

TS-UP Series two terminal snap-in

- Compact size for general purpose and industrial applications
- **NEW:** 500 WV ratings, 40mm diameter sizes, extended capacitance ratings
- Wide range of case sizes including 20mm lengths for low profile applications
- Can vent construction



Rated Working Voltage:	16 ~ 250 VDC	350 ~ 500 VDC
Operating Temperature:	-40 ~ +85°C	-25 ~ +85°C
Nominal Capacitance:	120 ~ 68000µF (±20% tolerance)	33 ~ 680µF (±20% tolerance)
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: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$		
Endurance:	3000 hours* at +85°C with maximum specified ripple current (see page 4) *2000 hours for 20mm diameter or 20mm length sizes	

Part Number System

E C 	 	P	 	 	
Common Code/ Terminal Type	Voltage Code	Series	Capacitance Code	Case Diameter	Suffix, Top Vinyl Plate
ECOS	6.3mm Length Terminal (Standard)		A 20mm		25 ~ 50mm lengths
ECEC	4.0mm Length "Short" Terminal (See page 7)		B 22mm		A With Plate
			C 25mm		B Without plate
			D 30mm		20mm length
			E 35mm		L With Plate
			F 40mm		G Without plate
					Extended Capacitance Ratings
					X With plate

Ripple Current
Multipliers:
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TS-UP Standard Ratings

Cap. (µF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number	Cap. (µF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number
		120Hz	10k-100kHz	120Hz	20kHz				120Hz	10k-100kHz	120Hz	20kHz	
16 VDC Working, 20 VDC Surge							25 VDC Working, 32 VDC Surge						
6800	20 x 25	3.15	3.62	0.098	0.083	ECOS1CP682AA	4700	20 x 25	3.05	3.51	0.113	0.090	ECOS1EP472AA
8200	20 x 30	3.47	3.99	0.081	0.069	ECOS1CP822AA	5600	20 x 30	3.36	3.86	0.095	0.076	ECOS1EP562AA
10000	20 x 35	3.78	4.35	0.066	0.056	ECOS1CP103AA	6800	20 x 35	3.47	3.99	0.078	0.062	ECOS1EP682AA
12000	20 x 35	4.52	5.20	0.062	0.053	ECOS1CP123AA	8200	20 x 40	3.57	4.11	0.065	0.052	ECOS1EP822AA
15000	20 x 40	5.26	6.05	0.053	0.045	ECOS1CP153AA	3300	22 x 20	1.60	1.84	0.176	0.141	ECOS1EP332BL
4700	22 x 20	1.60	1.84	0.159	0.135	ECOS1CP472BL	3300	22 x 25	1.68	1.93	0.161	0.129	ECOS1EP332BA
4700	22 x 25	1.77	2.04	0.159	0.135	ECOS1CP472BA	4700	22 x 25	2.39	2.75	0.113	0.090	ECOS1EP472BA
6800	22 x 25	2.57	2.96	0.110	0.093	ECOS1CP682BA	5600	22 x 25	2.86	3.29	0.095	0.076	ECOS1EP562BA
8200	22 x 25	3.10	3.57	0.091	0.077	ECOS1CP822BA	6800	22 x 30	3.47	3.99	0.078	0.062	ECOS1EP682BA
10000	22 x 30	3.78	4.35	0.075	0.063	ECOS1CP103BA	8200	22 x 30	3.57	4.11	0.065	0.052	ECOS1EP822BA
12000	22 x 30	4.52	5.20	0.062	0.053	ECOS1CP123BA	10000	22 x 35	3.78	4.35	0.058	0.046	ECOS1EP103BA
15000	22 x 35	5.26	6.05	0.053	0.045	ECOS1CP153BA	12000	22 x 40	4.10	4.72	0.048	0.039	ECOS1EP123BA
18000	22 x 40	5.57	6.41	0.046	0.039	ECOS1CP183BA	15000	22 x 50	4.63	5.32	0.039	0.031	ECOS1EP153BA
22000	22 x 45	6.10	7.02	0.038	0.032	ECOS1CP223BA	4700	25 x 20	1.80	2.07	0.123	0.099	ECOS1EP472CL
6800	25 x 20	1.80	2.07	0.110	0.093	ECOS1CP682CL	6800	25 x 25	3.47	3.99	0.078	0.062	ECOS1EP682CA
10000	25 x 25	3.78	4.35	0.075	0.063	ECOS1CP103CA	8200	25 x 25	3.57	4.11	0.065	0.052	ECOS1EP822CA
12000	25 x 25	4.52	5.20	0.062	0.053	ECOS1CP123CA	10000	25 x 30	3.78	4.35	0.058	0.046	ECOS1EP103CA
15000	25 x 30	5.26	6.05	0.053	0.045	ECOS1CP153CA	12000	25 x 35	4.10	4.72	0.048	0.039	ECOS1EP123CA
18000	25 x 30	5.57	6.41	0.046	0.039	ECOS1CP183CA	15000	25 x 40	4.63	5.32	0.039	0.031	ECOS1EP153CA
22000	25 x 35	6.10	7.02	0.038	0.032	ECOS1CP223CA	18000	25 x 45	5.47	6.29	0.035	0.028	ECOS1EP183CA
27000	25 x 45	6.31	7.26	0.031	0.026	ECOS1CP273CA	22000	25 x 50	6.10	7.02	0.029	0.023	ECOS1EP223CA
33000	25 x 50	6.84	7.87	0.025	0.021	ECOS1CP333CA	6800	30 x 20	2.30	2.65	0.078	0.062	ECOS1EP682DL
10000	30 x 20	2.40	2.76	0.083	0.070	ECOS1CP103DL	10000	30 x 25	3.78	4.35	0.058	0.046	ECOS1EP103DA
22000	30 x 30	6.10	7.02	0.038	0.032	ECOS1CP223DA	12000	30 x 30	4.10	4.72	0.048	0.039	ECOS1EP123DA
27000	30 x 35	6.31	7.26	0.031	0.026	ECOS1CP273DA	15000	30 x 30	4.63	5.32	0.039	0.031	ECOS1EP153DA
33000	30 x 40	6.84	7.87	0.025	0.021	ECOS1CP333DA	18000	30 x 35	5.47	6.29	0.035	0.028	ECOS1EP183DA
39000	30 x 45	6.94	7.98	0.021	0.018	ECOS1CP393DA	22000	30 x 40	6.10	7.02	0.029	0.023	ECOS1EP223DA
47000	30 x 50	7.47	8.59	0.019	0.017	ECOS1CP473DA	27000	30 x 45	6.21	7.14	0.023	0.019	ECOS1EP273DA
15000	35 x 20	3.20	3.68	0.055	0.047	ECOS1CP153EL	33000	30 x 50	6.84	7.87	0.020	0.017	ECOS1EP333DA
33000	35 x 30	6.84	7.87	0.025	0.021	ECOS1CP333EA	10000	35 x 20	2.70	3.11	0.061	0.049	ECOS1EP103EL
39000	35 x 35	6.94	7.98	0.021	0.018	ECOS1CP393EA	27000	35 x 35	6.21	7.14	0.025	0.020	ECOS1EP273EA
47000	35 x 40	7.47	8.59	0.021	0.019	ECOS1CP473EA	33000	35 x 40	6.84	7.87	0.020	0.017	ECOS1EP333EA
56000	35 x 45	8.73	10.04	0.019	0.018	ECOS1CP563EA	39000	35 x 45	7.36	8.46	0.019	0.017	ECOS1EP393EA
68000	35 x 50	9.05	10.41	0.018	0.017	ECOS1CP683EA	47000	35 x 50	8.00	9.20	0.017	0.015	ECOS1EP473EA
68000	40 x 40	9.05	10.41	0.018	0.017	ECOS1CP683FA	47000	40 x 40	8.00	9.20	0.017	0.015	ECOS1EP473FA
82000	40 x 50	10.29	11.83	0.016	0.015	ECOS1CP823FA	56000	40 x 50	8.96	10.30	0.016	0.015	ECOS1EP563FA

TS-UP Standard Ratings (continued)

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number	Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number
		120Hz	10k-100kHz	120Hz	20kHz				120Hz	10k-100kHz	120Hz	20kHz	
100 VDC Working, 125 VDC Surge							160 VDC Working, 200 VDC Surge						
560	20 x 25	1.35	1.55	0.385	0.250	ECOS2AP561AA	330	20 x 30	1.45	2.03	0.553	0.276	ECOS2CP331AA
820	20 x 30	1.59	1.83	0.263	0.171	ECOS2AP821AA	390	20 x 35	1.62	2.27	0.468	0.234	ECOS2CP391AA
1000	20 x 35	1.96	2.25	0.216	0.140	ECOS2AP102AA	220	22 x 20	0.75	1.05	0.980	0.490	ECOS2CP221BL
1200	20 x 40	2.31	2.66	0.180	0.117	ECOS2AP122AA	220	22 x 25	0.91	1.27	0.829	0.414	ECOS2CP221BA
470	22 x 20	1.00	1.15	0.459	0.298	ECOS2AP471BL	270	22 x 25	1.19	1.67	0.675	0.338	ECOS2CP271BA
470	22 x 25	1.11	1.28	0.459	0.298	ECOS2AP471BA	330	22 x 25	1.45	2.03	0.553	0.276	ECOS2CP331BA
560	22 x 25	1.32	1.52	0.385	0.250	ECOS2AP561BA	390	22 x 25	1.62	2.27	0.468	0.234	ECOS2CP391BX
680	22 x 25	1.61	1.85	0.317	0.206	ECOS2AP681BA	470	22 x 30	2.11	2.95	0.423	0.212	ECOS2CP471BA
1000	22 x 30	1.96	2.25	0.216	0.140	ECOS2AP102BA	560	22 x 30	2.25	3.15	0.355	0.178	ECOS2CP561BX
1200	22 x 35	2.31	2.66	0.193	0.126	ECOS2AP122BA	560	22 x 35	2.25	3.15	0.355	0.178	ECOS2CP561BA
1500	22 x 40	2.57	2.96	0.155	0.101	ECOS2AP152BA	680	22 x 35	2.50	3.50	0.293	0.146	ECOS2CP681BX
1800	22 x 45	2.84	3.27	0.129	0.084	ECOS2AP182BA	680	22 x 40	2.50	3.50	0.293	0.146	ECOS2CP681BA
2200	22 x 50	3.14	3.61	0.121	0.078	ECOS2AP222BA	820	22 x 40	2.50	3.50	0.243	0.121	ECOS2CP821BX
680	25 x 20	1.10	1.27	0.366	0.238	ECOS2AP681CL	820	22 x 45	2.75	3.85	0.263	0.131	ECOS2CP821BA
1000	25 x 25	1.96	2.25	0.216	0.140	ECOS2AP102CA	1000	22 x 45	3.00	4.20	0.216	0.108	ECOS2CP102BX
1200	25 x 30	2.31	2.66	0.180	0.117	ECOS2AP122CA	270	25 x 20	0.87	1.22	0.798	0.399	ECOS2CP271CL
1500	25 x 30	2.57	2.96	0.155	0.101	ECOS2AP152CA	390	25 x 25	1.62	2.27	0.468	0.234	ECOS2CP391CA
1800	25 x 35	2.84	3.27	0.138	0.090	ECOS2AP182CA	470	25 x 25	2.11	2.95	0.423	0.212	ECOS2CP471CA
2200	25 x 40	3.14	3.61	0.121	0.078	ECOS2AP222CA	560	25 x 25	2.25	3.15	0.355	0.178	ECOS2CP561CX
2700	25 x 45	3.71	4.27	0.104	0.068	ECOS2AP272CA	560	25 x 30	2.25	3.15	0.355	0.178	ECOS2CP561CA
3300	25 x 50	4.06	4.67	0.090	0.059	ECOS2AP332CA	680	25 x 30	2.50	3.50	0.293	0.146	ECOS2CP681CX
1000	30 x 20	1.20	1.38	0.249	0.162	ECOS2AP102DL	820	25 x 35	2.75	3.85	0.263	0.131	ECOS2CP821CA
1500	30 x 25	2.57	2.96	0.155	0.101	ECOS2AP152DA	1000	25 x 40	3.00	4.20	0.216	0.108	ECOS2CP102CX
1800	30 x 30	2.84	3.27	0.138	0.090	ECOS2AP182DA	1000	25 x 45	3.00	4.20	0.232	0.128	ECOS2CP102CA
2200	30 x 30	3.14	3.61	0.121	0.078	ECOS2AP222DA	1200	25 x 50	3.25	4.55	0.207	0.114	ECOS2CP122CA
2700	30 x 35	3.71	4.27	0.104	0.068	ECOS2AP272DA	1500	25 x 50	3.73	5.22	0.166	0.091	ECOS2CP152CX
3300	30 x 40	4.06	4.67	0.090	0.059	ECOS2AP332DA	390	30 x 20	1.10	1.54	0.595	0.298	ECOS2CP391DL
3900	30 x 45	4.54	5.22	0.077	0.050	ECOS2AP392DA	680	30 x 25	2.50	3.50	0.293	0.146	ECOS2CP681DA
4700	30 x 50	5.13	5.90	0.071	0.049	ECOS2AP472DA	820	30 x 25	2.75	3.85	0.263	0.131	ECOS2CP821DX
1500	35 x 20	1.50	1.73	0.177	0.115	ECOS2AP152EL	820	30 x 30	2.75	3.85	0.263	0.131	ECOS2CP821DA
2200	35 x 25	3.14	3.61	0.121	0.078	ECOS2AP222EA	1000	30 x 30	3.00	4.20	0.232	0.128	ECOS2CP102DX
2700	35 x 30	3.71	4.27	0.104	0.068	ECOS2AP272EA	1000	30 x 35	3.00	4.20	0.232	0.128	ECOS2CP102DA
3900	35 x 35	4.54	5.22	0.081	0.052	ECOS2AP392EA	1200	30 x 35	3.25	4.55	0.207	0.114	ECOS2CP122DA
4700	35 x 40	5.13	5.90	0.071	0.049	ECOS2AP472EA	1500	30 x 45	3.73	5.22	0.166	0.091	ECOS2CP152DA
5600	35 x 45	5.75	6.61	0.059	0.041	ECOS2AP562EA	1800	30 x 50	4.20	5.88	0.138	0.083	ECOS2CP182DA
6800	35 x 50	6.60	7.59	0.049	0.037	ECOS2AP682EA	2200	30 x 50	4.78	6.69	0.105	0.053	ECOS2CP222DX
5600	40 x 40	5.75	6.61	0.059	0.044	ECOS2AP562FA	560	35 x 20	1.30	1.82	0.414	0.207	ECOS2CP561EL
8200	40 x 50	7.28	8.37	0.040	0.030	ECOS2AP822FA	1000	35 x 30	3.00	4.20	0.232	0.128	ECOS2CP102EA
							1200	35 x 30	3.25	4.55	0.207	0.114	ECOS2CP122EA
							1500	35 x 30	3.73	5.22	0.166	0.091	ECOS2CP152EX
							1500	35 x 35	3.73	5.22	0.166	0.091	ECOS2CP152EA
							1800	35 x 35	4.20	5.88	0.138	0.083	ECOS2CP182EX
							2200	35 x 40	4.78	6.69	0.113	0.073	ECOS2CP222EX
							2200	35 x 45	4.78	6.69	0.113	0.073	ECOS2CP222EA
							2700	35 x 50	5.45	7.63	0.092	0.060	ECOS2CP272EA
200 VDC Working, 250 VDC Surge							250 VDC Working, 300 VDC Surge						
270	20 x 30	1.41	1.97	0.614	0.276	ECOS2DP271AA	180	20 x 30	1.07	1.50	0.921	0.368	ECOS2EP181AA
330	20 x 35	1.56	2.18	0.553	0.249	ECOS2DP331AA	220	20 x 35	1.17	1.64	0.754	0.301	ECOS2EP221AA
470	20 x 40	1.85	2.59	0.388	0.175	ECOS2DP471AX	120	22 x 20	0.45	0.63	1.658	0.663	ECOS2EP121BL
150	22 x 20	0.65	0.91	1.326	0.597	ECOS2DP151BL	120	22 x 25	0.71	0.99	1.520	0.608	ECOS2EP121BA
150	22 x 25	0.71	0.99	1.216	0.547	ECOS2DP151BA	150	22 x 25	0.89	1.25	1.216	0.486	ECOS2EP151BA
220	22 x 25	1.04	1.46	0.829	0.373	ECOS2DP221BA	180	22 x 25	1.07	1.50	0.921	0.368	ECOS2EP181BA
270	22 x 25	1.41	1.97	0.614	0.276	ECOS2DP271BA	220	22 x 25	1.17	1.64	0.754	0.301	ECOS2EP221BX
330	22 x 25	1.56	2.18	0.553	0.249	ECOS2DP331BX	270	22 x 30	1.31	1.83	0.614	0.246	ECOS2EP271BA
390	22 x 30	1.68	2.35	0.468	0.210	ECOS2DP391BA	330	22 x 35	1.75	2.45	0.553	0.221	ECOS2EP331BA
470	22 x 35	1.85	2.59	0.388	0.175	ECOS2DP471BA	390	22 x 40	1.91	2.67	0.468	0.187	ECOS2EP391BA
560	22 x 40	2.43	3.40	0.326	0.147	ECOS2DP561BA	470	22 x 45	2.11	2.95	0.388	0.155	ECOS2EP471BA
680	22 x 45	2.68	3.75	0.268	0.121	ECOS2DP681BA	150	25 x 20	0.65	0.91	1.326	0.531	ECOS2EP151CL
220	25 x 20	0.87	1.22	0.904	0.407	ECOS2DP221CL	270	25 x 25	1.31	1.83	0.614	0.246	ECOS2EP271CA
390	25 x 25	1.68	2.35	0.468	0.210	ECOS2DP391CA	330	25 x 30	1.75	2.45	0.502	0.201	ECOS2EP331CA
470	25 x 30	1.85	2.59	0.388	0.175	ECOS2DP471CA	390	25 x 30	1.91	2.67	0.468	0.187	ECOS2EP391CX
560	25 x 30	2.43	3.40	0.326	0.147	ECOS2DP561CX	390	25 x 35	1.91	2.67	0.468	0.187	ECOS2EP391CA
680	25 x 35	2.68	3.75	0.268	0.121	ECOS2DP681CA	470	25 x 35	2.11	2.95	0.388	0.155	ECOS2EP471CX
820	25 x 45	2.93	4.10	0.222	0.100	ECOS2DP821CA	470	25 x 40	2.11	2.95	0.388	0.155	ECOS2EP471CA
1000	25 x 45	3.25	4.55	0.199	0.090	ECOS2DP102CX	560	25 x 40	2.25	3.15	0.326	0.130	ECOS2EP561CX
1000	25 x 50	3.25	4.55	0.199	0.090	ECOS2DP102CA	560	25 x 45	2.25	3.15	0.326	0.130	ECOS2EP561CA
330	30 x 20	1.00	1.40	0.603	0.271	ECOS2DP331DL	680	25 x 45	2.50	3.50	0.268	0.107	ECOS2EP681CX
560	30 x 25	2.43	3.40	0.326	0.147	ECOS2DP561DA	680	25 x 50	2.50	3.50	0.268	0.107	ECOS2EP681CA
680	30 x 30	2.68	3.75	0.268	0.121	ECOS2DP681DA	220	30 x 20	0.87	1.22	0.829	0.332	ECOS2EP221DL
820	30 x 30	2.93	4.10	0.222	0.100	ECOS2DP821DX	390	30 x 25	1.91	2.67	0.425	0.170	ECOS2EP391DA
820	30 x 35	2.93	4.10	0.222	0.100	ECOS2DP821DA	470	30 x 25	2.11	2.95	0.353	0.141	ECOS2EP471DX
1000	30 x 35	3.25	4.55	0.199	0.090	ECOS2DP102DX	470	30 x 30	2.11	2.95	0.388	0.155	ECOS2EP471DA
							560	30 x 30	2.25	3.15	0.326	0.130	ECOS2EP561DX

TS-UP Standard Ratings (continued)

Cap. (μ F)	Size (mm) D x L	Max. 85°C R.C. (A_{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number	Cap. (μ F)	Size (mm) D x L	Max. 85°C R.C. (A_{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number
		120Hz	10k~100kHz	120Hz	20kHz				120Hz	20kHz			
200 VDC Working, 250 VDC Surge (continued)							250 VDC Working, 300 VDC Surge (continued)						
1000	30 x 40	3.25	4.55	0.199	0.090	ECOS2DP102DA	560	30 x 35	2.25	3.15	0.326	0.130	ECOS2EP561DA
1200	30 x 40	3.50	4.90	0.166	0.075	ECOS2DP122DX	680	30 x 35	2.25	3.15	0.268	0.107	ECOS2EP681DX
1200	30 x 45	3.50	4.90	0.166	0.075	ECOS2DP122DA	680	30 x 40	2.50	3.50	0.268	0.107	ECOS2EP681DA
1500	30 x 45	3.87	5.42	0.144	0.072	ECOS2DP152DX	820	30 x 40	2.50	3.50	0.222	0.089	ECOS2EP821DX
1500	30 x 50	3.87	5.42	0.144	0.072	ECOS2DP152DA	820	30 x 45	2.77	3.88	0.222	0.089	ECOS2EP821DA
1800	30 x 50	4.32	6.05	0.120	0.060	ECOS2DP182DX	1000	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
470	35 x 20	1.30	1.82	0.459	0.206	ECOS2DP471EL	330	35 x 20	1.10	1.54	0.553	0.221	ECOS2EP331EL
820	35 x 25	2.93	4.10	0.243	0.109	ECOS2DP821EA	560	35 x 25	2.25	3.15	0.326	0.130	ECOS2EP561EA
1000	35 x 30	3.25	4.55	0.199	0.090	ECOS2DP102EA	680	35 x 30	2.50	3.50	0.268	0.107	ECOS2EP681EA
1200	35 x 30	3.50	4.90	0.166	0.075	ECOS2DP122EX	820	35 x 30	2.77	3.88	0.222	0.089	ECOS2EP821EX
1200	35 x 35	3.50	4.90	0.166	0.075	ECOS2DP122EA	820	35 x 35	2.77	3.88	0.243	0.109	ECOS2EP821EA
1500	35 x 35	3.87	5.42	0.144	0.072	ECOS2DP152EX	1000	35 x 35	3.32	4.65	0.199	0.090	ECOS2EP102EX
1500	35 x 40	3.87	5.42	0.144	0.072	ECOS2DP152EA	1000	35 x 40	3.32	4.65	0.199	0.090	ECOS2EP102EA
1800	35 x 40	4.32	6.05	0.120	0.060	ECOS2DP182EX	1200	35 x 40	3.53	4.94	0.166	0.083	ECOS2EP122EX
1800	35 x 45	4.32	6.05	0.120	0.060	ECOS2DP182EA	1200	35 x 45	3.53	4.94	0.166	0.083	ECOS2EP122EA
2200	35 x 45	4.92	6.89	0.098	0.054	ECOS2DP222EX	1500	35 x 50	4.04	5.66	0.133	0.066	ECOS2EP152EA
2200	35 x 50	4.92	6.89	0.098	0.054	ECOS2DP222EA	1500	40 x 40	4.04	5.66	0.133	0.066	ECOS2EP152FA
2200	40 x 40	4.92	6.89	0.098	0.054	ECOS2DP222FA	1800	40 x 50	4.49	6.29	0.111	0.055	ECOS2EP182FA
2700	40 x 50	5.41	7.57	0.080	0.044	ECOS2DP272FA							
350 VDC Working, 400 VDC Surge							385 VDC Working, 435 VDC Surge						
82	20 x 30	0.83	1.16	2.022	0.708	ECOS2VP820AA	68	20 x 30	0.76	1.06	2.438	0.853	ECOS2TP680AA
100	20 x 35	0.91	1.27	1.658	0.580	ECOS2VP101AA	82	20 x 30	0.83	1.16	2.022	0.708	ECOS2TP820AA
82	22 x 25	0.83	1.16	2.022	0.708	ECOS2VP820BA	100	20 x 35	0.92	1.29	1.658	0.580	ECOS2TP101AA
100	22 x 30	0.91	1.27	1.658	0.580	ECOS2VP101BA	120	20 x 40	1.02	1.43	1.382	0.553	ECOS2TP121AA
120	22 x 30	1.00	1.40	1.382	0.484	ECOS2VP121BA	47	22 x 20	0.25	0.35	4.233	1.481	ECOS2TP470BL
150	22 x 35	1.12	1.57	1.105	0.387	ECOS2VP151BA	68	22 x 25	0.76	1.06	2.438	0.853	ECOS2TP680BA
180	22 x 40	1.22	1.71	0.921	0.322	ECOS2VP181BA	82	22 x 25	0.83	1.16	2.022	0.708	ECOS2TP820BA
220	22 x 45	1.44	2.02	0.754	0.264	ECOS2VP221BA	100	22 x 30	0.92	1.29	1.658	0.580	ECOS2TP101BA
120	25 x 25	1.00	1.40	1.382	0.484	ECOS2VP121CA	120	22 x 35	1.02	1.43	1.382	0.553	ECOS2TP121BA
150	25 x 25	1.12	1.57	1.105	0.387	ECOS2VP151CX	150	22 x 35	1.16	1.62	1.105	0.442	ECOS2TP151BX
150	25 x 30	1.12	1.57	1.105	0.387	ECOS2VP151CA	150	22 x 40	1.16	1.62	1.105	0.442	ECOS2TP151BA
180	25 x 30	1.22	1.71	0.921	0.322	ECOS2VP181CX	180	22 x 40	1.44	2.02	0.921	0.368	ECOS2TP181BX
180	25 x 35	1.22	1.71	0.921	0.322	ECOS2VP181CA	180	22 x 45	1.44	2.02	0.921	0.368	ECOS2TP181BA
220	25 x 35	1.44	2.02	0.754	0.264	ECOS2VP221CX	220	22 x 45	1.49	2.09	0.829	0.373	ECOS2TP221BX
220	25 x 40	1.44	2.02	0.754	0.264	ECOS2VP221CA	220	22 x 50	1.49	2.09	0.829	0.373	ECOS2TP221BA
270	25 x 40	1.66	2.32	0.614	0.215	ECOS2VP271CX	68	25 x 20	0.35	0.49	2.926	1.024	ECOS2TP680CL
330	25 x 50	1.88	2.63	0.502	0.176	ECOS2VP331CA	100	25 x 25	0.92	1.29	1.658	0.580	ECOS2TP101CA
390	25 x 50	2.06	2.88	0.425	0.149	ECOS2VP391CX	120	25 x 25	1.02	1.43	1.382	0.553	ECOS2TP121CX
150	30 x 25	1.12	1.57	1.105	0.387	ECOS2VP151DA	120	25 x 30	1.02	1.43	1.382	0.553	ECOS2TP121CA
180	30 x 25	1.22	1.71	0.921	0.322	ECOS2VP181DA	150	25 x 30	1.16	1.62	1.105	0.442	ECOS2TP151CA
220	30 x 25	1.44	2.02	0.754	0.264	ECOS2VP221DX	180	25 x 30	1.44	2.02	0.921	0.368	ECOS2TP181CX
220	30 x 30	1.44	2.02	0.754	0.264	ECOS2VP221DA	180	25 x 35	1.44	2.02	0.921	0.368	ECOS2TP181CA
270	30 x 30	1.66	2.32	0.614	0.215	ECOS2VP271DX	220	25 x 40	1.49	2.09	0.829	0.373	ECOS2TP221CA
270	30 x 35	1.66	2.32	0.614	0.215	ECOS2VP271DA	270	25 x 45	1.67	2.34	0.675	0.304	ECOS2TP271CA
330	30 x 35	1.88	2.63	0.502	0.176	ECOS2VP331DX	330	25 x 50	1.90	2.66	0.553	0.249	ECOS2TP331CX
330	30 x 40	1.88	2.63	0.502	0.176	ECOS2VP331DA	100	30 x 20	0.47	0.66	1.989	0.696	ECOS2TP101DL
390	30 x 40	2.06	2.88	0.425	0.149	ECOS2VP391DX	150	30 x 25	1.16	1.62	1.105	0.442	ECOS2TP151DA
390	30 x 45	2.06	2.88	0.468	0.164	ECOS2VP391DA	180	30 x 25	1.44	2.02	0.921	0.368	ECOS2TP181DX
470	30 x 50	2.40	3.36	0.388	0.136	ECOS2VP471DA	180	30 x 30	1.44	2.02	0.921	0.368	ECOS2TP181DA
560	30 x 50	2.60	3.64	0.326	0.114	ECOS2VP561DX	220	30 x 30	1.49	2.09	0.829	0.373	ECOS2TP221DA
220	35 x 25	1.44	2.02	0.754	0.264	ECOS2VP221EA	270	30 x 35	1.67	2.34	0.675	0.304	ECOS2TP271DA
270	35 x 25	1.66	2.32	0.614	0.215	ECOS2VP271EX	330	30 x 40	1.90	2.66	0.553	0.249	ECOS2TP331DA
270	35 x 30	1.66	2.32	0.614	0.215	ECOS2VP271EA	390	30 x 45	2.13	2.98	0.468	0.210	ECOS2TP391DA
330	35 x 30	1.88	2.63	0.502	0.176	ECOS2VP331EA	470	30 x 50	2.39	3.35	0.388	0.175	ECOS2TP471DA
390	35 x 30	2.06	2.88	0.425	0.149	ECOS2VP391EX	150	35 x 20	0.60	0.84	1.326	0.531	ECOS2TP151EL
390	35 x 35	2.06	2.88	0.425	0.149	ECOS2VP391EA	270	35 x 25	1.67	2.34	0.675	0.304	ECOS2TP271EX
470	35 x 35	2.40	3.36	0.353	0.123	ECOS2VP471EX	270	35 x 30	1.67	2.34	0.675	0.304	ECOS2TP271EA
470	35 x 40	2.40	3.36	0.353	0.123	ECOS2VP471EA	330	35 x 30	1.90	2.66	0.553	0.249	ECOS2TP331EX
560	35 x 40	2.60	3.64	0.296	0.104	ECOS2VP561EX	330	35 x 35	1.90	2.66	0.553	0.249	ECOS2TP331EA
560	35 x 45	2.60	3.64	0.296	0.104	ECOS2VP561EA	390	35 x 35	2.13	2.98	0.468	0.210	ECOS2TP391EX
680	35 x 45	2.96	4.14	0.293	0.117	ECOS2VP681EX	390	35 x 40	2.13	2.98	0.468	0.210	ECOS2TP391EA
680	35 x 50	2.96	4.14	0.293	0.117	ECOS2VP681EA	470	35 x 40	2.39	3.35	0.388	0.175	ECOS2TP471EX
820	35 x 50	3.55	4.97	0.243	0.097	ECOS2VP821EX	470	35 x 45	2.39	3.35	0.388	0.175	ECOS2TP471EA
680	40 x 40	2.96	4.14	0.293	0.117	ECOS2VP681FA	560	35 x 45	2.69	3.77	0.326	0.147	ECOS2TP561EX
1000	40 x 50	3.80	5.32	0.199	0.080	ECOS2VP102FA	560	35 x 50	2.69	3.77	0.326	0.147	ECOS2TP561EA
							680	35 x 50	3.00	4.20	0.268	0.121	ECOS2TP681EX

TS-UP Standard Ratings (continued)

Cap. (μF)	Size (mm) D x L	Max. 85°C R.C. (A _{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number	Cap. (μF)	Size (mm) D x L	Max. 85°C R.C. (A _{rms})		Max. 20°C ESR (Ω)		Panasonic Part Number
		120Hz	10k~100kHz	120Hz	20kHz				120Hz	10k~100kHz	120Hz	20kHz	
400 VDC Working, 450 VDC Surge							450 VDC Working, 500 VDC Surge						
82	20 x 30	0.83	1.16	2.022	0.708	ECOS2GP820AA	56	20 x 30	0.70	0.98	2.960	1.184	ECOS2WP560AA
100	20 x 35	0.92	1.29	1.658	0.580	ECOS2GP101AA	82	20 x 35	0.83	1.16	2.022	0.809	ECOS2WP820AA
120	20 x 40	1.02	1.43	1.382	0.484	ECOS2GP121AA	33	22 x 20	0.20	0.28	6.028	2.411	ECOS2WP330BL
47	22 x 20	0.25	0.35	3.527	1.235	ECOS2GP470BL	33	22 x 25	0.41	0.57	6.028	2.411	ECOS2WP330BA
47	22 x 25	0.47	0.66	3.527	1.235	ECOS2GP470BA	47	22 x 25	0.59	0.83	4.233	1.693	ECOS2WP470BA
68	22 x 25	0.69	0.97	2.438	0.853	ECOS2GP680BA	56	22 x 25	0.70	0.98	2.960	1.184	ECOS2WP560BA
82	22 x 25	0.83	1.16	2.022	0.708	ECOS2GP820BA	82	22 x 30	0.83	1.16	2.022	0.809	ECOS2WP820BA
100	22 x 30	0.92	1.29	1.658	0.580	ECOS2GP101BA	100	22 x 35	0.93	1.30	1.658	0.663	ECOS2WP101BA
120	22 x 35	1.02	1.43	1.382	0.484	ECOS2GP121BA	120	22 x 40	1.04	1.46	1.382	0.553	ECOS2WP121BA
150	22 x 40	1.16	1.62	1.105	0.387	ECOS2GP151BA	150	22 x 50	1.19	1.67	1.105	0.442	ECOS2WP151BA
180	22 x 45	1.44	2.02	0.921	0.322	ECOS2GP181BA	47	25 x 20	0.29	0.41	4.233	1.693	ECOS2WP470CL
220	22 x 50	1.49	2.09	0.754	0.264	ECOS2GP221BA	82	25 x 25	0.83	1.16	2.022	0.809	ECOS2WP820CA
68	25 x 20	0.35	0.49	2.926	1.024	ECOS2GP680CL	120	25 x 30	1.04	1.46	1.382	0.553	ECOS2WP121CA
100	25 x 25	0.92	1.29	1.658	0.580	ECOS2GP101CA	150	25 x 40	1.19	1.67	1.105	0.442	ECOS2WP151CA
120	25 x 25	1.02	1.43	1.382	0.484	ECOS2GP121CX	180	25 x 40	1.35	1.89	0.921	0.368	ECOS2WP181CX
150	25 x 30	1.16	1.62	1.105	0.387	ECOS2GP151CA	180	25 x 45	1.35	1.89	0.921	0.368	ECOS2WP181CA
180	25 x 30	1.44	2.02	0.921	0.322	ECOS2GP181CX	220	25 x 45	1.55	2.17	0.754	0.301	ECOS2WP221CX
180	25 x 35	1.44	2.02	0.921	0.322	ECOS2GP181CA	220	25 x 50	1.55	2.17	0.754	0.301	ECOS2WP221CA
220	25 x 40	1.49	2.09	0.754	0.264	ECOS2GP221CA	68	30 x 20	0.38	0.53	2.926	1.170	ECOS2WP680DL
270	25 x 45	1.67	2.34	0.675	0.236	ECOS2GP271CA	120	30 x 25	1.04	1.46	1.382	0.553	ECOS2WP121DA
100	30 x 20	0.47	0.66	1.989	0.696	ECOS2GP101DL	150	30 x 30	1.19	1.67	1.105	0.442	ECOS2WP151DA
150	30 x 25	1.16	1.62	1.105	0.387	ECOS2GP151DA	180	30 x 30	1.35	1.89	0.921	0.368	ECOS2WP181DX
220	30 x 30	1.49	2.09	0.754	0.264	ECOS2GP221DA	180	30 x 35	1.35	1.89	0.921	0.368	ECOS2WP181DA
270	30 x 35	1.67	2.34	0.675	0.236	ECOS2GP271DA	220	30 x 35	1.55	2.17	0.754	0.301	ECOS2WP221DX
330	30 x 40	1.90	2.66	0.553	0.193	ECOS2GP331DA	220	30 x 40	1.55	2.17	0.754	0.301	ECOS2WP221DA
390	30 x 45	2.13	2.98	0.468	0.164	ECOS2GP391DA	270	30 x 45	1.78	2.49	0.675	0.270	ECOS2WP271DA
150	35 x 20	0.60	0.84	1.326	0.464	ECOS2GP151EL	330	30 x 50	2.01	2.81	0.553	0.249	ECOS2WP331DA
270	35 x 30	1.67	2.34	0.675	0.236	ECOS2GP271EA	100	35 x 20	0.52	0.73	1.989	0.796	ECOS2WP101EL
330	35 x 30	1.90	2.66	0.553	0.193	ECOS2GP331EX	180	35 x 25	1.35	1.89	0.921	0.368	ECOS2WP181EA
330	35 x 35	1.90	2.66	0.553	0.193	ECOS2GP331EA	220	35 x 30	1.55	2.17	0.754	0.301	ECOS2WP221EA
390	35 x 35	2.13	2.98	0.468	0.164	ECOS2GP391EX	270	35 x 30	1.78	2.49	0.614	0.246	ECOS2WP271EX
390	35 x 40	2.13	2.98	0.468	0.164	ECOS2GP391EA	270	35 x 35	1.78	2.49	0.675	0.270	ECOS2WP271EA
470	35 x 40	2.39	3.35	0.388	0.136	ECOS2GP471EX	330	35 x 35	2.01	2.81	0.553	0.221	ECOS2WP331EX
470	35 x 45	2.39	3.35	0.388	0.136	ECOS2GP471EA	330	35 x 40	2.01	2.81	0.553	0.249	ECOS2WP331EA
560	35 x 45	2.69	3.77	0.326	0.114	ECOS2GP561EX	390	35 x 45	2.24	3.14	0.510	0.255	ECOS2WP391EA
560	35 x 50	2.69	3.77	0.326	0.114	ECOS2GP561EA	470	35 x 45	2.53	3.54	0.423	0.233	ECOS2WP471EX
680	35 x 50	3.00	4.20	0.268	0.094	ECOS2GP681EX	470	35 x 50	2.53	3.54	0.423	0.233	ECOS2WP471EA
560	40 x 40	2.69	3.77	0.326	0.114	ECOS2GP561FA	470	40 x 40	2.53	3.54	0.423	0.233	ECOS2WP471FA
820	40 x 50	3.38	4.73	0.222	0.078	ECOS2GP821FA	680	40 x 50	3.15	4.41	0.293	0.161	ECOS2WP681FA
500 VDC Working, 550 VDC Surge													
47	22 x 25	0.63	0.88	3.527	1.411	ECOS2HP470BA							
56	22 x 30	0.70	0.98	2.960	1.184	ECOS2HP560BA							
68	22 x 35	0.78	1.09	2.438	0.975	ECOS2HP680BA							
82	22 x 40	0.88	1.23	2.022	0.809	ECOS2HP820BA							
100	22 x 45	0.99	1.39	1.658	0.663	ECOS2HP101BA							
120	22 x 50	1.13	1.58	1.382	0.553	ECOS2HP121BA							
68	25 x 25	0.78	1.09	2.438	0.975	ECOS2HP680CA							
82	25 x 30	0.88	1.23	2.022	0.809	ECOS2HP820CA							
100	25 x 35	0.99	1.39	1.658	0.663	ECOS2HP101CA							
120	25 x 40	1.13	1.58	1.382	0.553	ECOS2HP121CA							
150	25 x 45	1.29	1.80	1.105	0.442	ECOS2HP151CA							
180	25 x 50	1.38	1.93	0.921	0.368	ECOS2HP181CA							
120	30 x 30	1.13	1.58	1.382	0.553	ECOS2HP121DA							
150	30 x 35	1.29	1.80	1.105	0.442	ECOS2HP151DA							
180	30 x 40	1.38	1.93	0.921	0.368	ECOS2HP181DA							
220	30 x 45	1.50	2.10	0.754	0.339	ECOS2HP221DA							
150	35 x 25	1.20	1.68	1.105	0.442	ECOS2HP151EA							
180	35 x 30	1.36	1.90	0.921	0.368	ECOS2HP181EA							
220	35 x 35	1.54	2.16	0.754	0.301	ECOS2HP221EA							
270	35 x 40	1.76	2.46	0.614	0.276	ECOS2HP271EA							
330	35 x 45	1.99	2.79	0.502	0.251	ECOS2HP331EA							
390	35 x 50	2.22	3.11	0.425	0.234	ECOS2HP391EA							
330	40 x 40	2.16	3.02	0.502	0.276	ECOS2HP331FA							
470	40 x 50	2.70	3.78	0.353	0.194	ECOS2HP471FA							

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