82	0.459	0.206	ECOS2DP471EL	ECEC2DP471EL
560	22 x 40	2.43	3.40	0.326	0.147	ECOS2DP561BA	ECEC2DP561BA
	25 x 30	2.43	3.40	0.326	0.147	ECOS2DP561CX	ECEC2DP561CX
	30 x 25	2.43	3.40	0.326	0.147	ECOS2DP561DA	ECEC2DP561DA
680	22 x 45	2.68	3.75	0.268	0.121	ECOS2DP681BA	ECEC2DP681BA
	25 x 35	2.68	3.75	0.268	0.121	ECOS2DP681CA	ECEC2DP681CA
	30 x 30	2.68	3.75	0.268	0.121	ECOS2DP681DA	ECEC2DP681DA
820	25 x 45	2.93	4.10	0.222	0.100	ECOS2DP821CA	ECEC2DP821CA
	30 x 30	2.93	4.10	0.222	0.100	ECOS2DP821DX	ECEC2DP821DX
	30 x 35	2.93	4.10	0.222	0.100	ECOS2DP821DA	ECEC2DP821DA
	35 x 25	2.93	4.10	0.222	0.100	ECOS2DP821EA	ECEC2DP821EA
1000	25 x 45	3.25	4.55	0.199	0.090	ECOS2DP102CX	ECEC2DP102CX
	25 x 50	3.25	4.55	0.199	0.090	ECOS2DP102CA	ECEC2DP102CA
	30 x 35	3.25	4.55	0.199	0.090	ECOS2DP102DX	ECEC2DP102DX
	30 x 40	3.25	4.55	0.199	0.090	ECOS2DP102DA	ECEC2DP102DA
	35 x 30	3.25	4.55	0.199	0.090	ECOS2DP102EA	ECEC2DP102EA
1200	30 x 40	3.50	4.90	0.166	0.075	ECOS2DP122DX	ECEC2DP122DX
	30 x 45	3.50	4.90	0.166	0.075	ECOS2DP122DA	ECEC2DP122DA
	35 x 30	3.50	4.90	0.166	0.075	ECOS2DP122EX	ECEC2DP122EX
	35 x 35	3.50	4.90	0.166	0.075	ECOS2DP122EA	ECEC2DP122EA
1500	30 x 45	3.87	5.42	0.144	0.072	ECOS2DP152DX	ECEC2DP152DX
	30 x 50	3.87	5.42	0.144	0.072	ECOS2DP152DA	ECEC2DP152DA
	35 x 35	3.87	5.42	0.144	0.072	ECOS2DP152EX	ECEC2DP152EX
	35 x 40	3.87	5.42	0.144	0.072	ECOS2DP152EA	ECEC2DP152EA
1800	30 x 50	4.32	6.05	0.120	0.060	ECOS2DP182DX	ECEC2DP182DX
	35 x 40	4.32	6.05	0.120	0.060	ECOS2DP182EX	ECEC2DP182EX
	35 x 45	4.32	6.05	0.120	0.060	ECOS2DP182EA	ECEC2DP182EA
2200	35 x 45	4.92	6.89	0.098	0.054	ECOS2DP222EX	ECEC2DP222EX
	35 x 50	4.92	6.89	0.098	0.054	ECOS2DP222EA	ECEC2DP222EA
250 VDC Working, 300 VDC Surge							
120	22 x 20	0.45	0.63	1.658	0.663	ECOS2EP121BL	ECEC2EP121BL
	22 x 25	0.71	0.99	1.520	0.608	ECOS2EP121BA	ECEC2EP121BA
150	22 x 25	0.89	1.25	1.216	0.486	ECOS2EP151BA	ECEC2EP151BA
	25 x 20	0.65	0.91	1.326	0.531	ECOS2EP151CL	ECEC2EP151CL
180	22 x 25	1.07	1.50	0.921	0.368	ECOS2EP181BA	ECEC2EP181BA
220	22 x 25	1.17	1.64	0.754	0.301	ECOS2EP221BX	ECEC2EP221BX
	30 x 20	0.87	1.22	0.829	0.332	ECOS2EP221DL	ECEC2EP221DL
270	22 x 30	1.31	1.83	0.614	0.246	ECOS2EP271BA	ECEC2EP271BA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
250 VDC Working, 300 VDC Surge (continued)							
270	25 x 25	1.31	1.83	0.614	0.246	ECOS2EP271CA	ECEC2EP271CA
330	22 x 35	1.75	2.45	0.553	0.221	ECOS2EP331BA	ECEC2EP331BA
	25 x 30	1.75	2.45	0.502	0.201	ECOS2EP331CA	ECEC2EP331CA
	35 x 20	1.10	1.54	0.553	0.221	ECOS2EP331EL	ECEC2EP331EL
		22 x 40	1.91	2.67	0.468	0.187	ECOS2EP391BA
390	25 x 30	1.91	2.67	0.468	0.187	ECOS2EP391CX	ECEC2EP391CX
	25 x 35	1.91	2.67	0.468	0.187	ECOS2EP391CA	ECEC2EP391CA
	30 x 25	1.91	2.67	0.425	0.170	ECOS2EP391DA	ECEC2EP391DA
		22 x 45	2.11	2.95	0.388	0.155	ECOS2EP471BA
470	25 x 35	2.11	2.95	0.388	0.155	ECOS2EP471CX	ECEC2EP471CX
	25 x 40	2.11	2.95	0.388	0.155	ECOS2EP471CA	ECEC2EP471CA
	30 x 25	2.11	2.95	0.353	0.141	ECOS2EP471DX	ECEC2EP471DX
	30 x 30	2.11	2.95	0.388	0.155	ECOS2EP471DA	ECEC2EP471DA
		25 x 40	2.25	3.15	0.326	0.130	ECOS2EP561CX
560	25 x 45	2.25	3.15	0.326	0.130	ECOS2EP561CA	ECEC2EP561CA
	30 x 30	2.25	3.15	0.326	0.130	ECOS2EP561DX	ECEC2EP561DX
	30 x 35	2.25	3.15	0.326	0.130	ECOS2EP561DA	ECEC2EP561DA
	35 x 25	2.25	3.15	0.326	0.130	ECOS2EP561EA	ECEC2EP561EA
		25 x 45	2.50	3.50	0.268	0.107	ECOS2EP681CX
680	25 x 50	2.50	3.50	0.268	0.107	ECOS2EP681CA	ECEC2EP681CA
	30 x 35	2.50	3.50	0.268	0.107	ECOS2EP681DX	ECEC2EP681DX
	30 x 40	2.50	3.50	0.268	0.107	ECOS2EP681DA	ECEC2EP681DA
	35 x 30	2.50	3.50	0.268	0.107	ECOS2EP681EA	ECEC2EP681EA
		30 x 40	2.50	3.50	0.222	0.089	ECOS2EP821DX
820	30 x 45	2.77	3.88	0.222	0.089	ECOS2EP821DA	ECEC2EP821DA
	35 x 30	2.77	3.88	0.222	0.089	ECOS2EP821EX	ECEC2EP821EX
	35 x 35	2.77	3.88	0.243	0.109	ECOS2EP821EA	ECEC2EP821EA
		30 x 45	3.32	4.65	0.182	0.073	ECOS2EP102DX
1000	30 x 50	3.32	4.65	0.199	0.090	ECOS2EP102DA	ECEC2EP102DA
	35 x 35	3.32	4.65	0.199	0.090	ECOS2EP102EX	ECEC2EP102EX
	35 x 40	3.32	4.65	0.199	0.099	ECOS2EP102EA	ECEC2EP102EA
		35 x 40	3.53	4.94	0.166	0.083	ECOS2EP122EX
1200	35 x 45	3.53	4.94	0.166	0.083	ECOS2EP122EA	ECEC2EP122EA
	1500	35 x 50	4.04	5.66	0.133	0.066	ECOS2EP152EA
350 VDC Working, 400 VDC Surge							
82	22 x 25	0.83	1.16	2.022	0.708	ECOS2VP820BA	ECEC2VP820BA
100	22 x 30	0.91	1.27	1.658	0.580	ECOS2VP101BA	ECEC2VP101BA
120	22 x 30	1.00	1.40	1.382	0.484	ECOS2VP121BA	ECEC2VP121BA
	25 x 25	1.00	1.40	1.382	0.484	ECOS2VP121CA	ECEC2VP121CA
150	22 x 35	1.12	1.57	1.105	0.387	ECOS2VP151BA	ECEC2VP151BA
	25 x 25	1.12	1.57	1.105	0.387	ECOS2VP151CX	ECEC2VP151CX
	25 x 30	1.12	1.57	1.105	0.387	ECOS2VP151CA	ECEC2VP151CA
	30 x 25	1.12	1.57	1.105	0.387	ECOS2VP151DA	ECEC2VP151DA
180	22 x 40	1.22	1.71	0.921	0.322	ECOS2VP181BA	ECEC2VP181BA
	25 x 30	1.22	1.71	0.921	0.322	ECOS2VP181CX	ECEC2VP181CX
	25 x 35	1.22	1.71	0.921	0.322	ECOS2VP181CA	ECEC2VP181CA
	30 x 25	1.22	1.71	0.921	0.322	ECOS2VP181DA	ECEC2VP181DA
220	22 x 45	1.44	2.02	0.754	0.264	ECOS2VP221BA	ECEC2VP221BA
	25 x 35	1.44	2.02	0.754	0.264	ECOS2VP221CX	ECEC2VP221CX
	25 x 40	1.44	2.02	0.754	0.264	ECOS2VP221CA	ECEC2VP221CA
	30 x 25	1.44	2.02	0.754	0.264	ECOS2VP221DX	ECEC2VP221DX
	30 x 30	1.44	2.02	0.754	0.264	ECOS2VP221DA	ECEC2VP221DA
	35 x 25	1.44	2.02	0.754	0.264	ECOS2VP221EA	ECEC2VP221EA
270	25 x 40	1.66	2.32	0.614	0.215	ECOS2VP271CX	ECEC2VP271CX
	30 x 30	1.66	2.32	0.614	0.215	ECOS2VP271DX	ECEC2VP271DX
	30 x 35	1.66	2.32	0.614	0.215	ECOS2VP271DA	ECEC2VP271DA
	35 x 25	1.66	2.32	0.614	0.215	ECOS2VP271EX	ECEC2VP271EX
	35 x 30	1.66	2.32	0.614	0.215	ECOS2VP271EA	ECEC2VP271EA
330	25 x 50	1.88	2.63	0.502	0.176	ECOS2VP331CA	ECEC2VP331CA
	30 x 35	1.88	2.63	0.502	0.176	ECOS2VP331DX	ECEC2VP331DX
	30 x 40	1.88	2.63	0.502	0.176	ECOS2VP331DA	ECEC2VP331DA
	35 x 30	1.88	2.63	0.502	0.176	ECOS2VP331EA	ECEC2VP331EA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
350 VDC Working, 400 VDC Surge (continued)							
390	25 x 50	2.06	2.88	0.425	0.149	ECOS2VP391CX	ECEC2VP391CX
	30 x 40	2.06	2.88	0.425	0.149	ECOS2VP391DX	ECEC2VP391DX
	30 x 45	2.06	2.88	0.468	0.164	ECOS2VP391DA	ECEC2VP391DA
	35 x 30	2.06	2.88	0.425	0.149	ECOS2VP391EX	ECEC2VP391EX
	35 x 35	2.06	2.88	0.425	0.149	ECOS2VP391EA	ECEC2VP391EA
470	30 x 50	2.40	3.36	0.388	0.136	ECOS2VP471DA	ECEC2VP471DA
	35 x 35	2.40	3.36	0.353	0.123	ECOS2VP471EX	ECEC2VP471EX
	35 x 40	2.40	3.36	0.353	0.123	ECOS2VP471EA	ECEC2VP471EA
560	30 x 50	2.60	3.64	0.326	0.114	ECOS2VP561DX	ECEC2VP561DX
	35 x 40	2.60	3.64	0.296	0.104	ECOS2VP561EX	ECEC2VP561EX
	35 x 45	2.60	3.64	0.296	0.104	ECOS2VP561EA	ECEC2VP561EA
680	35 x 45	2.96	4.14	0.293	0.117	ECOS2VP681EX	ECEC2VP681EX
	35 x 50	2.96	4.14	0.293	0.117	ECOS2VP681EA	ECEC2VP681EA
820	35 x 50	3.55	4.97	0.243	0.097	ECOS2VP821EX	ECEC2VP821EX
385 VDC Working, 435 VDC Surge							
47	22 x 20	0.25	0.35	4.233	1.481	ECOS2TP470BL	ECEC2TP470BL
68	22 x 25	0.76	1.06	2.438	0.853	ECOS2TP680BA	ECEC2TP680BA
	25 x 20	0.35	0.49	2.926	1.024	ECOS2TP680CL	ECEC2TP680CL
82	22 x 25	0.83	1.16	2.022	0.708	ECOS2TP820BA	ECEC2TP820BA
100	22 x 30	0.92	1.29	1.658	0.580	ECOS2TP101BA	ECEC2TP101BA
	25 x 25	0.92	1.29	1.658	0.580	ECOS2TP101CA	ECEC2TP101CA
	30 x 20	0.47	0.66	1.989	0.696	ECOS2TP101DL	ECEC2TP101DL
120	22 x 35	1.02	1.43	1.382	0.553	ECOS2TP121BA	ECEC2TP121BA
	25 x 25	1.02	1.43	1.382	0.553	ECOS2TP121CX	ECEC2TP121CX
	25 x 30	1.02	1.43	1.382	0.553	ECOS2TP121CA	ECEC2TP121CA
150	22 x 35	1.16	1.62	1.105	0.442	ECOS2TP151BX	ECEC2TP151BX
	22 x 40	1.16	1.62	1.105	0.442	ECOS2TP151BA	ECEC2TP151BA
	25 x 30	1.16	1.62	1.105	0.442	ECOS2TP151CA	ECEC2TP151CA
	30 x 25	1.16	1.62	1.105	0.442	ECOS2TP151DA	ECEC2TP151DA
	35 x 20	0.60	0.84	1.326	0.531	ECOS2TP151EL	ECEC2TP151EL
180	22 x 40	1.44	2.02	0.921	0.368	ECOS2TP181BX	ECEC2TP181BX
	22 x 45	1.44	2.02	0.921	0.368	ECOS2TP181BA	ECEC2TP181BA
	25 x 30	1.44	2.02	0.921	0.368	ECOS2TP181CX	ECEC2TP181CX
	25 x 35	1.44	2.02	0.921	0.368	ECOS2TP181CA	ECEC2TP181CA
	30 x 25	1.44	2.02	0.921	0.368	ECOS2TP181DX	ECEC2TP181DX
	30 x 30	1.44	2.02	0.921	0.368	ECOS2TP181DA	ECEC2TP181DA
220	22 x 45	1.49	2.09	0.829	0.373	ECOS2TP221BX	ECEC2TP221BX
	22 x 50	1.49	2.09	0.829	0.373	ECOS2TP221BA	ECEC2TP221BA
	25 x 40	1.49	2.09	0.829	0.373	ECOS2TP221CA	ECEC2TP221CA
	30 x 30	1.49	2.09	0.829	0.373	ECOS2TP221DA	ECEC2TP221DA
270	25 x 45	1.67	2.34	0.675	0.304	ECOS2TP271CA	ECEC2TP271CA
	30 x 35	1.67	2.34	0.675	0.304	ECOS2TP271DA	ECEC2TP271DA
	35 x 25	1.67	2.34	0.675	0.304	ECOS2TP271EX	ECEC2TP271EX
	35 x 30	1.67	2.34	0.675	0.304	ECOS2TP271EA	ECEC2TP271EA
330	25 x 50	1.90	2.66	0.553	0.249	ECOS2TP331CX	ECEC2TP331CX
	30 x 40	1.90	2.66	0.553	0.249	ECOS2TP331DA	ECEC2TP331DA
	35 x 30	1.90	2.66	0.553	0.249	ECOS2TP331EX	ECEC2TP331EX
	35 x 35	1.90	2.66	0.553	0.249	ECOS2TP331EA	ECEC2TP331EA
390	30 x 45	2.13	2.98	0.468	0.210	ECOS2TP391DA	ECEC2TP391DA
	35 x 35	2.13	2.98	0.468	0.210	ECOS2TP391EX	ECEC2TP391EX
	35 x 40	2.13	2.98	0.468	0.210	ECOS2TP391EA	ECEC2TP391EA
470	30 x 50	2.39	3.35	0.388	0.175	ECOS2TP471DA	ECEC2TP471DA
	35 x 40	2.39	3.35	0.388	0.175	ECOS2TP471EX	ECEC2TP471EX
	35 x 45	2.39	3.35	0.388	0.175	ECOS2TP471EA	ECEC2TP471EA
560	35 x 45	2.69	3.77	0.326	0.147	ECOS2TP561EX	ECEC2TP561EX
	35 x 50	2.69	3.77	0.326	0.147	ECOS2TP561EA	ECEC2TP561EA
680	35 x 50	3.00	4.20	0.268	0.121	ECOS2TP681EX	ECEC2TP681EX
400 VDC Working, 450 VDC Surge							
47	22 x 20	0.25	0.35	3.527	1.235	ECOS2GP470BL	ECEC2GP470BL
	22 x 25	0.47	0.66	3.527	1.235	ECOS2GP470BA	ECEC2GP470BA
68	22 x 25	0.69	0.97	2.438	0.853	ECOS2GP680BA	ECEC2GP680BA
	25 x 20	0.35	0.49	2.926	1.024	ECOS2GP680CL	ECEC2GP680CL
82	22 x 25	0.83	1.16	2.022	0.708	ECOS2GP820BA	ECEC2GP820BA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
400 VDC Working, 450 VDC Surge (continued)							
100	22 x 30	0.92	1.29	1.658	0.580	ECOS2GP101BA	ECEC2GP101BA
	25 x 25	0.92	1.29	1.658	0.580	ECOS2GP101CA	ECEC2GP101CA
	30 x 20	0.47	0.66	1.989	0.696	ECOS2GP101DL	ECEC2GP101DL
120	22 x 35	1.02	1.43	1.382	0.484	ECOS2GP121BA	ECEC2GP121BA
	25 x 25	1.02	1.43	1.382	0.484	ECOS2GP121CX	ECEC2GP121CX
150	22 x 40	1.16	1.62	1.105	0.387	ECOS2GP151BA	ECEC2GP151BA
	25 x 30	1.16	1.62	1.105	0.387	ECOS2GP151CA	ECEC2GP151CA
	30 x 25	1.16	1.62	1.105	0.387	ECOS2GP151DA	ECEC2GP151DA
	35 x 20	0.60	0.84	1.326	0.464	ECOS2GP151EL	ECEC2GP151EL
180	22 x 45	1.44	2.02	0.921	0.322	ECOS2GP181BA	ECEC2GP181BA
	25 x 30	1.44	2.02	0.921	0.322	ECOS2GP181CX	ECEC2GP181CX
	25 x 35	1.44	2.02	0.921	0.322	ECOS2GP181CA	ECEC2GP181CA
220	22 x 50	1.49	2.09	0.754	0.264	ECOS2GP221BA	ECEC2GP221BA
	25 x 40	1.49	2.09	0.754	0.264	ECOS2GP221CA	ECEC2GP221CA
	30 x 30	1.49	2.09	0.754	0.264	ECOS2GP221DA	ECEC2GP221DA
270	25 x 45	1.67	2.34	0.675	0.236	ECOS2GP271CA	ECEC2GP271CA
	30 x 35	1.67	2.34	0.675	0.236	ECOS2GP271DA	ECEC2GP271DA
	35 x 30	1.67	2.34	0.675	0.236	ECOS2GP271EA	ECEC2GP271EA
330	30 x 40	1.90	2.66	0.553	0.193	ECOS2GP331DA	ECEC2GP331DA
	35 x 30	1.90	2.66	0.553	0.193	ECOS2GP331EX	ECEC2GP331EX
	35 x 35	1.90	2.66	0.553	0.193	ECOS2GP331EA	ECEC2GP331EA
390	30 x 45	2.13	2.98	0.468	0.164	ECOS2GP391DA	ECEC2GP391DA
	35 x 35	2.13	2.98	0.468	0.164	ECOS2GP391EX	ECEC2GP391EX
	35 x 40	2.13	2.98	0.468	0.164	ECOS2GP391EA	ECEC2GP391EA
470	35 x 40	2.39	3.35	0.388	0.136	ECOS2GP471EX	ECEC2GP471EX
	35 x 45	2.39	3.35	0.388	0.136	ECOS2GP471EA	ECEC2GP471EA
560	35 x 45	2.69	3.77	0.326	0.114	ECOS2GP561EX	ECEC2GP561EX
	35 x 50	2.69	3.77	0.326	0.114	ECOS2GP561EA	ECEC2GP561EA
680	35 x 50	3.00	4.20	0.268	0.094	ECOS2GP681EX	ECEC2GP681EX
420 VDC Working, 470 VDC Surge							
82	22 x 30	0.83	1.16	2.426	0.849	ECOS2SP820BA	ECEC2SP820BA
100	22 x 30	0.92	1.29	1.989	0.696	ECOS2SP101BA	ECEC2SP101BA
	25 x 25	0.92	1.29	1.989	0.696	ECOS2SP101CA	ECEC2SP101CA
120	22 x 35	1.02	1.43	1.658	0.580	ECOS2SP121BA	ECEC2SP121BA
	25 x 30	1.02	1.43	1.658	0.580	ECOS2SP121CA	ECEC2SP121CA
150	22 x 40	1.16	1.62	1.326	0.464	ECOS2SP151BA	ECEC2SP151BA
	25 x 30	1.16	1.62	1.326	0.464	ECOS2SP151CA	ECEC2SP151CA
	30 x 25	1.16	1.62	1.326	0.464	ECOS2SP151DA	ECEC2SP151DA
180	22 x 45	1.44	2.02	1.105	0.387	ECOS2SP181BA	ECEC2SP181BA
	25 x 35	1.44	2.02	1.105	0.387	ECOS2SP181CA	ECEC2SP181CA
	30 x 30	1.44	2.02	1.105	0.387	ECOS2SP181DA	ECEC2SP181DA
220	25 x 45	1.49	2.09	0.904	0.316	ECOS2SP221CA	ECEC2SP221CA
	30 x 30	1.49	2.09	0.904	0.316	ECOS2SP221DA	ECEC2SP221DA
	35 x 25	1.49	2.09	0.904	0.316	ECOS2SP221EA	ECEC2SP221EA
270	25 x 50	1.67	2.34	0.737	0.258	ECOS2SP271CA	ECEC2SP271CA
	30 x 35	1.67	2.34	0.737	0.258	ECOS2SP271DA	ECEC2SP271DA
	35 x 30	1.67	2.34	0.737	0.258	ECOS2SP271EA	ECEC2SP271EA
330	30 x 45	1.90	2.66	0.603	0.211	ECOS2SP331DA	ECEC2SP331DA
	35 x 35	1.90	2.66	0.603	0.211	ECOS2SP331EA	ECEC2SP331EA
390	30 x 50	2.13	2.98	0.510	0.179	ECOS2SP391DA	ECEC2SP391DA
	35 x 40	2.13	2.98	0.510	0.179	ECOS2SP391EA	ECEC2SP391EA
470	35 x 45	2.39	3.35	0.423	0.148	ECOS2SP471EA	ECEC2SP471EA
560	35 x 50	2.69	3.77	0.355	0.124	ECOS2SP561EA	ECEC2SP561EA
450 VDC Working, 500 VDC Surge							
33	22 x 20	0.20	0.28	6.028	2.411	ECOS2WP330BL	ECEC2WP330BL
	22 x 25	0.41	0.57	6.028	2.411	ECOS2WP330BA	ECEC2WP330BA
47	22 x 25	0.59	0.83	4.233	1.693	ECOS2WP470BA	ECEC2WP470BA
	25 x 20	0.29	0.41	4.233	1.693	ECOS2WP470CL	ECEC2WP470CL
56	22 x 25	0.70	0.98	2.960	1.184	ECOS2WP560BA	ECEC2WP560BA
68	30 x 20	0.38	0.53	2.926	1.170	ECOS2WP680DL	ECEC2WP680DL
82	22 x 30	0.83	1.16	2.022	0.809	ECOS2WP820BA	ECEC2WP820BA
	25 x 25	0.83	1.16	2.022	0.809	ECOS2WP820CA	ECEC2WP820CA
100	22 x 35	0.93	1.30	1.658	0.663	ECOS2WP101BA	ECEC2WP101BA
	35 x 20	0.52	0.73	1.989	0.796	ECOS2WP101EL	ECEC2WP101EL

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
450 VDC Working, 500 VDC Surge (continued)							
120	22 x 40	1.04	1.46	1.382	0.553	ECOS2WP121BA	ECEC2WP121BA
	25 x 30	1.04	1.46	1.382	0.553	ECOS2WP121CA	ECEC2WP121CA
	30 x 25	1.04	1.46	1.382	0.553	ECOS2WP121DA	ECEC2WP121DA
150	22 x 50	1.19	1.67	1.105	0.442	ECOS2WP151BA	ECEC2WP151BA
	25 x 40	1.19	1.67	1.105	0.442	ECOS2WP151CA	ECEC2WP151CA
	30 x 30	1.19	1.67	1.105	0.442	ECOS2WP151DA	ECEC2WP151DA
180	25 x 40	1.35	1.89	0.921	0.368	ECOS2WP181CX	ECEC2WP181CX
	25 x 45	1.35	1.89	0.921	0.368	ECOS2WP181CA	ECEC2WP181CA
	30 x 30	1.35	1.89	0.921	0.368	ECOS2WP181DX	ECEC2WP181DX
	30 x 35	1.35	1.89	0.921	0.368	ECOS2WP181DA	ECEC2WP181DA
	35 x 25	1.35	1.89	0.921	0.368	ECOS2WP181EA	ECEC2WP181EA
220	25 x 45	1.55	2.17	0.754	0.301	ECOS2WP221CX	ECEC2WP221CX
	25 x 50	1.55	2.17	0.754	0.301	ECOS2WP221CA	ECEC2WP221CA
	30 x 35	1.55	2.17	0.754	0.301	ECOS2WP221DX	ECEC2WP221DX
	30 x 40	1.55	2.17	0.754	0.301	ECOS2WP221DA	ECEC2WP221DA
	35 x 30	1.55	2.17	0.754	0.301	ECOS2WP221EA	ECEC2WP221EA
270	30 x 45	1.78	2.49	0.675	0.270	ECOS2WP271DA	ECEC2WP271DA
	35 x 30	1.78	2.49	0.614	0.246	ECOS2WP271EX	ECEC2WP271EX
270	35 x 35	1.78	2.49	0.675	0.270	ECOS2WP271EA	ECEC2WP271EA
330	30 x 50	2.01	2.81	0.553	0.249	ECOS2WP331DA	ECEC2WP331DA
	35 x 35	2.01	2.81	0.553	0.221	ECOS2WP331EX	ECEC2WP331EX
	35 x 40	2.01	2.81	0.553	0.249	ECOS2WP331EA	ECEC2WP331EA
390	35 x 45	2.24	3.14	0.510	0.255	ECOS2WP391EA	ECEC2WP391EA
470	35 x 45	2.53	3.54	0.423	0.233	ECOS2WP471EX	ECEC2WP471EX
	35 x 50	2.53	3.54	0.423	0.233	ECOS2WP471EA	ECEC2WP471EA
500 VDC Working, 550 VDC Surge							
47	22 x 25	0.63	0.88	3.527	1.411	ECOS2HP470BA	ECEC2HP470BA
56	22 x 30	0.70	0.98	2.960	1.184	ECOS2HP560BA	ECEC2HP560BA
68	22 x 35	0.78	1.09	2.438	0.975	ECOS2HP680BA	ECEC2HP680BA
	25 x 25	0.78	1.09	2.438	0.975	ECOS2HP680CA	ECEC2HP680CA
82	22 x 40	0.88	1.23	2.022	0.809	ECOS2HP820BA	ECEC2HP820BA
	25 x 30	0.88	1.23	2.022	0.809	ECOS2HP820CA	ECEC2HP820CA
100	22 x 45	0.99	1.39	1.658	0.663	ECOS2HP101BA	ECEC2HP101BA
	25 x 35	0.99	1.39	1.658	0.663	ECOS2HP101CA	ECEC2HP101CA
120	22 x 50	1.13	1.58	1.382	0.553	ECOS2HP121BA	ECEC2HP121BA
	25 x 40	1.13	1.58	1.382	0.553	ECOS2HP121CA	ECEC2HP121CA
	30 x 30	1.13	1.58	1.382	0.553	ECOS2HP121DA	ECEC2HP121DA
150	25 x 45	1.29	1.80	1.105	0.442	ECOS2HP151CA	ECEC2HP151CA
	30 x 35	1.29	1.80	1.105	0.442	ECOS2HP151DA	ECEC2HP151DA
	35 x 25	1.20	1.68	1.105	0.442	ECOS2HP151EA	ECEC2HP151EA
180	25 x 50	1.38	1.93	0.921	0.368	ECOS2HP181CA	ECEC2HP181CA
	30 x 40	1.38	1.93	0.921	0.368	ECOS2HP181DA	ECEC2HP181DA
	35 x 30	1.36	1.90	0.921	0.368	ECOS2HP181EA	ECEC2HP181EA
220	30 x 45	1.50	2.10	0.754	0.339	ECOS2HP221DA	ECEC2HP221DA
	35 x 35	1.54	2.16	0.754	0.301	ECOS2HP221EA	ECEC2HP221EA
270	35 x 40	1.76	2.46	0.614	0.276	ECOS2HP271EA	ECEC2HP271EA
330	35 x 45	1.99	2.79	0.502	0.251	ECOS2HP331EA	ECEC2HP331EA
390	35 x 50	2.22	3.11	0.425	0.234	ECOS2HP391EA	ECEC2HP391EA

Design and specifications are subject to change without notice.

Contact the factory or your sales representative for technical specifications before purchase and/or use.

When safety concerns arise, please contact Panasonic immediately for technical consultation.