



Aluminum Electrolytic Capacitors Snap-In type

[Series Comparison Chart](#)

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Quick Link (Series / Voltage DC)



TS-UQ 85°C 2000h	TS-UP 85°C 3000h	T-UP 85°C 3000h	TS-HC 105°C 2000h	TS-HA/HB 105°C 3000h	T-HA 105°C 3000h	TS-EE 105°C 3000h	TS-ED 105°C 3000h	TS-XB 105°C 7000h
			10	10				
16	16	16	16	16	16			
25	25	25	25	25	25			
35	35	35	35	35	35			
50	50	50	50	50	50			
63	63	63	63	63	63			
80	80	80	80	80	80			
100	100	100	100	100	100			
160	160	160	160	160				160
								180
200	200	200	200	200	200	200	200	200
250	250	250	250	250	250	250	250	250
								315
350	350	350	350		350			350
	385			385				
400	400	400	400	400	400	400	400	400
420	420		420	420			420	
450	450	450	450	450	450	450	450	450
	500	500						



Panasonic Electronic Devices Corporation of America has been manufacturing aluminum electrolytic capacitors since 1982.

The Knoxville, Tennessee manufacturing plant initially produced the popular 2 pin, snap-in capacitor. Manufacturing has expanded with a full range of "multi pin" capacitors

Product features in this catalog include:

- **Higher capacitance series (TS-UQ & TS-HC)**
- **Higher ripple current capacitor series (TS-ED & TS-EE)**
- **3 Pin, keyed polarity option**
- **Extended CV ratings for many series**
- **RoHS compliant product will have boxes marked according to JEITA ETR-7021**

**RoHS
Compliant**

[[G]] on the box label indicates RoHS compliance

Contact the factory for more information

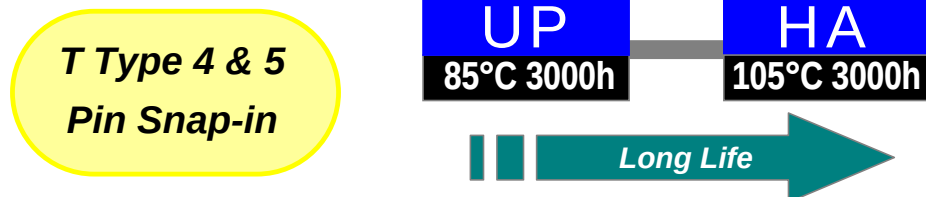
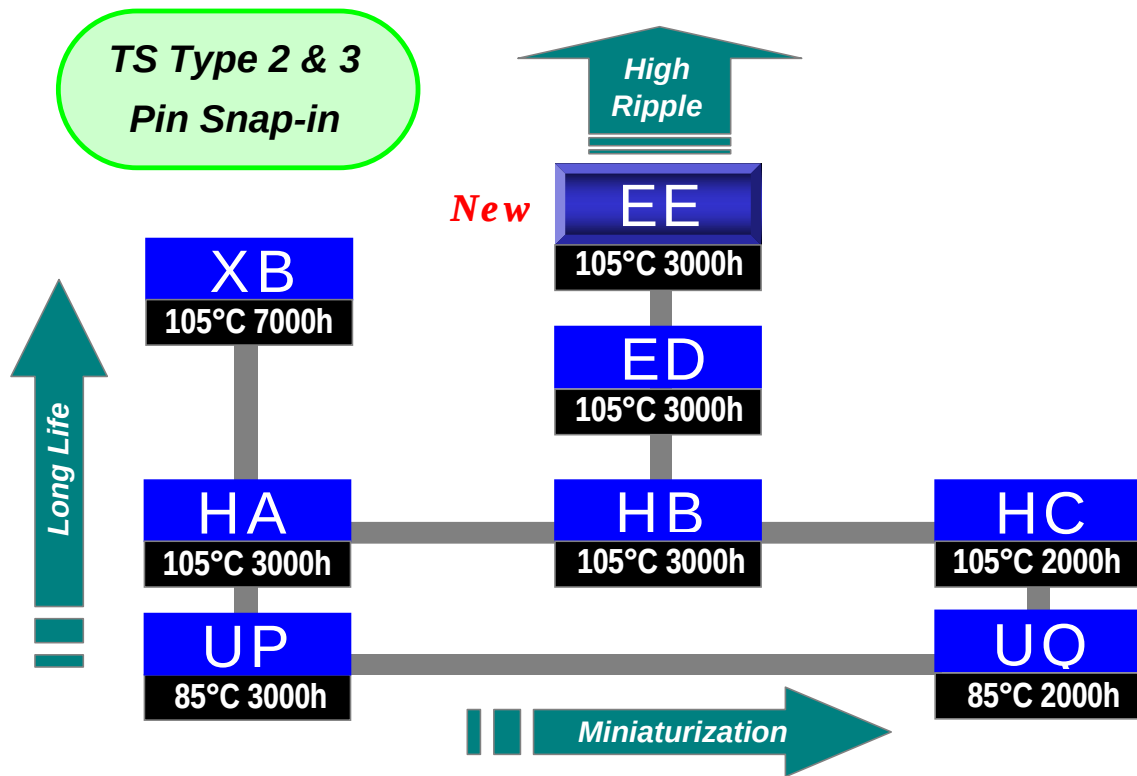
Special designs and more comprehensive technical information are available upon request. Contact your Panasonic sales representative for details.

The information contained herein is believed to be accurate at the time of publication. Design and specifications are subject to change without notice.

No ozone depleting substances (ODS) under the Montreal Protocol are used in the manufacturing process for these products.

Panasonic Electronic Devices Corporation of America is ISO 9001- 2000 and ISO 14001 registered.

Capacitor Series Comparison



Capacitor Quick Guide

Application Guidelines						Page
Type /Series	Endurance (Load Life)	Voltage Range (WV)	Cap. Range (μ F)	Size Range D x L (mm)	Features	
TS-UQ	85°C 2000h	16 ~ 450	82 ~ 100,000	22 x 25 ~ 35 x 50 2 & 3 Pin	Highest CV, general purpose snap-in. 30% smaller than UP series.	7
TS-UP	85°C 2000~3000h	16 ~ 500	33 ~ 68,000	22 x 20 ~ 35 x 50 2 & 3 Pin	Suitable for most general purpose industrial applications. Extended ratings.	15
T-UP	85°C 3000h	16 ~ 500	270 ~ 270,000	35 x 40 ~ 50 x 105 4 & 5 Pin	Suitable for most general purpose industrial applications. Extended ratings	25
TS-HC	105°C 2000h	10 ~ 450	100 ~ 100,000	22 x 25 ~ 35 x 50 2 & 3 Pin	Highest CV, long life snap-in	31
TS-HA / HB	105°C 3000h	10 ~ 450	82 ~ 68,000	22 x 20 ~ 35 x 50 2 & 3 Pin	Long life with high ripple current capability.	39
T-HA	105°C 3000h	16 ~ 450	330 ~ 250,000	35 x 40 ~ 50 x 105 4 & 5 Pin	Long life. Extended ratings.	47
TS-EE	105°C 3000h	200 ~ 450	75 ~ 1,800	22 x 25 ~ 35 x 50 2 & 3 Pin	Highest ripple current	53
TS-ED	105°C 3000h	200 ~ 450	56~2,200	22 x 25 ~ 35 x 50 2 & 3 Pin	Very high ripple current capability for demanding inverter applications.	57
TS-XB	105°C 7000h	160 ~ 450	39 ~ 2,200	22 x 25 ~ 35 x 50 2 & 3 Pin	Longest life snap-in suitable for elevated ambient temperatures.	61

1 General Specifications

Capacitance

Nominal capacitance is specified at a frequency of 120Hz and a temperature of 20°C. Unless specified otherwise, standard capacitance tolerance is $\pm 20\%$ of the nominal value.

Working Voltage

The maximum allowable sum of continuous DC voltage plus peak ripple voltage, which can be applied to the capacitor.

Surge Voltage

The maximum transient voltage level allowed for short periods of time without sustaining permanent damage to the capacitor. Values are listed in the standard product ratings.

Leakage Current

Imperfections in the capacitor dielectric allow a small current to flow. This resultant leakage current is specified as a maximum after 5 minutes application of rated voltage at 20°C. See individual series listings for leakage current equations.

ESR (Equivalent Series Resistance)

Equivalent series resistance causes heat generation within the capacitor when AC ripple current flows through the capacitor. Maximum ESR is normally specified at 120Hz, 20°C.

Ripple Current

Ripple current is the rms value of alternating current flowing through a capacitor. This current causes an internal temperature rise due to power losses within the capacitor.

The standard product tables list allowable ripple current limits at specified maximum operating temperatures.

Ripple current multipliers for other temperatures and frequencies are listed in the introductory page for each series.

Endurance Life Test

Endurance life is the minimum time a capacitor can operate under worst-case conditions.

Duration: Specified hours of life

Ambient Temp.: Maximum specified operating temperature

Ripple Current: Maximum specified value

Applied voltage: Rated DC voltage (the sum of the applied DC voltage plus the peak ripple voltage should not exceed rated working voltage).

Post test requirements at +20°C:

Leakage Current: < Initial specified value

Cap. change: $< \pm 20\%$ of initial measured value

D.F./E.S.R.: < 200% of initial specified value

Shelf Life Test

Duration: 1000 hours

Ambient Temp.: Maximum specified operating temperature

Applied Voltage: None

Post test requirements at +20°C:

Same as the preceding Endurance Test requirements.

Measurements are to be performed after applying DC working voltage for 30 minutes.

2 Storage Life

Leakage current will increase during extended storage.

Capacitors should be stored in temperatures not to exceed +40°C and protected from direct exposure to sunlight.

Under normal conditions, storage life can exceed 10 years.

It is recommended that the leakage current be checked for conformance to the specified limit if the capacitor has been stored for four years or more.

Storage may require reforming of the capacitor to reduce leakage current below the specified limit. This can be accomplished by applying rated voltage in series with a 1000 resistor for a time period of 30 ~ 60 minutes.

The capacitor is acceptable for use if the capacitor leakage current is within the original specified limit or the capacitor is reformed to within the original specified limit.

Storage in high humidity conditions could cause oxidation of the terminal plating, which could adversely affect solderability.

3 Operation Life Expectancy

Aluminum electrolytic capacitors have a specified life at a maximum temperature and ripple current.

Operation Life Expectancy (continued)

Capacitor life at lower temperatures follows "The Doubling 10°C Rule" where life is doubled for each 10°C reduction in operating temperature. Voltage derating can also improve life expectancy and reliability. The following equations are useful for determining the life of the capacitor in the application;

For $WV = 10\sim 100VDC$;

$$L_2 = L_1 \times 2^{(T_1 - (T_2 - \Delta T))/10}$$

For $WV = 160\sim 500VDC$;

$$L_2 = L_1 \times 2^{(T_1 - (T_2 - \Delta T))/10} \times (V/WV)^{-6.5}$$

Where;

L_1 = Specified life (hours) at maximum operating temperature.

L_2 = Expected life result (hours).

T_1 = Maximum specified operating temperature.

T_2 = Actual ambient temperature (°C)

ΔT = Ripple current temperature rise (°C).

WV = Rated Capacitor voltage (160~500VDC).

V = Applied voltage

NOTE: $WV \geq V \geq 0.9 \times WV$

Use of the ripple current temperature multipliers listed for each product series may limit life to the value originally specified for maximum operating temperature.

It is recommended that the ripple current heat rise be limited to 15°C at lower ambient temperatures to accomplish the maximum operating life in the application.

End of life is defined by the occurrence of one of the following:

- Capacitance change exceeds 20% of the initial measured value.
- Dissipation factor exceeds 200% of the initial specified value.

- Leakage current exceeds the initial specified value.

NOTE: Electrical measurements are taken after the capacitor is stabilized at 20°C.

4 Circuit Design Considerations

Operating Temperature and Frequency

Aluminum electrolytic capacitor electrical characteristics are normally specified at a temperature of 20°C and a frequency of 120Hz.

Electrical parameters are temperature and frequency dependent as follows:

(1) Effects of operating temperature

At higher temperatures capacitance and leakage current increase while ESR decreases.

At lower temperatures, capacitance and leakage current will decrease while ESR increases.

(2) Effects of frequency

Capacitance, impedance, and ESR will decrease as frequency increases.

At lower frequencies, ripple current generated temperature will rise due to increasing ESR.

Reverse Voltage

DC capacitors have polarity, which must be verified before insertion.

Avoid use in circuits with changing or uncertain polarity.

Ensure that allowable ripple currents super-imposed on DC voltage do not cause reverse voltage conditions.

Charge / Discharge applications

Standard capacitors are not suitable for use in strobe or photoflash applications.

Contact the factory for low duty cycle applications.

Capacitors Connected in Parallel

Circuit resistance can approximate the series resistance of the capacitor, resulting in ripple current load imbalances. Careful design of wiring methods can

minimize excessive ripple currents applied to a capacitor.

Capacitors Connected in Series

Normal DC leakage current variations among capacitors can cause voltage differences. The use of voltage dividing sharing resistors with consideration to leakage currents can compensate for voltage imbalances.

Circuit Design Considerations (continued)

Electrical Precautions

Transient recovery voltage may be generated in the capacitor due to dielectric absorption. Typical voltage levels are less than 10% of the rated capacitor voltage. If required, the voltage can be discharged with a resistor.

The aluminum case of the capacitor has an indeterminate resistance to the cathode terminal. The sleeve on the capacitor is for marking and identification purposes and is not meant to electrically isolate the capacitor.

When designing circuits, consider worst case capacitor failure modes such as open or short circuits.

The effects of hot, electrically conductive, combustible electrolyte liquid or vapor escaping from the safety vent should also be considered.

5 Capacitor Mounting Considerations

Circuit Board Design

Avoid wiring pattern runs, which pass between the mounted capacitor and the circuit board. When dipping into a solder bath, excessive solder may collect under the capacitor by capillary action and short circuit the anode and cathode terminals.

The sleeve of the capacitor can be damaged if solder passes through a lead hole for subsequently processed parts.

Electrically isolate the extra terminal(s) on 4 and 5 pin products from the anode terminal, cathode terminal, and other circuit paths.

Clearance Requirements

Case mounted pressure relief vents require a clearance of 3mm minimum above the top of the case to operate properly.

Circuit Board Cleaning

Aluminum electrolytic capacitors can withstand immersion or ultrasonic cleaning with "safe" cleaning solvents for up to 5 minutes and 60°C maximum temperatures.

Most aqueous based cleaning solvents and detergents are acceptable. Some solvent groups could damage capacitors as follows:

Halogenated cleaning solvents may permeate the capacitor seal, causing internal corrosion and failure.

Alkali solvents may attack and dissolve the aluminum case.

Petroleum based solvents may deteriorate the rubber seal.

Xylene may deteriorate the rubber seal.

Acetone and some alcohols may remove sleeve ink

A thorough rinsing and drying process will prevent entrapment of residual solvents between the capacitor and the circuit board and the capacitor case and the sleeve. Excessive drying temperatures and / or radiant heat drying sources may result in splitting or excessive shrinkage of the sleeve.

Mounting Adhesives and Coating Agents

When using mounting adhesives or coating agents, avoid materials with halogenated solvents including chloroprene based polymers.

A thorough drying process for adhesives or coatings is required to prevent solvent entrapment between the capacitor and the circuit board.

Mounting adhesives or reinforcements clamps are recommended on 2 or 3 pin styles with case sizes of 35 x 45mm or larger. Additional mounting support is also recommended for 4 or 5 pin styles with lengths exceeding 63mm.

6 Safety Precautions

If the pressure relief vent of the capacitor should operate, immediately turn off the equipment and disconnect from the power source.

Avoid contact with the escaping electrolyte, which can exceed 100°C temperatures.

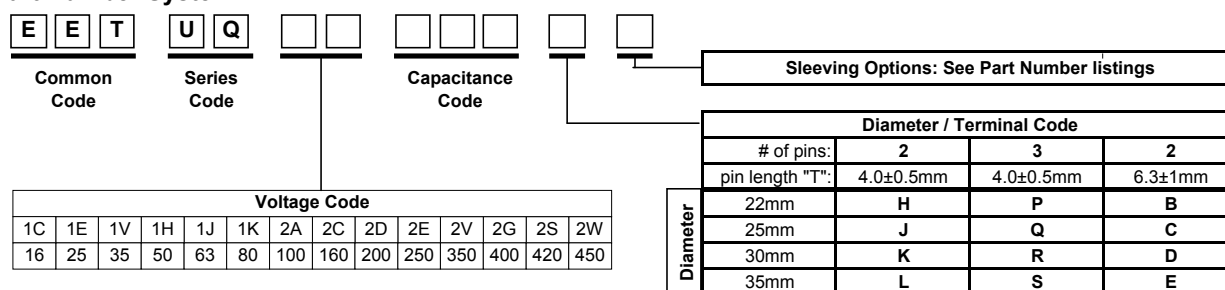
If electrolyte or vapors enter the eye, immediately flush the eye with large amounts of water and seek medical attention. If electrolytes or vapors are ingested by mouth, gargle with water. If electrolyte contacts the skin, wash with soap and water.

- **Highest capacitance version (30% smaller than UP series)**
- **2 and 3 pin versions available**
- **RoHS compliant PVC and RoHS compliant PET sleeve options**

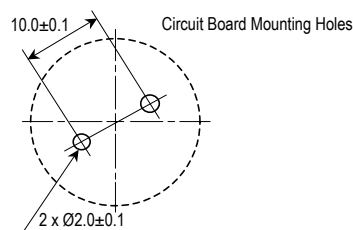
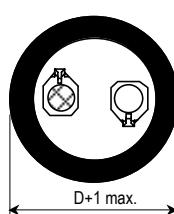
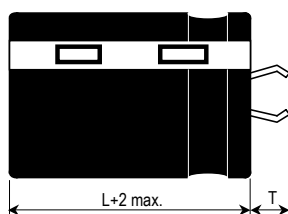


Rated Working Voltage:	16 ~ 250 VDC						350 ~ 450 VDC					
Operating Temperature:	-40 ~ +85°C						-25 ~ +85°C					
Nominal Capacitance:	270 ~ 100000μF						82 ~ 1000μF					
Capacitance Tolerance:	± 20%											
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:		16	25	35	50	63	80	100	160 ~ 450		
	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:	2000 hours at +85°C with maximum specified ripple current (see page 4)											

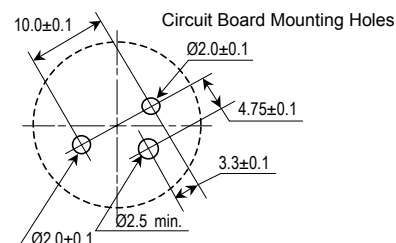
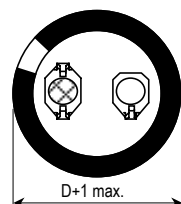
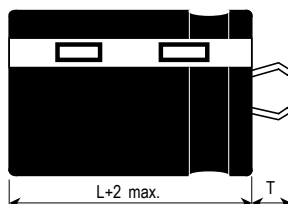
Part Number System



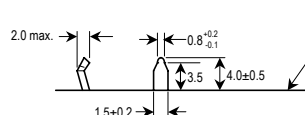
2 Pin Mounting Style



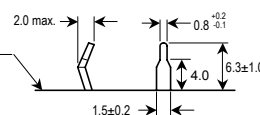
3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles



6.3mm Length: Available on 2 Pin Mounting Style Only

Aluminum Electrolytic Capacitors

TS-UQ Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
16 VDC Working, 20 VDC Surge							
12000	22 x 25	4.52	5.20	0.069	0.059	EETUQ1C123HA	EETUQ1C123HJ
15000	22 x 30	5.26	6.05	0.055	0.047	EETUQ1C153HA	EETUQ1C153HJ
18000	22 x 35	5.57	6.41	0.046	0.039	EETUQ1C183HA	EETUQ1C183HJ
	25 x 25	5.57	6.41	0.046	0.039	EETUQ1C183JA	EETUQ1C183JJ
22000	22 x 40	6.10	7.02	0.038	0.032	EETUQ1C223HA	EETUQ1C223HJ
	25 x 30	6.10	7.02	0.038	0.032	EETUQ1C223JA	EETUQ1C223JJ
27000	22 x 45	6.31	7.26	0.031	0.026	EETUQ1C273HA	EETUQ1C273HJ
	25 x 35	6.31	7.26	0.031	0.026	EETUQ1C273JA	EETUQ1C273JJ
	30 x 25	6.31	7.26	0.031	0.026	EETUQ1C273KA	EETUQ1C273KJ
33000	22 x 50	6.84	7.87	0.025	0.021	EETUQ1C333HA	EETUQ1C333HJ
	25 x 40	6.84	7.87	0.025	0.021	EETUQ1C333JA	EETUQ1C333JJ
	30 x 30	6.84	7.87	0.025	0.021	EETUQ1C333KA	EETUQ1C333KJ
	35 x 25	6.84	7.87	0.025	0.021	EETUQ1C333LA	EETUQ1C333LJ
39000	25 x 45	6.94	7.98	0.024	0.020	EETUQ1C393JA	EETUQ1C393JJ
	30 x 35	6.94	7.98	0.024	0.020	EETUQ1C393KA	EETUQ1C393KJ
47000	25 x 50	7.47	8.59	0.023	0.019	EETUQ1C473JA	EETUQ1C473JJ
	30 x 40	7.47	8.59	0.023	0.019	EETUQ1C473KA	EETUQ1C473KJ
	35 x 30	7.47	8.59	0.023	0.019	EETUQ1C473LA	EETUQ1C473LJ
56000	30 x 45	8.73	10.04	0.022	0.019	EETUQ1C563KA	EETUQ1C563KJ
	35 x 35	8.73	10.04	0.022	0.019	EETUQ1C563LA	EETUQ1C563LJ
68000	30 x 50	9.05	10.41	0.021	0.018	EETUQ1C683KA	EETUQ1C683KJ
	35 x 40	9.05	10.41	0.021	0.018	EETUQ1C683LA	EETUQ1C683LJ
82000	35 x 45	9.49	10.91	0.020	0.018	EETUQ1C823LA	EETUQ1C823LJ
100000	35 x 50	10.18	11.71	0.019	0.018	EETUQ1C104LA	EETUQ1C104LJ
25 VDC Working, 32 VDC Surge							
8200	22 x 25	3.57	4.11	0.081	0.065	EETUQ1E822HA	EETUQ1E822HJ
12000	22 x 30	4.10	4.72	0.055	0.044	EETUQ1E123HA	EETUQ1E123HJ
	25 x 25	4.10	4.72	0.055	0.044	EETUQ1E123JA	EETUQ1E123JJ
15000	22 x 35	4.63	5.32	0.044	0.035	EETUQ1E153HA	EETUQ1E153HJ
	25 x 30	4.63	5.32	0.044	0.035	EETUQ1E153JA	EETUQ1E153JJ
18000	22 x 40	5.47	6.29	0.037	0.029	EETUQ1E183HA	EETUQ1E183HJ
	25 x 35	5.47	6.29	0.037	0.029	EETUQ1E183JA	EETUQ1E183JJ
	30 x 25	5.47	6.29	0.037	0.029	EETUQ1E183KA	EETUQ1E183KJ
22000	22 x 45	6.10	7.02	0.030	0.024	EETUQ1E223HA	EETUQ1E223HJ
	25 x 40	6.10	7.02	0.030	0.024	EETUQ1E223JA	EETUQ1E223JJ
	30 x 30	6.10	7.02	0.030	0.024	EETUQ1E223KA	EETUQ1E223KJ
	35 x 25	6.10	7.02	0.030	0.024	EETUQ1E223LA	EETUQ1E223LJ
27000	25 x 45	6.21	7.14	0.025	0.020	EETUQ1E273JA	EETUQ1E273JJ
	30 x 35	6.21	7.14	0.025	0.020	EETUQ1E273KA	EETUQ1E273KJ
33000	25 x 50	6.84	7.87	0.020	0.016	EETUQ1E333JA	EETUQ1E333JJ
	30 x 40	6.84	7.87	0.020	0.016	EETUQ1E333KA	EETUQ1E333KJ
	35 x 30	6.84	7.87	0.020	0.016	EETUQ1E333LA	EETUQ1E333LJ
39000	30 x 45	7.36	8.46	0.020	0.016	EETUQ1E393KA	EETUQ1E393KJ
	35 x 35	7.36	8.46	0.020	0.016	EETUQ1E393LA	EETUQ1E393LJ
47000	30 x 50	8.00	9.20	0.019	0.016	EETUQ1E473KA	EETUQ1E473KJ
	35 x 40	8.00	9.20	0.019	0.016	EETUQ1E473LA	EETUQ1E473LJ
56000	35 x 45	8.91	10.25	0.019	0.016	EETUQ1E563LA	EETUQ1E563LJ
68000	35 x 50	9.79	11.26	0.018	0.016	EETUQ1E683LA	EETUQ1E683LJ
35 VDC Working, 44 VDC Surge							
5600	22 x 25	3.36	3.86	0.104	0.078	EETUQ1V562HA	EETUQ1V562HJ
8200	22 x 30	4.00	4.60	0.071	0.053	EETUQ1V822HA	EETUQ1V822HJ
	25 x 25	4.00	4.60	0.071	0.053	EETUQ1V822JA	EETUQ1V822JJ
10000	22 x 35	4.42	5.08	0.058	0.044	EETUQ1V103HA	EETUQ1V103HJ
	25 x 30	4.42	5.08	0.058	0.044	EETUQ1V103JA	EETUQ1V103JJ
12000	22 x 40	5.05	5.81	0.048	0.036	EETUQ1V123HA	EETUQ1V123HJ
	25 x 35	5.05	5.81	0.048	0.036	EETUQ1V123JA	EETUQ1V123JJ
	30 x 25	5.05	5.81	0.048	0.036	EETUQ1V123KA	EETUQ1V123KJ
15000	22 x 45	5.57	6.41	0.039	0.029	EETUQ1V153HA	EETUQ1V153HJ
	25 x 40	5.57	6.41	0.039	0.029	EETUQ1V153JA	EETUQ1V153JJ
18000	25 x 45	5.68	6.53	0.032	0.024	EETUQ1V183JA	EETUQ1V183JJ
	30 x 30	5.68	6.53	0.032	0.024	EETUQ1V183KA	EETUQ1V183KJ
	35 x 25	5.68	6.53	0.032	0.024	EETUQ1V183LA	EETUQ1V183LJ

Aluminum Electrolytic Capacitors

TS-UQ Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Slewing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
35 VDC Working, 44 VDC Surge (continued)							
22000	25 x 50	6.10	7.02	0.026	0.020	EETUQ1V223JA	EETUQ1V223JJ
	30 x 35	6.10	7.02	0.026	0.020	EETUQ1V223KA	EETUQ1V223KJ
	35 x 30	6.10	7.02	0.026	0.020	EETUQ1V223LA	EETUQ1V223LJ
27000	30 x 45	6.84	7.87	0.021	0.016	EETUQ1V273KA	EETUQ1V273KJ
	35 x 35	6.84	7.87	0.021	0.016	EETUQ1V273LA	EETUQ1V273LJ
33000	30 x 50	7.15	8.22	0.018	0.013	EETUQ1V333KA	EETUQ1V333KJ
	35 x 40	7.15	8.22	0.018	0.014	EETUQ1V333LA	EETUQ1V333LJ
39000	35 x 45	7.91	9.10	0.017	0.014	EETUQ1V393LA	EETUQ1V393LJ
47000	35 x 50	8.56	9.84	0.017	0.014	EETUQ1V473LA	EETUQ1V473LJ
50 VDC Working, 63 VDC Surge							
3300	22 x 25	2.73	3.14	0.151	0.113	EETUQ1H332HA	EETUQ1H332HJ
4700	22 x 30	3.03	3.48	0.106	0.079	EETUQ1H472HA	EETUQ1H472HJ
	25 x 25	3.03	3.48	0.106	0.079	EETUQ1H472JA	EETUQ1H472JJ
5600	22 x 35	3.42	3.93	0.089	0.067	EETUQ1H562HA	EETUQ1H562HJ
6800	22 x 40	3.85	4.43	0.073	0.055	EETUQ1H682HA	EETUQ1H682HJ
	25 x 30	3.85	4.43	0.073	0.055	EETUQ1H682JA	EETUQ1H682JJ
	30 x 25	3.85	4.43	0.073	0.055	EETUQ1H682KA	EETUQ1H682KJ
8200	22 x 45	4.41	5.07	0.061	0.045	EETUQ1H822HA	EETUQ1H822HJ
	25 x 35	4.41	5.07	0.061	0.045	EETUQ1H822JA	EETUQ1H822JJ
10000	22 x 50	4.97	5.72	0.050	0.037	EETUQ1H103HA	EETUQ1H103HJ
	25 x 40	4.97	5.72	0.050	0.037	EETUQ1H103JA	EETUQ1H103JJ
	30 x 30	4.97	5.72	0.050	0.037	EETUQ1H103KA	EETUQ1H103KJ
	35 x 25	4.97	5.72	0.050	0.037	EETUQ1H103LA	EETUQ1H103LJ
12000	25 x 45	5.58	6.42	0.041	0.031	EETUQ1H123JA	EETUQ1H123JJ
	30 x 35	5.58	6.42	0.041	0.031	EETUQ1H123KA	EETUQ1H123KJ
	35 x 30	5.58	6.42	0.041	0.031	EETUQ1H123LA	EETUQ1H123LJ
15000	30 x 40	6.44	7.41	0.033	0.025	EETUQ1H153KA	EETUQ1H153KJ
	35 x 35	6.44	7.41	0.033	0.025	EETUQ1H153LA	EETUQ1H153LJ
18000	30 x 45	6.94	7.98	0.028	0.021	EETUQ1H183KA	EETUQ1H183KJ
	35 x 40	6.94	7.98	0.028	0.021	EETUQ1H183LA	EETUQ1H183LJ
22000	35 x 45	7.57	8.71	0.023	0.018	EETUQ1H223LA	EETUQ1H223LJ
27000	35 x 50	8.96	10.30	0.018	0.015	EETUQ1H273LA	EETUQ1H273LJ
63 VDC Working, 79 VDC Surge							
2200	22 x 25	2.52	2.90	0.188	0.141	EETUQ1J222HA	EETUQ1J222HJ
3300	22 x 30	4.10	4.72	0.126	0.094	EETUQ1J332HA	EETUQ1J332HJ
	25 x 25	4.10	4.72	0.126	0.094	EETUQ1J332JA	EETUQ1J332JJ
3900	22 x 35	4.44	5.11	0.106	0.080	EETUQ1J392HA	EETUQ1J392HJ
	25 x 30	4.44	5.11	0.106	0.080	EETUQ1J392JA	EETUQ1J392JJ
4700	22 x 40	4.86	5.59	0.088	0.066	EETUQ1J472HA	EETUQ1J472HJ
	25 x 35	4.86	5.59	0.088	0.066	EETUQ1J472JA	EETUQ1J472JJ
	30 x 25	4.86	5.59	0.088	0.066	EETUQ1J472KA	EETUQ1J472KJ
5600	22 x 45	5.36	6.16	0.074	0.056	EETUQ1J562HA	EETUQ1J562HJ
	25 x 40	5.36	6.16	0.074	0.056	EETUQ1J562JA	EETUQ1J562JJ
6800	25 x 45	5.84	6.72	0.061	0.046	EETUQ1J682JA	EETUQ1J682JJ
	30 x 30	5.84	6.72	0.061	0.046	EETUQ1J682KA	EETUQ1J682KJ
	35 x 25	5.84	6.72	0.061	0.046	EETUQ1J682LA	EETUQ1J682LJ
8200	25 x 50	6.00	6.90	0.051	0.038	EETUQ1J822JA	EETUQ1J822JJ
	30 x 35	6.00	6.90	0.051	0.038	EETUQ1J822KA	EETUQ1J822KJ
	35 x 30	6.00	6.90	0.051	0.038	EETUQ1J822LA	EETUQ1J822LJ
10000	30 x 40	6.52	7.50	0.041	0.031	EETUQ1J103KA	EETUQ1J103KJ
	35 x 35	6.52	7.50	0.041	0.031	EETUQ1J103LA	EETUQ1J103LJ
12000	30 x 45	7.15	8.22	0.035	0.026	EETUQ1J123KA	EETUQ1J123KJ
	35 x 40	7.15	8.22	0.035	0.026	EETUQ1J123LA	EETUQ1J123LJ
15000	35 x 45	7.91	9.10	0.028	0.021	EETUQ1J153LA	EETUQ1J153LJ
18000	35 x 50	8.55	9.83	0.023	0.018	EETUQ1J183LA	EETUQ1J183LJ
80 VDC Working, 100 VDC Surge							
1500	22 x 25	2.26	2.60	0.221	0.166	EETUQ1K152HA	EETUQ1K152HJ
1800	22 x 30	2.52	2.90	0.184	0.138	EETUQ1K182HA	EETUQ1K182HJ
2200	22 x 35	2.73	3.14	0.151	0.113	EETUQ1K222HA	EETUQ1K222HJ
	25 x 25	2.73	3.14	0.151	0.113	EETUQ1K222JA	EETUQ1K222JJ
2700	22 x 40	2.78	3.20	0.123	0.092	EETUQ1K272HA	EETUQ1K272HJ
	25 x 30	2.78	3.20	0.123	0.092	EETUQ1K272JA	EETUQ1K272JJ

TS-UQ Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
80 VDC Working, 105 VDC Surge (continued)							
3300	22 x 45	3.21	3.69	0.100	0.075	EETUQ1K332HA	EETUQ1K332HJ
	25 x 35	3.21	3.69	0.100	0.075	EETUQ1K332JA	EETUQ1K332JJ
	30 x 25	3.21	3.69	0.100	0.075	EETUQ1K332KA	EETUQ1K332KJ
3900	22 x 50	3.59	4.13	0.085	0.064	EETUQ1K392HA	EETUQ1K392HJ
	25 x 40	3.59	4.13	0.085	0.064	EETUQ1K392JA	EETUQ1K392JJ
	35 x 25	3.59	4.13	0.085	0.064	EETUQ1K392LA	EETUQ1K392LJ
4700	25 x 45	4.09	4.70	0.071	0.053	EETUQ1K472JA	EETUQ1K472JJ
	30 x 30	4.09	4.70	0.071	0.053	EETUQ1K472KA	EETUQ1K472KJ
5600	25 x 50	4.55	5.23	0.059	0.044	EETUQ1K562JA	EETUQ1K562JJ
	30 x 35	4.55	5.23	0.059	0.044	EETUQ1K562KA	EETUQ1K562KJ
	35 x 30	4.55	5.23	0.059	0.044	EETUQ1K562LA	EETUQ1K562LJ
6800	30 x 45	5.16	5.93	0.049	0.037	EETUQ1K682KA	EETUQ1K682KJ
	35 x 35	5.16	5.93	0.049	0.037	EETUQ1K682LA	EETUQ1K682LJ
8200	30 x 50	5.83	6.70	0.040	0.030	EETUQ1K822KA	EETUQ1K822KJ
	35 x 40	5.83	6.70	0.040	0.030	EETUQ1K822LA	EETUQ1K822LJ
10000	35 x 45	6.51	7.49	0.033	0.025	EETUQ1K103LA	EETUQ1K103LJ
12000	35 x 50	7.28	8.37	0.028	0.021	EETUQ1K123LA	EETUQ1K123LJ
100 VDC Working, 125 VDC Surge							
1000	22 x 25	1.96	2.25	0.332	0.216	EETUQ2A102HA	EETUQ2A102HJ
1200	25 x 25	2.31	2.66	0.276	0.180	EETUQ2A122JA	EETUQ2A122JJ
1500	22 x 30	2.57	2.96	0.221	0.144	EETUQ2A152HA	EETUQ2A152HJ
1800	22 x 35	2.84	3.27	0.184	0.120	EETUQ2A182HA	EETUQ2A182HJ
	25 x 30	2.84	3.27	0.184	0.120	EETUQ2A182JA	EETUQ2A182JJ
2200	22 x 45	3.14	3.61	0.151	0.098	EETUQ2A222HA	EETUQ2A222HJ
	25 x 35	3.14	3.61	0.151	0.098	EETUQ2A222JA	EETUQ2A222JJ
	30 x 25	3.14	3.61	0.151	0.098	EETUQ2A222KA	EETUQ2A222KJ
2700	22 x 50	3.71	4.27	0.123	0.080	EETUQ2A272HA	EETUQ2A272HJ
	25 x 40	3.71	4.27	0.123	0.080	EETUQ2A272JA	EETUQ2A272JJ
	30 x 30	3.71	4.27	0.123	0.080	EETUQ2A272KA	EETUQ2A272KJ
	35 x 25	3.71	4.27	0.123	0.080	EETUQ2A272LA	EETUQ2A272LJ
3300	25 x 45	4.06	4.67	0.100	0.065	EETUQ2A332JA	EETUQ2A332JJ
	30 x 35	4.06	4.67	0.100	0.065	EETUQ2A332KA	EETUQ2A332KJ
3900	25 x 50	4.54	5.22	0.085	0.055	EETUQ2A392JA	EETUQ2A392JJ
	30 x 40	4.54	5.22	0.085	0.055	EETUQ2A392KA	EETUQ2A392KJ
	35 x 30	4.54	5.22	0.085	0.055	EETUQ2A392LA	EETUQ2A392LJ
4700	30 x 45	5.13	5.90	0.071	0.046	EETUQ2A472KA	EETUQ2A472KJ
	35 x 35	5.13	5.90	0.071	0.046	EETUQ2A472LA	EETUQ2A472LJ
5600	30 x 50	5.75	6.61	0.059	0.041	EETUQ2A562KA	EETUQ2A562KJ
	35 x 40	5.75	6.61	0.059	0.038	EETUQ2A562LA	EETUQ2A562LJ
6800	35 x 45	6.60	7.59	0.049	0.034	EETUQ2A682LA	EETUQ2A682LJ
8200	35 x 50	7.29	8.38	0.040	0.030	EETUQ2A822LA	EETUQ2A822LJ
160 VDC Working, 200 VDC Surge							
560	22 x 25	2.25	3.15	0.355	0.160	EETUQ2C561HA	EETUQ2C561HJ
680	22 x 30	2.50	3.50	0.293	0.132	EETUQ2C681HA	EETUQ2C681HJ
820	22 x 35	2.75	3.85	0.243	0.109	EETUQ2C821HA	EETUQ2C821HJ
1000	22 x 40	3.00	4.20	0.199	0.090	EETUQ2C102HA	EETUQ2C102HJ
	25 x 30	3.00	4.20	0.199	0.090	EETUQ2C102JA	EETUQ2C102JJ
1200	22 x 45	3.25	4.55	0.166	0.075	EETUQ2C122HA	EETUQ2C122HJ
	25 x 35	3.25	4.55	0.166	0.075	EETUQ2C122JA	EETUQ2C122JJ
	30 x 25	3.25	4.55	0.166	0.075	EETUQ2C122KA	EETUQ2C122KJ
1500	22 x 50	3.73	5.22	0.133	0.060	EETUQ2C152HA	EETUQ2C152HJ
	25 x 40	3.73	5.22	0.133	0.060	EETUQ2C152JA	EETUQ2C152JJ
	30 x 30	3.73	5.22	0.133	0.060	EETUQ2C152KA	EETUQ2C152KJ
	35 x 25	3.73	5.22	0.133	0.060	EETUQ2C152LA	EETUQ2C152LJ
1800	25 x 45	4.20	5.88	0.111	0.050	EETUQ2C182JA	EETUQ2C182JJ
	30 x 35	4.20	5.88	0.120	0.060	EETUQ2C182KA	EETUQ2C182KJ
	35 x 30	4.20	5.88	0.111	0.050	EETUQ2C182LA	EETUQ2C182LJ
2200	30 x 40	4.78	6.69	0.090	0.041	EETUQ2C222KA	EETUQ2C222KJ
	35 x 35	4.78	6.69	0.098	0.049	EETUQ2C222LA	EETUQ2C222LJ
2700	30 x 45	5.45	7.63	0.074	0.033	EETUQ2C272KA	EETUQ2C272KJ
	35 x 40	5.45	7.63	0.080	0.040	EETUQ2C272LA	EETUQ2C272LJ
3300	35 x 45	5.75	8.05	0.070	0.035	EETUQ2C332LA	EETUQ2C332LJ
3900	35 x 50	6.00	8.40	0.055	0.028	EETUQ2C392LA	EETUQ2C392LJ

TS-UQ Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Slewing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC sleeve with Top Plate	PET sleeve without Top Plate
200 VDC Working, 250 VDC Surge							
390	22 x 25	1.68	2.35	0.510	0.230	EETUQ2D391HA	EETUQ2D391HJ
470	22 x 30	1.85	2.59	0.423	0.190	EETUQ2D471HA	EETUQ2D471HJ
560	22 x 30	2.43	3.40	0.355	0.160	EETUQ2D561HA	EETUQ2D561HJ
	25 x 25	2.43	3.40	0.355	0.160	EETUQ2D561JA	EETUQ2D561JJ
680	22 x 35	2.68	3.75	0.293	0.132	EETUQ2D681HA	EETUQ2D681HJ
	25 x 30	2.68	3.75	0.293	0.132	EETUQ2D681JA	EETUQ2D681JJ
820	22 x 40	2.93	4.10	0.243	0.109	EETUQ2D821HA	EETUQ2D821HJ
	25 x 30	2.93	4.10	0.243	0.109	EETUQ2D821JA	EETUQ2D821JJ
	30 x 25	2.93	4.10	0.243	0.109	EETUQ2D821KA	EETUQ2D821KJ
1000	22 x 45	3.25	4.55	0.199	0.090	EETUQ2D102HA	EETUQ2D102HJ
	25 x 35	3.25	4.55	0.199	0.090	EETUQ2D102JA	EETUQ2D102JJ
	30 x 30	3.25	4.55	0.199	0.090	EETUQ2D102KA	EETUQ2D102KJ
	35 x 25	3.25	4.55	0.232	0.116	EETUQ2D102LA	EETUQ2D102LJ
1200	22 x 50	3.50	4.90	0.166	0.075	EETUQ2D122HA	EETUQ2D122HJ
	25 x 40	3.50	4.90	0.166	0.075	EETUQ2D122JA	EETUQ2D122JJ
	30 x 30	3.50	4.90	0.166	0.075	EETUQ2D122KA	EETUQ2D122KJ
1500	25 x 50	3.87	5.42	0.133	0.060	EETUQ2D152JA	EETUQ2D152JJ
	30 x 35	3.87	5.42	0.144	0.065	EETUQ2D152KA	EETUQ2D152KJ
	35 x 30	3.87	5.42	0.144	0.065	EETUQ2D152LA	EETUQ2D152LJ
1800	30 x 45	4.32	6.05	0.120	0.060	EETUQ2D182KA	EETUQ2D182KJ
	35 x 35	4.32	6.05	0.120	0.060	EETUQ2D182LA	EETUQ2D182LJ
2200	30 x 50	4.92	6.89	0.098	0.049	EETUQ2D222KA	EETUQ2D222KJ
	35 x 40	4.92	6.89	0.105	0.053	EETUQ2D222LA	EETUQ2D222LJ
2700	35 x 50	5.45	7.63	0.086	0.043	EETUQ2D272LA	EETUQ2D272LJ
250 VDC Working, 300 VDC Surge							
270	22 x 25	1.31	1.83	0.737	0.332	EETUQ2E271HA	EETUQ2E271HJ
330	22 x 30	1.75	2.45	0.603	0.271	EETUQ2E331HA	EETUQ2E331HJ
390	22 x 30	1.91	2.67	0.510	0.230	EETUQ2E391HA	EETUQ2E391HJ
	25 x 25	1.91	2.67	0.510	0.230	EETUQ2E391JA	EETUQ2E391JJ
470	22 x 35	2.11	2.95	0.423	0.190	EETUQ2E471HA	EETUQ2E471HJ
	25 x 30	2.11	2.95	0.423	0.190	EETUQ2E471JA	EETUQ2E471JJ
560	22 x 40	2.25	3.15	0.355	0.160	EETUQ2E561HA	EETUQ2E561HJ
	25 x 30	2.25	3.15	0.355	0.160	EETUQ2E561JA	EETUQ2E561JJ
	30 x 25	2.25	3.15	0.355	0.160	EETUQ2E561KA	EETUQ2E561KJ
680	22 x 45	2.50	3.50	0.293	0.132	EETUQ2E681HA	EETUQ2E681HJ
	25 x 35	2.50	3.50	0.293	0.132	EETUQ2E681JA	EETUQ2E681JJ
	30 x 30	2.50	3.50	0.293	0.132	EETUQ2E681KA	EETUQ2E681KJ
820	22 x 50	2.77	3.88	0.243	0.109	EETUQ2E821HA	EETUQ2E821HJ
	25 x 40	2.77	3.88	0.243	0.109	EETUQ2E821JA	EETUQ2E821JJ
	30 x 30	2.77	3.88	0.243	0.109	EETUQ2E821KA	EETUQ2E821KJ
	35 x 25	2.77	3.88	0.243	0.121	EETUQ2E821LA	EETUQ2E821LJ
1000	25 x 45	3.32	4.65	0.199	0.090	EETUQ2E102JA	EETUQ2E102JJ
	30 x 35	3.32	4.65	0.199	0.090	EETUQ2E102KA	EETUQ2E102KJ
	35 x 30	3.32	4.65	0.199	0.090	EETUQ2E102LA	EETUQ2E102LJ
1200	30 x 40	3.53	4.94	0.166	0.075	EETUQ2E122KA	EETUQ2E122KJ
	35 x 35	3.53	4.94	0.166	0.083	EETUQ2E122LA	EETUQ2E122LJ
1500	30 x 50	4.04	5.66	0.133	0.066	EETUQ2E152KA	EETUQ2E152KJ
	35 x 40	4.04	5.66	0.133	0.066	EETUQ2E152LA	EETUQ2E152LJ
1800	35 x 45	4.55	6.37	0.111	0.055	EETUQ2E182LA	EETUQ2E182LJ
2200	35 x 50	4.75	6.65	0.098	0.049	EETUQ2E222LA	EETUQ2E222LJ
350 VDC Working, 400 VDC Surge							
150	22 x 25	1.12	1.57	1.326	0.663	EETUQ2V151HA	EETUQ2V151HJ
180	22 x 30	1.22	1.71	1.105	0.553	EETUQ2V181HA	EETUQ2V181HJ
220	22 x 35	1.44	2.02	0.904	0.452	EETUQ2V221HA	EETUQ2V221HJ
270	22 x 40	1.66	2.32	0.737	0.368	EETUQ2V271HA	EETUQ2V271HJ
	25 x 30	1.66	2.32	0.737	0.368	EETUQ2V271JA	EETUQ2V271JJ
330	22 x 45	1.88	2.63	0.603	0.301	EETUQ2V331HA	EETUQ2V331HJ
	25 x 35	1.88	2.63	0.603	0.301	EETUQ2V331JA	EETUQ2V331JJ
390	22 x 50	2.06	2.88	0.510	0.255	EETUQ2V391HA	EETUQ2V391HJ
	25 x 40	2.06	2.88	0.510	0.255	EETUQ2V391JA	EETUQ2V391JJ
	30 x 30	2.06	2.88	0.510	0.255	EETUQ2V391KA	EETUQ2V391KJ
	35 x 25	2.06	2.88	0.510	0.255	EETUQ2V391LA	EETUQ2V391LJ

Aluminum Electrolytic Capacitors

TS-UQ Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Slewing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
350 VDC Working, 400 VDC Surge (continued)							
470	25 x 45	2.40	3.36	0.423	0.212	EETUQ2V471JA	EETUQ2V471JJ
	30 x 35	2.40	3.36	0.423	0.212	EETUQ2V471KA	EETUQ2V471KJ
	35 x 30	2.40	3.36	0.423	0.233	EETUQ2V471LA	EETUQ2V471LJ
560	25 x 50	2.60	3.64	0.355	0.178	EETUQ2V561JA	EETUQ2V561JJ
	30 x 40	2.60	3.64	0.355	0.178	EETUQ2V561KA	EETUQ2V561KJ
	35 x 30	2.60	3.64	0.355	0.195	EETUQ2V561LA	EETUQ2V561LJ
680	30 x 45	2.96	4.14	0.293	0.146	EETUQ2V681KA	EETUQ2V681KJ
	35 x 35	2.96	4.14	0.293	0.146	EETUQ2V681LA	EETUQ2V681LJ
820	30 x 50	3.25	4.55	0.243	0.121	EETUQ2V821KA	EETUQ2V821KJ
	35 x 45	3.25	4.55	0.243	0.121	EETUQ2V821LA	EETUQ2V821LJ
1000	35 x 50	3.54	4.96	0.199	0.109	EETUQ2V102LA	EETUQ2V102LJ
400 VDC Working, 450 VDC Surge							
120	22 x 25	1.02	1.43	1.658	0.829	EETUQ2G121HA	EETUQ2G121HJ
150	22 x 30	1.16	1.62	1.326	0.663	EETUQ2G151HA	EETUQ2G151HJ
180	22 x 30	1.44	2.02	1.105	0.553	EETUQ2G181HF	EETUQ2G181HC
	22 x 35	1.44	2.02	1.105	0.553	EETUQ2G181HA	EETUQ2G181HJ
220	22 x 35	1.49	2.09	0.904	0.452	EETUQ2G221HF	EETUQ2G221HC
	22 x 40	1.49	2.09	0.904	0.452	EETUQ2G221HA	EETUQ2G221HJ
	25 x 30	1.49	2.09	0.904	0.452	EETUQ2G221JA	EETUQ2G221JJ
270	22 x 45	1.67	2.34	0.737	0.368	EETUQ2G271HA	EETUQ2G271HJ
	25 x 35	1.67	2.34	0.737	0.368	EETUQ2G271JA	EETUQ2G271JJ
	30 x 30	1.67	2.34	0.737	0.368	EETUQ2G271KA	EETUQ2G271KJ
	30 x 25	1.67	2.34	0.737	0.368	EETUQ2G271KF	EETUQ2G271KC
330	22 x 50	1.90	2.66	0.603	0.301	EETUQ2G331HA	EETUQ2G331HJ
	25 x 40	1.90	2.66	0.603	0.301	EETUQ2G331JA	EETUQ2G331JJ
	30 x 30	1.90	2.66	0.603	0.301	EETUQ2G331KA	EETUQ2G331KJ
	35 x 25	1.90	2.66	0.603	0.301	EETUQ2G331LA	EETUQ2G331LJ
390	25 x 45	2.13	2.98	0.510	0.255	EETUQ2G391JA	EETUQ2G391JJ
	30 x 35	2.13	2.98	0.510	0.255	EETUQ2G391KA	EETUQ2G391KJ
	35 x 30	2.13	2.98	0.510	0.255	EETUQ2G391LA	EETUQ2G391LJ
470	25 x 50	2.39	3.35	0.423	0.212	EETUQ2G471JA	EETUQ2G471JJ
	30 x 40	2.39	3.35	0.423	0.212	EETUQ2G471KA	EETUQ2G471KJ
	35 x 30	2.39	3.35	0.423	0.212	EETUQ2G471LA	EETUQ2G471LJ
560	30 x 45	2.69	3.77	0.355	0.178	EETUQ2G561KA	EETUQ2G561KJ
	35 x 35	2.69	3.77	0.355	0.178	EETUQ2G561LA	EETUQ2G561LJ
680	30 x 50	2.96	4.14	0.293	0.146	EETUQ2G681KA	EETUQ2G681KJ
	35 x 40	2.96	4.14	0.293	0.146	EETUQ2G681LF	EETUQ2G681LC
	35 x 45	2.96	4.14	0.293	0.146	EETUQ2G681LA	EETUQ2G681LJ
820	35 x 45	3.25	4.55	0.243	0.121	EETUQ2G821LF	EETUQ2G821LC
	35 x 50	3.25	4.55	0.243	0.121	EETUQ2G821LA	EETUQ2G821LJ
420 VDC Working, 470 VDC Surge							
120	22 x 25	1.08	1.51	1.658	0.829	EETUQ2S121HA	EETUQ2S121HJ
150	22 x 30	1.30	1.82	1.326	0.663	EETUQ2S151HA	EETUQ2S151HJ
	25 x 25	1.30	1.82	1.326	0.663	EETUQ2S151JA	EETUQ2S151JJ
180	22 x 35	1.48	2.07	1.105	0.553	EETUQ2S181HA	EETUQ2S181HJ
	25 x 30	1.48	2.07	1.105	0.553	EETUQ2S181JA	EETUQ2S181JJ
220	22 x 40	1.65	2.31	0.904	0.452	EETUQ2S221HF	EETUQ2S221HC
	25 x 35	1.65	2.31	0.904	0.452	EETUQ2S221JA	EETUQ2S221JJ
	30 x 25	1.65	2.31	0.904	0.452	EETUQ2S221KA	EETUQ2S221KJ
270	22 x 45	1.94	2.72	0.737	0.368	EETUQ2S271HF	EETUQ2S271HC
	25 x 40	1.94	2.72	0.737	0.368	EETUQ2S271JA	EETUQ2S271JJ
	30 x 30	1.94	2.72	0.737	0.368	EETUQ2S271KA	EETUQ2S271KJ
330	25 x 45	2.17	3.03	0.603	0.301	EETUQ2S331JA	EETUQ2S331JJ
	30 x 30	2.17	3.03	0.603	0.301	EETUQ2S331KF	EETUQ2S331KC
	35 x 25	2.17	3.03	0.603	0.301	EETUQ2S331LA	EETUQ2S331LJ
390	25 x 50	2.27	3.18	0.510	0.255	EETUQ2S391JA	EETUQ2S391JJ
	30 x 35	2.27	3.18	0.510	0.255	EETUQ2S391KA	EETUQ2S391KJ
	35 x 30	2.27	3.18	0.510	0.255	EETUQ2S391LA	EETUQ2S391LJ
470	30 x 40	2.61	3.65	0.423	0.212	EETUQ2S471KF	EETUQ2S471KC
	35 x 35	2.61	3.65	0.423	0.212	EETUQ2S471LA	EETUQ2S471LJ
560	30 x 45	2.82	3.95	0.355	0.178	EETUQ2S561KF	EETUQ2S561KC
	35 x 40	2.82	3.95	0.355	0.178	EETUQ2S561LA	EETUQ2S561LJ
680	30 x 50	3.11	4.35	0.293	0.146	EETUQ2S681KF	EETUQ2S681KC
	35 x 45	3.11	4.35	0.293	0.146	EETUQ2S681LA	EETUQ2S681LJ

Aluminum Electrolytic Capacitors

TS-UQ Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminal

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
420 VDC Working, 470 VDC Surge (continued)							
820	35 x 50	3.30	4.62	0.243	0.121	EETUQ2S821LA	EETUQ2S821LJ
450 VDC Working, 500 VDC Surge							
82	22 x 25	0.83	1.16	2.426	1.213	EETUQ2W820HA	EETUQ2W820HJ
100	22 x 25	0.93	1.30	1.989	0.995	EETUQ2W101HA	EETUQ2W101HJ
120	22 x 30	1.04	1.46	1.658	0.829	EETUQ2W121HA	EETUQ2W121HJ
150	22 x 30	1.19	1.67	1.326	0.663	EETUQ2W151HF	EETUQ2W151HC
	22 x 35	1.19	1.67	1.326	0.663	EETUQ2W151HA	EETUQ2W151HJ
	25 x 25	1.19	1.67	1.326	0.663	EETUQ2W151JF	EETUQ2W151JC
	25 x 30	1.19	1.67	1.326	0.663	EETUQ2W151JA	EETUQ2W151JJ
180	22 x 35	1.35	1.89	1.105	0.553	EETUQ2W181HF	EETUQ2W181HC
	22 x 40	1.35	1.89	1.105	0.553	EETUQ2W181HA	EETUQ2W181HJ
	25 x 30	1.35	1.89	1.105	0.553	EETUQ2W181JA	EETUQ2W181JJ
220	22 x 45	1.55	2.17	0.904	0.452	EETUQ2W221HA	EETUQ2W221HJ
	25 x 35	1.45	2.03	0.904	0.452	EETUQ2W221JF	EETUQ2W221JC
	25 x 40	1.55	2.17	0.904	0.452	EETUQ2W221JA	EETUQ2W221JJ
	30 x 25	1.55	2.17	0.904	0.452	EETUQ2W221KF	EETUQ2W221KC
	30 x 30	1.55	2.17	0.904	0.452	EETUQ2W221KA	EETUQ2W221KJ
	35 x 25	1.55	2.17	0.904	0.452	EETUQ2W221LA	EETUQ2W221LJ
270	22 x 50	1.78	2.49	0.737	0.368	EETUQ2W271HA	EETUQ2W271HJ
	25 x 40	1.78	2.49	0.737	0.368	EETUQ2W271JA	EETUQ2W271JJ
	30 x 30	1.78	2.49	0.737	0.368	EETUQ2W271KA	EETUQ2W271KJ
	35 x 25	1.78	2.49	0.737	0.368	EETUQ2W271LF	EETUQ2W271LC
330	25 x 45	2.01	2.81	0.603	0.301	EETUQ2W331JF	EETUQ2W331JC
	30 x 35	2.01	2.63	0.603	0.301	EETUQ2W331KF	EETUQ2W331KC
	30 x 40	2.01	2.81	0.603	0.301	EETUQ2W331KA	EETUQ2W331KJ
	35 x 30	2.01	2.81	0.603	0.301	EETUQ2W331LA	EETUQ2W331LJ
390	30 x 40	2.24	3.14	0.510	0.255	EETUQ2W391KA	EETUQ2W391KJ
	35 x 30	2.24	3.14	0.510	0.255	EETUQ2W391LF	EETUQ2W391LC
	35 x 35	2.24	3.14	0.510	0.255	EETUQ2W391LA	EETUQ2W391LJ
470	30 x 45	2.53	3.54	0.423	0.212	EETUQ2W471KA	EETUQ2W471KJ
	35 x 35	2.53	3.54	0.423	0.212	EETUQ2W471LF	EETUQ2W471LC
	35 x 40	2.53	3.54	0.423	0.212	EETUQ2W471LA	EETUQ2W471LJ
560	30 x 50	2.82	3.95	0.355	0.178	EETUQ2W561KA	EETUQ2W561KJ
	35 x 40	2.82	3.95	0.355	0.178	EETUQ2W561LF	EETUQ2W561LC
	35 x 45	2.82	3.95	0.355	0.178	EETUQ2W561LA	EETUQ2W561LJ
680	35 x 45	3.02	4.23	0.293	0.146	EETUQ2W681LF	EETUQ2W681LC

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

RoHS
Compliant



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: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$											
Leakage Current:	$3\sqrt{CV}$ (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.

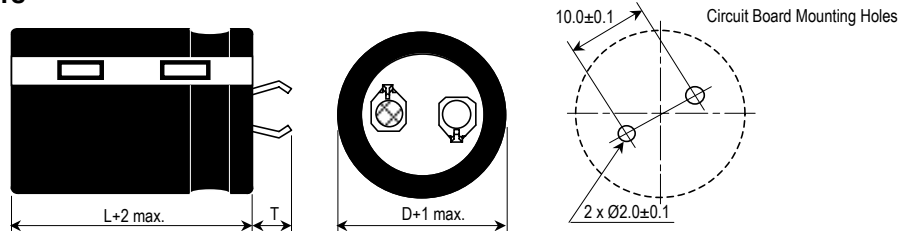
Part Number System

E C O S					P						Suffix A Standard Ratings X Extended CV Ratings L 20mm Length Ratings		Diameter Diameter Code 22 B 25 C 30 D 35 E																																		
Terminal Style Prefix Length # of Pins ECOS 6.3mm 2 ECEC 4.0mm 2 ECE3 4.0mm 3			Series Code															Capacitance Code															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														

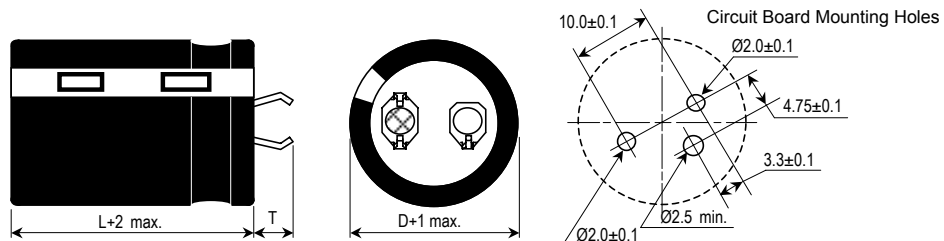
RoHS compliant PVC sleeve and top plate is standard. PET sleeve is available without top plate.

Dimensions in millimeters

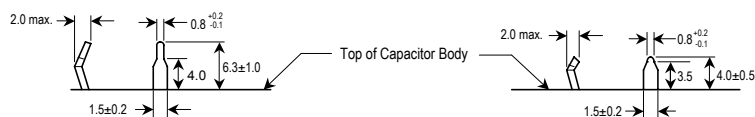
2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



"T" 6.3mm Length: Standard on 2 Pin Mounting Style

4mm Length: Standard on 3 Pin, Available on 2 Pin Mounting Styles

Aluminum Electrolytic Capacitors

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

Aluminum Electrolytic Capacitors

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

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μF)	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, 100 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

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

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

Aluminum Electrolytic Capacitors

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
390	22 x 40	1.91	2.67	0.468	0.187	ECOS2EP391BA	ECEC2EP391BA
	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
470	22 x 45	2.11	2.95	0.388	0.155	ECOS2EP471BA	ECEC2EP471BA
	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
560	25 x 40	2.25	3.15	0.326	0.130	ECOS2EP561CX	ECEC2EP561CX
	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
680	25 x 45	2.50	3.50	0.268	0.107	ECOS2EP681CX	ECEC2EP681CX
	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
820	30 x 40	2.50	3.50	0.222	0.089	ECOS2EP821DX	ECEC2EP821DX
	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
1000	30 x 45	3.32	4.65	0.182	0.073	ECOS2EP102DX	ECEC2EP102DX
	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
1200	35 x 40	3.53	4.94	0.166	0.083	ECOS2EP122EX	ECEC2EP122EX
	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	ECEC2EP152EA
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

Aluminum Electrolytic Capacitors

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

Aluminum Electrolytic Capacitors

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

Aluminum Electrolytic Capacitors

TS-UP Standard Ratings (continued)

Part numbers shown with 2 pins

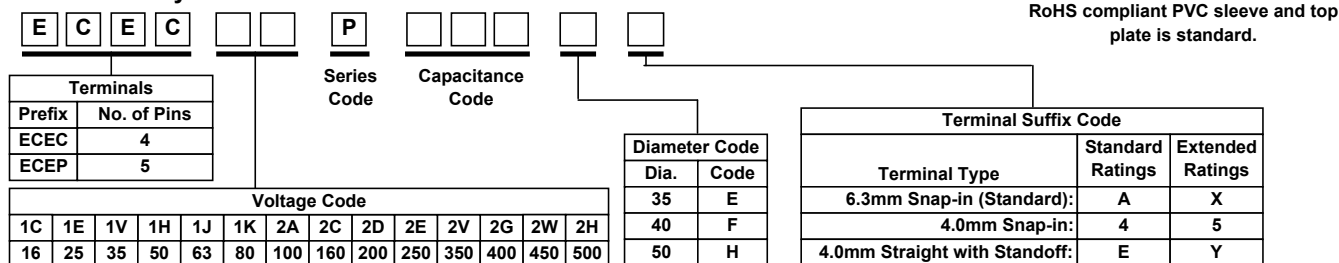
Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Terminal Length)	
		120Hz	10kHz~	120Hz	20kHz	6.3mm Length Terminal	4.0mm Length Terminal
450 VDC Working, 500 VDC Surge (continued)							
120	22 x 40	1.04	1.46	1.382	0.553	ECOS2WP121BA	ECEC2WP121BA
	25 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
270	35 x 30	1.55	2.17	0.754	0.301	ECOS2WP221EA	ECEC2WP221EA
	30 x 45	1.78	2.49	0.675	0.270	ECOS2WP271DA	ECEC2WP271DA
270	35 x 30	1.78	2.49	0.614	0.246	ECOS2WP271EX	ECEC2WP271EX
	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

- *4 or 5 terminal mounting provides stability and keyed polarity*
- *Extended CV ratings*
- *Can vent construction*

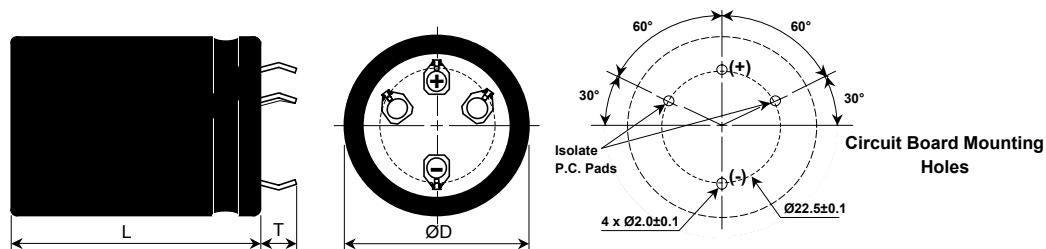


Rated Working Voltage:	16 ~ 250 VDC						350 ~ 500 VDC					
Operating Temperature:	-40 ~ +85°C						-25 ~ +85°C					
Nominal Capacitance:	1200~270000μF						270~2700μF					
Capacitance Tolerance:	± 20%											
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:		16	25	35	50	63	80	100	160 ~ 500		
	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)											

Part Number System



4 Pin Mounting Style



T = 6.3mm Length Snap-in Terminal
Standard on 4 and 5 Pin Products

T = 4mm Length Snap-in Terminal
Available on 4 Pin Product only

T = 4mm Length Straight Standoff Pin Terminal
Available on 4 and 5 Pin Products

Aluminum Electrolytic Capacitors

T-UP Standard Ratings

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
16 VDC Working, 20 VDC Surge							
47000	35 x 40	7.47	8.59	0.021	0.019	ECET1CP473EA	
56000	40 x 40	9.05	10.41	0.022	0.021	ECET1CP563FA	ECEP1CP563FA
68000	35 x 50	9.05	10.41	0.018	0.017	ECET1CP683EA	
82000	35 x 63	10.02	11.52	0.016	0.015	ECET1CP823EA	
	40 x 50	10.29	11.83	0.016	0.015	ECET1CP823FA	ECEP1CP823FA
100000	35 x 80	11.00	12.65	0.015	0.014	ECET1CP104EA	
	40 x 63	11.36	13.06	0.018	0.017	ECET1CP104FA	ECEP1CP104FA
120000	35 x 105	12.81	14.73	0.014	0.013	ECET1CP124EA	
	40 x 80	12.42	14.28	0.017	0.016	ECET1CP124FA	ECEP1CP124FA
	50 x 50	13.17	15.15	0.014	0.013		ECEP1CP124HA
150000	50 x 63	14.40	16.56	0.012	0.011		ECEP1CP154HA
180000	40 x 105	14.85	17.08	0.013	0.012	ECET1CP184FA	ECEP1CP184FA
	50 x 80	15.69	18.04	0.011	0.010		ECEP1CP184HA
220000	50 x 92	16.73	19.24	0.010	0.009		ECEP1CP224HA
270000	50 x 105	17.79	20.46	0.009	0.008		ECEP1CP274HA
25 VDC Working, 32 VDC Surge							
33000	35 x 40	6.84	7.87	0.019	0.015	ECET1EP333EA	
39000	40 x 40	8.00	9.20	0.020	0.018	ECET1EP393FA	ECEP1EP393FA
47000	35 x 50	8.00	9.20	0.014	0.012	ECET1EP473EA	
56000	35 x 63	8.85	10.18	0.015	0.013	ECET1EP563EA	
	40 x 50	8.96	10.30	0.016	0.015	ECET1EP563FA	ECEP1EP563FA
68000	35 x 80	10.43	11.99	0.013	0.011	ECET1EP683EA	
	40 x 63	10.25	11.79	0.017	0.015	ECET1EP683FA	ECEP1EP683FA
82000	50 x 50	12.29	14.13	0.016	0.015		ECEP1EP823HA
100000	35 x 105	11.97	13.77	0.010	0.008	ECET1EP104EA	
	40 x 80	12.08	13.89	0.012	0.011	ECET1EP104FA	ECEP1EP104FA
	50 x 63	13.45	15.47	0.014	0.013		ECEP1EP104HA
120000	50 x 80	15.29	17.58	0.012	0.011		ECEP1EP124HA
150000	40 x 105	14.07	16.18	0.011	0.010	ECET1EP154FA	ECEP1EP154FA
	50 x 92	16.01	18.41	0.011	0.010		ECEP1EP154HA
180000	50 x 105	16.89	19.42	0.010	0.009		ECEP1EP184HA
35 VDC Working, 44 VDC Surge							
22000	35 x 40	6.10	7.02	0.026	0.020	ECET1VP223EA	
27000	40 x 40	6.84	7.87	0.021	0.017	ECET1VP273FA	ECEP1VP273FA
33000	35 x 50	7.15	8.22	0.018	0.014	ECET1VP333EA	
39000	35 x 63	7.94	9.13	0.015	0.012	ECET1VP393EA	
	40 x 50	7.98	9.18	0.017	0.014	ECET1VP393FA	ECEP1VP393FA
47000	35 x 80	9.53	10.96	0.014	0.011	ECET1VP473EA	
	40 x 63	9.58	11.02	0.016	0.013	ECET1VP473FA	ECEP1VP473FA
56000	40 x 80	10.30	11.85	0.015	0.012	ECET1VP563FA	ECEP1VP563FA
	50 x 50	10.94	12.58	0.015	0.012		ECEP1VP563HA
68000	35 x 105	10.62	12.21	0.010	0.008	ECET1VP683EA	
	50 x 63	11.93	13.72	0.013	0.011		ECEP1VP683HA
82000	40 x 105	12.02	13.82	0.012	0.009	ECET1VP823FA	ECEP1VP823FA
	50 x 80	13.06	15.02	0.012	0.010		ECEP1VP823HA
100000	50 x 92	13.97	16.07	0.011	0.009		ECEP1VP104HA
120000	50 x 105	14.86	17.09	0.010	0.008		ECEP1VP124HA
50 VDC Working, 63 VDC Surge							
15000	35 x 40	6.44	7.41	0.028	0.021	ECET1HP153EA	
18000	40 x 40	6.94	7.98	0.023	0.017	ECET1HP183FA	ECEP1HP183FA
22000	35 x 50	7.57	8.71	0.021	0.017	ECET1HP223EA	
27000	35 x 63	8.31	9.56	0.018	0.015	ECET1HP273EA	
	40 x 50	8.12	9.34	0.018	0.015	ECET1HP273FA	ECEP1HP273FA
33000	35 x 80	9.23	10.61	0.015	0.012	ECET1HP333EA	
	40 x 63	9.10	10.47	0.018	0.014	ECET1HP333FA	ECEP1HP333FA
	50 x 50	10.48	12.05	0.018	0.014		ECEP1HP333HA
39000	40 x 80	10.12	11.64	0.015	0.012	ECET1HP393FA	ECEP1HP393FA
47000	35 x 105	10.27	11.81	0.014	0.011	ECET1HP473EA	
	50 x 63	11.54	13.27	0.013	0.010		ECEP1HP473HA
56000	40 x 105	11.47	13.19	0.012	0.009	ECET1HP563FA	ECEP1HP563FA
	50 x 80	12.46	14.33	0.012	0.009		ECEP1HP563HA
68000	50 x 92	13.17	15.15	0.011	0.009		ECEP1HP683HA

Aluminum Electrolytic Capacitors

T-UP Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
50 VDC Working, 63 VDC Surge (continued)							
82000	50 x 105	13.87	15.95	0.011	0.008		ECEP1HP823HA
63 VDC Working, 79 VDC Surge							
10000	35 x 40	6.52	7.50	0.041	0.033	ECET1JP103EA	
12000	35 x 50	7.15	8.22	0.035	0.028	ECET1JP123EA	
	40 x 40	7.15	8.22	0.035	0.028	ECET1JP123FA	ECEP1JP123FA
15000	35 x 63	7.71	8.87	0.028	0.022	ECET1JP153EA	
	40 x 50	7.53	8.66	0.033	0.027	ECET1JP153FA	ECEP1JP153FA
18000	35 x 80	9.41	10.82	0.023	0.018	ECET1JP183EA	
	40 x 63	9.25	10.64	0.028	0.022	ECET1JP183FA	ECEP1JP183FA
27000	35 x 105	10.38	11.94	0.015	0.012	ECET1JP273EA	
	40 x 80	9.97	11.47	0.018	0.015	ECET1JP273FA	ECEP1JP273FA
	50 x 50	10.86	12.49	0.018	0.015		ECEP1JP273HA
33000	40 x 105	11.76	13.52	0.015	0.012	ECET1JP333FA	ECEP1JP333FA
	50 x 63	11.67	13.42	0.017	0.013		ECEP1JP333HA
47000	50 x 80	12.78	14.70	0.013	0.010		ECEP1JP473HA
51000	50 x 92	13.34	15.34	0.012	0.010		ECEP1JP513HA
56000	50 x 105	13.93	16.02	0.012	0.009		ECEP1JP563HA
80 VDC Working, 100 VDC Surge							
6800	35 x 40	5.16	5.93	0.046	0.035	ECET1KP682EA	
8200	35 x 50	5.83	6.70	0.038	0.029	ECET1KP822EA	
	40 x 40	5.83	6.70	0.038	0.029	ECET1KP822FA	ECEP1KP822FA
10000	35 x 63	6.38	7.34	0.033	0.025	ECET1KP103EA	
	40 x 50	6.56	7.54	0.033	0.025	ECET1KP103FA	ECEP1KP103FA
12000	35 x 80	6.92	7.96	0.028	0.021	ECET1KP123EA	
	40 x 63	7.29	8.38	0.028	0.021	ECET1KP123FA	ECEP1KP123FA
15000	40 x 80	8.93	10.27	0.024	0.018	ECET1KP153FA	ECEP1KP153FA
18000	50 x 50	10.00	11.50	0.023	0.017		ECEP1KP183HA
22000	35 x 105	9.86	11.34	0.015	0.011	ECET1KP223EA	
	50 x 63	11.08	12.74	0.019	0.014		ECEP1KP223HA
27000	40 x 105	11.35	13.05	0.015	0.012	ECET1KP273FA	ECEP1KP273FA
	50 x 80	12.33	14.18	0.015	0.012		ECEP1KP273HA
33000	50 x 92	13.37	15.38	0.014	0.010		ECEP1KP333HA
39000	50 x 105	14.34	16.49	0.013	0.010		ECEP1KP393HA
100 VDC Working, 125 VDC Surge							
4700	35 x 40	5.13	5.90	0.071	0.049	ECET2AP472EA	
5600	40 x 40	5.75	6.61	0.059	0.044	ECET2AP562FA	ECEP2AP562FA
6800	35 x 50	6.60	7.59	0.049	0.037	ECET2AP682EA	
8200	35 x 63	7.05	8.11	0.040	0.030	ECET2AP822EA	
	40 x 50	7.28	8.37	0.040	0.030	ECET2AP822FA	ECEP2AP822FA
10000	35 x 80	7.74	8.90	0.033	0.025	ECET2AP103EA	
	40 x 63	7.97	9.17	0.033	0.025	ECET2AP103FA	ECEP2AP103FA
	50 x 50	8.82	10.14	0.033	0.025		ECEP2AP103HA
12000	35 x 105	8.57	9.86	0.028	0.021	ECET2AP123EA	
	40 x 80	8.65	9.95	0.028	0.021	ECET2AP123FA	ECEP2AP123FA
15000	40 x 105	10.12	11.64	0.022	0.017	ECET2AP153FA	ECEP2AP153FA
	50 x 63	10.07	11.58	0.022	0.017		ECEP2AP153HA
18000	50 x 80	11.00	12.65	0.018	0.014		ECEP2AP183HA
22000	50 x 92	11.76	13.52	0.015	0.011		ECEP2AP223HA
27000	50 x 105	12.53	14.41	0.014	0.010		ECEP2AP273HA
160 VDC Working, 200 VDC Surge							
2200	35 x 40	4.78	6.69	0.098	0.049	ECET2CP222EA	
2700	35 x 50	5.45	7.63	0.080	0.044	ECET2CP272EA	
	40 x 40	5.45	7.63	0.080	0.044	ECET2CP272FA	ECEP2CP272FA
3300	35 x 63	6.29	8.81	0.065	0.036	ECET2CP332EA	
	40 x 50	6.29	8.81	0.065	0.036	ECET2CP332FA	ECEP2CP332FA
3900	35 x 80	7.27	10.18	0.055	0.030	ECET2CP392EA	
	40 x 63	7.27	10.18	0.055	0.030	ECET2CP392FA	ECEP2CP392FA
5600	40 x 80	8.32	11.65	0.038	0.021	ECET2CP562FA	ECEP2CP562FA
	50 x 50	8.25	11.55	0.038	0.021	ECEP2CP562HA	ECEP2CP562HA
6800	35 x 105	9.05	12.67	0.032	0.017	ECET2CP682EA	
8200	50 x 63	8.93	12.50	0.026	0.014	ECEP2CP822HA	ECEP2CP822HA
10000	40 x 105	9.86	13.80	0.022	0.012	ECET2CP103FA	ECEP2CP103FA
	50 x 80	9.80	13.72	0.022	0.012		ECEP2CP103HA

T-UP Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
160 VDC Working, 200 VDC Surge (continued)							
12000	50 x 92	12.93	18.10	0.018	0.010		ECEP2CP123HA
15000	50 x 105	14.10	19.74	0.014	0.008		ECEP2CP153HA
200 VDC Working, 250 VDC Surge							
1800	35 x 40	4.32	6.05	0.120	0.060	ECET2DP182EX	
2200	35 x 50	4.92	6.89	0.098	0.054	ECET2DP222EA	
	40 x 40	4.92	6.89	0.098	0.054	ECET2DP222FA	ECEP2DP222FA
2700	35 x 63	5.50	7.70	0.080	0.044	ECET2DP272EA	
	40 x 50	5.41	7.57	0.080	0.044	ECET2DP272FA	ECEP2DP272FA
3300	35 x 80	6.44	9.02	0.065	0.036	ECET2DP332EA	
	40 x 63	6.32	8.85	0.065	0.036	ECET2DP332FA	ECEP2DP332FA
3900	35 x 80	6.60	9.24	0.055	0.030	ECET2DP392EA	
	40 x 63	6.81	9.53	0.055	0.030	ECET2DP392FX	ECEP2DP392FX
	50 x 50	8.22	11.51	0.055	0.030		ECEP2DP392HA
4700	40 x 80	8.38	11.73	0.046	0.025	ECET2DP472FA	ECEP2DP472FA
	50 x 63	9.32	13.05	0.046	0.025		ECEP2DP472HA
5600	35 x 105	8.90	12.46	0.038	0.021	ECET2DP562EA	
	50 x 63	9.57	13.40	0.038	0.021		ECEP2DP562HA
6800	40 x 105	8.65	12.11	0.032	0.017	ECET2DP682FA	ECEP2DP682FA
	50 x 80	11.41	15.97	0.032	0.017		ECEP2DP682HA
7500	50 x 92	12.28	17.19	0.029	0.016		ECEP2DP752HA
8200	50 x 92	13.02	18.23	0.026	0.014		ECEP2DP822HX
	50 x 105	13.16	18.42	0.026	0.014		ECEP2DP822HA
10000	50 x 105	14.17	19.84	0.021	0.011		ECEP2DP103HA
250 VDC Working, 300 VDC Surge							
1200	35 x 40	3.32	4.65	0.166	0.083	ECET2EP122EX	
1500	35 x 50	4.04	5.66	0.133	0.066	ECET2EP152EA	
	40 x 40	4.04	5.66	0.133	0.066	ECET2EP152FA	ECEP2EP152FA
1800	35 x 63	4.49	6.29	0.111	0.055	ECET2EP182EA	
	40 x 50	4.49	6.29	0.111	0.055	ECET2EP182FA	ECEP2EP182FA
2200	35 x 63	4.70	6.58	0.090	0.045	ECET2EP222EX	
	35 x 80	4.94	6.92	0.090	0.045	ECET2EP222EA	
	40 x 63	4.94	6.92	0.090	0.045	ECET2EP222FA	ECEP2EP222FA
2700	35 x 80	5.63	7.88	0.074	0.037	ECET2EP272EA	
	40 x 63	5.81	8.13	0.074	0.037	ECET2EP272FX	ECEP2EP272FX
	50 x 50	6.77	9.48	0.074	0.037		ECEP2EP272HA
3300	40 x 80	7.00	9.80	0.060	0.030	ECET2EP332FA	ECEP2EP332FA
	50 x 50	7.22	10.11	0.060	0.060		ECEP2EP332HX
	50 x 63	7.79	10.91	0.060	0.030		ECEP2EP332HA
3900	35 x 105	7.47	10.46	0.051	0.026	ECET2EP392EA	
	40 x 80	7.36	10.30	0.051	0.026	ECET2EP392FA	ECEP2EP392FA
	50 x 63	8.19	11.47	0.051	0.026		ECEP2EP392HA
4700	40 x 105	8.88	12.43	0.042	0.021	ECET2EP472FA	ECEP2EP472FA
	50 x 80	9.65	13.51	0.042	0.021		ECEP2EP472HA
5600	50 x 80	10.42	14.59	0.036	0.018		ECEP2EP562HX
	50 x 92	10.80	15.12	0.036	0.018		ECEP2EP562HA
6800	50 x 105	12.16	17.02	0.029	0.015		ECEP2EP682HA
7500	50 x 105	12.56	17.58	0.026	0.014		ECEP2EP752HA
350 VDC Working, 400 VDC Surge							
470	35 x 40	2.40	3.36	0.388	0.175	ECET2VP471EA	
680	35 x 50	2.96	4.14	0.366	0.165	ECET2VP681EA	
	40 x 40	2.96	4.14	0.366	0.165	ECET2VP681FA	ECEP2VP681FA
1000	35 x 63	3.80	5.32	0.249	0.112	ECET2VP102EA	
	40 x 50	3.80	5.32	0.249	0.112	ECET2VP102FA	ECEP2VP102FA
1200	35 x 80	4.42	6.19	0.207	0.093	ECET2VP122EA	
	40 x 63	4.42	6.19	0.207	0.093	ECET2VP122FA	ECEP2VP122FA
	50 x 50	5.18	7.25	0.207	0.093		ECEP2VP122HA
1500	50 x 63	6.01	8.41	0.166	0.075		ECEP2VP152HA
1800	35 x 105	5.79	8.11	0.138	0.062	ECET2VP182EA	
	40 x 80	5.85	8.19	0.138	0.062	ECET2VP182FA	ECEP2VP182FA
	50 x 80	6.89	9.65	0.138	0.062		ECEP2VP182HA

T-UP Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
350 VDC Working, 400 VDC Surge (continued)							
2200	40 x 105	6.91	9.67	0.113	0.051	ECET2VP222FA	ECEP2VP222FA
	50 x 92	7.79	10.91	0.113	0.051		ECEP2VP222HA
2700	50 x 105	8.80	12.32	0.092	0.041		ECEP2VP272HA
400 VDC Working, 450 VDC Surge							
470	35 x 45	2.39	3.35	0.388	0.136	ECET2GP471EA	
560	35 x 50	2.72	3.81	0.326	0.114	ECET2GP561EA	
	40 x 40	2.69	3.77	0.326	0.114	ECET2GP561FA	ECEP2GP561FA
680	40 x 50	3.38	4.73	0.268	0.093	ECET2GP681FA	ECEP2GP681FA
820	35 x 63	3.55	4.97	0.222	0.078	ECET2GP821EA	
	40 x 50	3.38	4.73	0.222	0.078	ECET2GP821FA	ECEP2GP821FA
1000	35 x 80	3.42	4.79	0.199	0.080	ECET2GP102EA	
	40 x 63	4.16	5.82	0.199	0.080	ECET2GP102FA	ECEP2GP102FA
	50 x 50	4.76	6.66	0.199	0.080		ECEP2GP102HA
1200	35 x 80	4.52	6.33	0.152	0.053	ECET2GP122EA	
	40 x 63	4.52	6.33	0.152	0.053	ECET2GP122FA	ECEP2GP122FA
	50 x 50	5.21	7.29	0.166	0.066		ECEP2GP122HX
	50 x 63	5.47	7.66	0.166	0.066		ECEP2GP122HA
1500	35 x 105	5.44	7.62	0.122	0.043	ECET2GP152EA	
	40 x 80	5.50	7.70	0.122	0.043	ECET2GP152FA	ECEP2GP152FA
	50 x 63	6.12	8.57	0.133	0.053		ECEP2GP152HX
	50 x 80	6.47	9.06	0.133	0.053		ECEP2GP152HA
1800	40 x 105	6.53	9.14	0.101	0.035	ECET2GP182FA	ECEP2GP182FA
	50 x 80	7.09	9.93	0.111	0.044		ECEP2GP182HX
	50 x 92	7.35	10.29	0.111	0.044		ECEP2GP182HA
2200	50 x 92	8.13	11.38	0.090	0.036		ECEP2GP222HX
	50 x 105	8.43	11.80	0.090	0.036		ECEP2GP222HA
2700	50 x 105	9.34	13.08	0.073	0.025		ECEP2GP272HA
450 VDC Working, 500 VDC Surge							
330	35 x 40	2.01	2.81	0.553	0.249	ECET2WP331EA	
470	35 x 50	2.53	3.54	0.423	0.233	ECET2WP471EA	
	40 x 40	2.53	3.54	0.423	0.233	ECET2WP471FA	ECEP2WP471FA
560	35 x 63	2.90	4.06	0.355	0.195	ECET2WP561EA	
680	35 x 80	3.17	4.44	0.293	0.161	ECET2WP681EA	
	40 x 50	3.15	4.41	0.293	0.161	ECET2WP681FA	ECEP2WP681FA
820	35 x 80	3.78	5.29	0.243	0.133	ECET2WP821EA	
	40 x 63	3.70	5.18	0.243	0.133	ECET2WP821FA	ECEP2WP821FA
	50 x 50	4.31	6.03	0.263	0.145		ECEP2WP821HA
1000	40 x 80	4.21	5.89	0.216	0.119	ECET2WP102FA	ECEP2WP102FA
	50 x 63	4.96	6.94	0.216	0.119		ECEP2WP102HA
1200	35 x 105	4.80	6.72	0.166	0.091	ECET2WP122EA	
	40 x 80	4.84	6.78	0.166	0.091	ECET2WP122FA	ECEP2WP122FA
	50 x 63	5.43	7.60	0.180	0.099		ECEP2WP122HX
	50 x 80	5.71	7.99	0.180	0.099		ECEP2WP122HA
1500	40 x 105	5.81	8.13	0.133	0.073	ECET2WP152FA	ECEP2WP152FA
	50 x 80	6.15	8.61	0.144	0.079		ECEP2WP152HX
	50 x 92	6.55	9.17	0.144	0.079		ECEP2WP152HA
1800	50 x 92	7.02	9.83	0.120	0.066		ECEP2WP182HX
	50 x 105	7.36	10.30	0.120	0.066		ECEP2WP182HA
500 VDC Working, 550 VDC Surge							
270	35 x 40	1.76	2.46	0.614	0.276	ECET2HP271EA	
330	40 x 40	2.16	3.02	0.502	0.276	ECET2HP331FA	ECEP2HP331FA
390	35 x 50	2.22	3.11	0.425	0.234	ECET2HP391EA	
470	35 x 63	2.58	3.61	0.353	0.194	ECET2HP471EA	
	40 x 50	2.70	3.78	0.353	0.194	ECET2HP471FA	ECEP2HP471FA
560	40 x 63	3.11	4.35	0.326	0.179	ECET2HP561FA	ECEP2HP561FA
	50 x 50	3.52	4.93	0.355	0.195		ECEP2HP561HA
680	35 x 80	3.21	4.49	0.244	0.134	ECET2HP681EA	
	50 x 50	3.88	5.43	0.293	0.161		ECEP2HP681HX
	50 x 63	4.07	5.70	0.293	0.161		ECEP2HP681HA
820	35 x 105	3.97	5.56	0.202	0.111	ECET2HP821EA	
	40 x 80	3.88	5.43	0.222	0.122	ECET2HP821FA	ECEP2HP821FA
	50 x 63	4.47	6.26	0.222	0.122		ECEP2HP821HA
1000	50 x 80	5.05	7.07	0.199	0.109		ECEP2HP102HA

T-UP Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μ F)	Size (mm) D x L	Max 85°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
500 VDC Working, 550 VDC Surge (continued)							
1200	40 x 105	5.90	8.26	0.152	0.084	ECET2HP122FA	ECEP2HP122FA
	50 x 80	5.35	7.49	0.166	0.091		ECEP2HP122HX
	50 x 92	5.74	8.04	0.166	0.091		ECEP2HP122HA
1500	50 x 105	6.65	9.31	0.144	0.079		ECEP2HP152HA

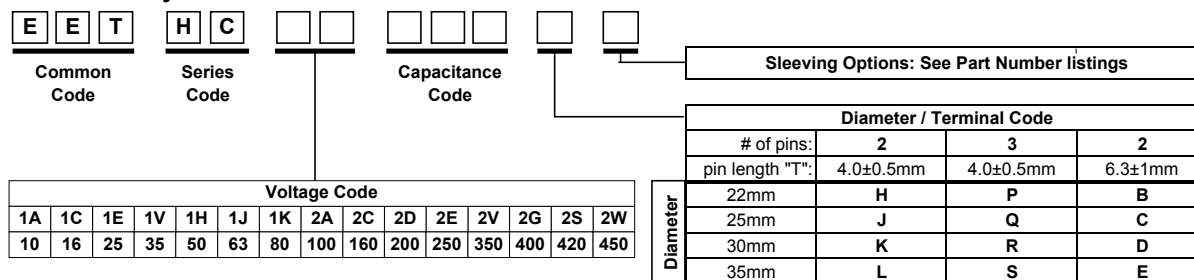
TS-HC Series 105°C, 2000 hours

- Long life with high capacitance (30% smaller than HB series)
- 2 and 3 pin versions available
- RoHS compliant PVC and RoHS compliant PET sleeve options

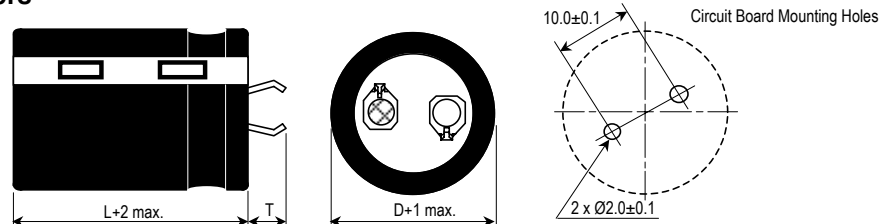
RoHS
Compliant

Rated Working Voltage:	10 ~ 250 VDC						350 ~ 450 VDC						
Operating Temperature:	-40 ~ +105°C						-25 ~ +105°C						
Nominal Capacitance:	270 ~ 100000μF						100 ~ 1000μF						
Capacitance Tolerance:	± 20%												
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:	10	16	25	35	50	63	80	100 ~ 450				
	Max. D.F. (%):	55	45	35	30	25	20	17	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):	105°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	1.7	2.0	2.2	2.35
Endurance:	2000 hours at +105°C with maximum specified ripple current (see page4)												

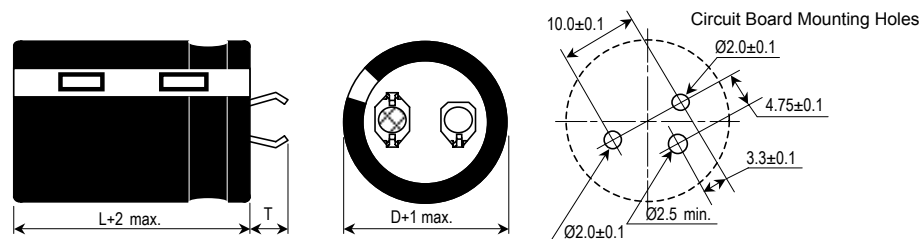
*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System**Dimensions in millimeters**

2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles

6.3mm Length: Available on 2 Pin Mounting Style Only

TS-HC Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
10 VDC Working, 13 VDC Surge							
12000	22 x 25	2.20	2.53	0.076	0.065	EETHC1A123HA	EETHC1A123HJ
18000	22 x 30	2.40	2.76	0.051	0.043	EETHC1A183HA	EETHC1A183HJ
	25 x 25	2.40	2.76	0.051	0.043	EETHC1A183JA	EETHC1A183JJ
22000	22 x 35	2.60	2.99	0.041	0.035	EETHC1A223HA	EETHC1A223HJ
	25 x 30	2.60	2.99	0.041	0.035	EETHC1A223JA	EETHC1A223JJ
27000	22 x 40	3.10	3.57	0.034	0.029	EETHC1A273HA	EETHC1A273HJ
	25 x 35	3.10	3.57	0.034	0.029	EETHC1A273JA	EETHC1A273JJ
	30 x 25	3.10	3.57	0.034	0.029	EETHC1A273KA	EETHC1A273KJ
33000	22 x 45	3.40	3.91	0.028	0.023	EETHC1A333HA	EETHC1A333HJ
	25 x 40	3.40	3.91	0.028	0.023	EETHC1A333JA	EETHC1A333JJ
39000	25 x 45	3.70	4.26	0.026	0.022	EETHC1A393JA	EETHC1A393JJ
	30 x 30	3.70	4.26	0.026	0.023	EETHC1A393KA	EETHC1A393KJ
	35 x 25	3.70	4.26	0.026	0.022	EETHC1A393LA	EETHC1A393LJ
47000	25 x 50	4.20	4.83	0.024	0.021	EETHC1A473JA	EETHC1A473JJ
	30 x 35	4.20	4.83	0.024	0.022	EETHC1A473KA	EETHC1A473KJ
	35 x 30	4.20	4.83	0.024	0.021	EETHC1A473LA	EETHC1A473LJ
56000	30 x 40	5.00	5.75	0.023	0.021	EETHC1A563KA	EETHC1A563KJ
	35 x 35	5.00	5.75	0.023	0.020	EETHC1A563LA	EETHC1A563LJ
68000	30 x 45	5.40	6.21	0.022	0.020	EETHC1A683KA	EETHC1A683KJ
	35 x 40	5.40	6.21	0.022	0.019	EETHC1A683LA	EETHC1A683LJ
82000	35 x 45	6.10	7.02	0.021	0.019	EETHC1A823LA	EETHC1A823LJ
100000	35 x 50	6.90	7.94	0.020	0.019	EETHC1A104LA	EETHC1A104LJ
16 VDC Working, 20 VDC Surge							
10000	22 x 25	2.60	2.99	0.075	0.063	EETHC1C103HA	EETHC1C103HJ
12000	22 x 30	2.90	3.34	0.062	0.053	EETHC1C123HA	EETHC1C123HJ
	25 x 25	2.90	3.34	0.062	0.053	EETHC1C123JA	EETHC1C123JJ
15000	22 x 35	3.20	3.68	0.050	0.042	EETHC1C153HA	EETHC1C153HJ
18000	22 x 40	3.50	4.03	0.041	0.035	EETHC1C183HA	EETHC1C183HJ
	25 x 30	3.50	4.03	0.041	0.035	EETHC1C183JA	EETHC1C183JJ
22000	22 x 45	3.80	4.37	0.034	0.029	EETHC1C223HA	EETHC1C223HJ
	25 x 35	3.80	4.37	0.034	0.029	EETHC1C223JA	EETHC1C223JJ
	30 x 25	3.80	4.37	0.034	0.029	EETHC1C223KA	EETHC1C223KJ
27000	22 x 50	4.20	4.83	0.028	0.023	EETHC1C273HA	EETHC1C273HJ
	25 x 40	4.20	4.83	0.028	0.023	EETHC1C273JA	EETHC1C273JJ
	30 x 30	4.20	4.83	0.028	0.023	EETHC1C273KA	EETHC1C273KJ
	35 x 25	4.20	4.83	0.028	0.023	EETHC1C273LA	EETHC1C273LJ
33000	25 x 45	4.70	5.41	0.023	0.019	EETHC1C333JA	EETHC1C333JJ
	30 x 35	4.70	5.41	0.023	0.019	EETHC1C333KA	EETHC1C333KJ
	35 x 30	4.70	5.41	0.023	0.020	EETHC1C333LA	EETHC1C333LJ
39000	30 x 40	5.10	5.87	0.022	0.018	EETHC1C393KA	EETHC1C393KJ
	35 x 35	5.10	5.87	0.022	0.020	EETHC1C393LA	EETHC1C393LJ
47000	30 x 45	5.50	6.33	0.016	0.014	EETHC1C473KA	EETHC1C473KJ
	35 x 40	5.50	6.33	0.021	0.019	EETHC1C473LA	EETHC1C473LJ
56000	30 x 50	6.00	6.90	0.020	0.018	EETHC1C563KA	EETHC1C563KJ
	35 x 45	6.00	6.90	0.020	0.018	EETHC1C563LA	EETHC1C563LJ
25 VDC Working, 32 VDC Surge							
6800	22 x 25	2.40	2.76	0.085	0.064	EETHC1E682HA	EETHC1E682HJ
8200	22 x 30	2.70	3.11	0.071	0.053	EETHC1E822HA	EETHC1E822HJ
	25 x 25	2.70	3.11	0.071	0.053	EETHC1E822JA	EETHC1E822JJ
10000	22 x 35	3.00	3.45	0.058	0.044	EETHC1E103HA	EETHC1E103HJ
12000	22 x 40	3.20	3.68	0.048	0.036	EETHC1E123HA	EETHC1E123HJ
	25 x 30	3.20	3.68	0.048	0.036	EETHC1E123JA	EETHC1E123JJ
15000	22 x 45	3.60	4.14	0.039	0.029	EETHC1E153HA	EETHC1E153HJ
	25 x 35	3.60	4.14	0.039	0.029	EETHC1E153JA	EETHC1E153JJ
	30 x 25	3.60	4.14	0.039	0.029	EETHC1E153KA	EETHC1E153KJ
18000	22 x 50	3.90	4.49	0.032	0.024	EETHC1E183HA	EETHC1E183HJ
	25 x 40	3.90	4.49	0.032	0.024	EETHC1E183JA	EETHC1E183JJ
	30 x 30	3.90	4.49	0.032	0.024	EETHC1E183KA	EETHC1E183KJ
	35 x 25	3.90	4.49	0.032	0.024	EETHC1E183LA	EETHC1E183LJ
22000	25 x 45	4.30	4.95	0.026	0.020	EETHC1E223JA	EETHC1E223JJ
	30 x 35	4.30	4.95	0.026	0.020	EETHC1E223KA	EETHC1E223KJ
	35 x 30	4.30	4.95	0.026	0.020	EETHC1E223LA	EETHC1E223LJ
27000	30 x 40	4.80	5.52	0.021	0.016	EETHC1E273KA	EETHC1E273KJ

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
25 VDC Working, 32 VDC Surge (continued)							
27000	35 x 35	4.80	5.52	0.021	0.016	EETHC1E273LA	EETHC1E273LJ
33000	30 x 45	5.50	6.33	0.018	0.013	EETHC1E333KA	EETHC1E333KJ
	35 x 40	5.50	6.33	0.018	0.014	EETHC1E333LA	EETHC1E333LJ
39000	30 x 50	5.80	6.67	0.017	0.013	EETHC1E393KA	EETHC1E393KJ
	35 x 45	5.80	6.67	0.017	0.014	EETHC1E393LA	EETHC1E393LJ
47000	35 x 50	6.30	7.25	0.017	0.014	EETHC1E473LA	EETHC1E473LJ
35 VDC Working, 44 VDC Surge							
4700	22 x 25	2.20	2.53	0.106	0.079	EETHC1V472HA	EETHC1V472HJ
5600	22 x 30	2.40	2.76	0.089	0.067	EETHC1V562HA	EETHC1V562HJ
	25 x 25	2.40	2.76	0.089	0.067	EETHC1V562JA	EETHC1V562JJ
6800	22 x 35	2.60	2.99	0.073	0.055	EETHC1V682HA	EETHC1V682HJ
8200	22 x 40	2.90	3.34	0.061	0.045	EETHC1V822HA	EETHC1V822HJ
	25 x 30	2.90	3.34	0.061	0.045	EETHC1V822JA	EETHC1V822JJ
10000	22 x 45	3.20	3.68	0.050	0.037	EETHC1V103HA	EETHC1V103HJ
	25 x 35	3.20	3.68	0.050	0.037	EETHC1V103JA	EETHC1V103JJ
	30 x 25	3.20	3.68	0.050	0.037	EETHC1V103KA	EETHC1V103KJ
12000	25 x 40	3.50	4.03	0.041	0.031	EETHC1V123JA	EETHC1V123JJ
	30 x 30	3.50	4.03	0.041	0.031	EETHC1V123KA	EETHC1V123KJ
	35 x 25	3.50	4.03	0.041	0.031	EETHC1V123LA	EETHC1V123LJ
15000	25 x 45	3.90	4.49	0.033	0.025	EETHC1V153JA	EETHC1V153JJ
	30 x 35	3.90	4.49	0.033	0.025	EETHC1V153KA	EETHC1V153KJ
	35 x 30	3.90	4.49	0.033	0.025	EETHC1V153LA	EETHC1V153LJ
18000	30 x 40	4.30	4.95	0.028	0.021	EETHC1V183KA	EETHC1V183KJ
	35 x 35	4.30	4.95	0.028	0.021	EETHC1V183LA	EETHC1V183LJ
22000	30 x 45	5.00	5.75	0.023	0.017	EETHC1V223KA	EETHC1V223KJ
	35 x 40	5.00	5.75	0.023	0.017	EETHC1V223LA	EETHC1V223LJ
27000	30 x 50	5.30	6.10	0.018	0.014	EETHC1V273KA	EETHC1V273KJ
	35 x 45	5.30	6.10	0.018	0.014	EETHC1V273LA	EETHC1V273LJ
33000	35 x 50	5.90	6.79	0.015	0.012	EETHC1V333LA	EETHC1V333LJ
50 VDC Working, 63 VDC Surge							
2700	22 x 25	1.80	2.07	0.154	0.115	EETHC1H272HA	EETHC1H272HJ
3300	22 x 30	2.00	2.30	0.126	0.094	EETHC1H332HA	EETHC1H332HJ
3900	22 x 35	2.20	2.53	0.106	0.080	EETHC1H392HA	EETHC1H392HJ
	25 x 25	2.20	2.53	0.106	0.080	EETHC1H392JA	EETHC1H392JJ
4700	22 x 40	2.50	2.88	0.088	0.066	EETHC1H472HA	EETHC1H472HJ
	25 x 30	2.50	2.88	0.088	0.066	EETHC1H472JA	EETHC1H472JJ
5600	22 x 45	2.80	3.22	0.074	0.056	EETHC1H562HA	EETHC1H562HJ
	25 x 35	2.80	3.22	0.074	0.056	EETHC1H562JA	EETHC1H562JJ
	30 x 25	2.80	3.22	0.074	0.056	EETHC1H562KA	EETHC1H562KJ
6800	22 x 50	3.30	3.80	0.061	0.046	EETHC1H682HA	EETHC1H682HJ
	25 x 40	3.30	3.80	0.061	0.046	EETHC1H682JA	EETHC1H682JJ
	30 x 30	3.30	3.80	0.061	0.046	EETHC1H682KA	EETHC1H682KJ
	35 x 25	3.30	3.80	0.061	0.046	EETHC1H682LA	EETHC1H682LJ
8200	25 x 45	3.60	4.14	0.051	0.038	EETHC1H822JA	EETHC1H822JJ
	30 x 35	3.60	4.14	0.051	0.038	EETHC1H822KA	EETHC1H822KJ
10000	25 x 50	4.00	4.60	0.041	0.031	EETHC1H103JA	EETHC1H103JJ
	30 x 40	4.00	4.60	0.041	0.031	EETHC1H103KA	EETHC1H103KJ
	35 x 30	4.00	4.60	0.041	0.031	EETHC1H103LA	EETHC1H103LJ
12000	30 x 45	4.50	5.18	0.035	0.026	EETHC1H123KA	EETHC1H123KJ
	35 x 35	4.50	5.18	0.035	0.028	EETHC1H123LA	EETHC1H123LJ
15000	30 x 50	4.80	5.52	0.028	0.021	EETHC1H153KA	EETHC1H153KJ
	35 x 40	4.80	5.52	0.028	0.022	EETHC1H153LA	EETHC1H153LJ
18000	35 x 45	5.60	6.44	0.023	0.018	EETHC1H183LA	EETHC1H183LJ
63 VDC Working, 79 VDC Surge							
2200	22 x 25	2.00	2.30	0.151	0.113	EETHC1J222HA	EETHC1J222HJ
2700	22 x 30	2.20	2.53	0.123	0.092	EETHC1J272HA	EETHC1J272HJ
	25 x 25	2.20	2.53	0.123	0.092	EETHC1J272JA	EETHC1J272JJ
3300	22 x 35	2.50	2.88	0.100	0.075	EETHC1J332HA	EETHC1J332HJ
3900	22 x 40	2.70	3.11	0.085	0.064	EETHC1J392HA	EETHC1J392HJ
	25 x 30	2.70	3.11	0.085	0.064	EETHC1J392JA	EETHC1J392JJ
	30 x 25	2.70	3.11	0.085	0.064	EETHC1J392KA	EETHC1J392KJ
4700	22 x 45	3.00	3.45	0.071	0.053	EETHC1J472HA	EETHC1J472HJ
	25 x 35	3.00	3.45	0.071	0.053	EETHC1J472JA	EETHC1J472JJ
5600	22 x 50	3.30	3.80	0.059	0.044	EETHC1J562HA	EETHC1J562HJ

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
63 VDC Working, 79 VDC Surge (continued)							
5600	25 x 40	3.30	3.80	0.059	0.044	EETHC1J562JA	EETHC1J562JJ
	30 x 30	3.30	3.80	0.059	0.044	EETHC1J562KA	EETHC1J562KJ
	35 x 25	3.30	3.80	0.059	0.044	EETHC1J562LA	EETHC1J562LJ
6800	25 x 45	3.60	4.14	0.049	0.037	EETHC1J682JA	EETHC1J682JJ
	30 x 35	3.60	4.14	0.049	0.037	EETHC1J682KA	EETHC1J682KJ
	35 x 30	3.60	4.14	0.049	0.037	EETHC1J682LA	EETHC1J682LJ
8200	30 x 40	3.90	4.49	0.040	0.030	EETHC1J822KA	EETHC1J822KJ
	35 x 35	3.90	4.49	0.040	0.030	EETHC1J822LA	EETHC1J822LJ
10000	30 x 45	4.40	5.06	0.033	0.025	EETHC1J103KA	EETHC1J103KJ
	35 x 40	4.40	5.06	0.033	0.025	EETHC1J103LA	EETHC1J103LJ
12000	30 x 50	4.80	5.52	0.028	0.021	EETHC1J123KA	EETHC1J123KJ
	35 x 45	4.80	5.52	0.028	0.022	EETHC1J123LA	EETHC1J123LJ
15000	35 x 50	5.40	6.21	0.022	0.018	EETHC1J153LA	EETHC1J153LJ
80 VDC Working, 100 VDC Surge							
1200	22 x 25	1.50	1.73	0.235	0.176	EETHC1K122HA	EETHC1K122HJ
1500	22 x 30	1.70	1.96	0.188	0.141	EETHC1K152HA	EETHC1K152HJ
	25 x 25	1.70	1.96	0.188	0.141	EETHC1K152JA	EETHC1K152JJ
1800	22 x 35	1.80	2.07	0.157	0.117	EETHC1K182HA	EETHC1K182HJ
2200	22 x 40	2.10	2.42	0.128	0.096	EETHC1K222HA	EETHC1K222HJ
	25 x 30	2.10	2.42	0.128	0.096	EETHC1K222JA	EETHC1K222JJ
2700	22 x 45	2.40	2.76	0.104	0.078	EETHC1K272HA	EETHC1K272HJ
	25 x 35	2.40	2.76	0.104	0.078	EETHC1K272JA	EETHC1K272JJ
	30 x 25	2.40	2.76	0.104	0.078	EETHC1K272KA	EETHC1K272KJ
3300	22 x 50	2.60	2.99	0.085	0.064	EETHC1K332HA	EETHC1K332HJ
	25 x 40	2.60	2.99	0.085	0.064	EETHC1K332JA	EETHC1K332JJ
	30 x 30	2.60	2.99	0.085	0.064	EETHC1K332KA	EETHC1K332KJ
	35 x 25	2.60	2.99	0.085	0.064	EETHC1K332LA	EETHC1K332LJ
3900	25 x 45	3.00	3.45	0.072	0.054	EETHC1K392JA	EETHC1K392JJ
	30 x 35	3.00	3.45	0.072	0.054	EETHC1K392KA	EETHC1K392KJ
4700	25 x 50	3.30	3.80	0.060	0.045	EETHC1K472JA	EETHC1K472JJ
	30 x 40	3.30	3.80	0.060	0.045	EETHC1K472KA	EETHC1K472KJ
	35 x 30	3.30	3.80	0.060	0.045	EETHC1K472LA	EETHC1K472LJ
5600	30 x 45	3.70	4.26	0.050	0.038	EETHC1K562KA	EETHC1K562KJ
	35 x 35	3.70	4.26	0.050	0.038	EETHC1K562LA	EETHC1K562LJ
6800	30 x 50	3.90	4.49	0.041	0.031	EETHC1K682KA	EETHC1K682KJ
	35 x 40	3.90	4.49	0.041	0.032	EETHC1K682LA	EETHC1K682LJ
8200	35 x 45	4.50	5.18	0.034	0.027	EETHC1K822LA	EETHC1K822LJ
100 VDC Working, 125 VDC Surge							
820	22 x 25	1.40	1.61	0.303	0.197	EETHC2A821HA	EETHC2A821HJ
1200	22 x 30	1.80	2.07	0.207	0.135	EETHC2A122HA	EETHC2A122HJ
	25 x 25	1.80	2.07	0.207	0.135	EETHC2A122JA	EETHC2A122JJ
1500	22 x 35	2.10	2.42	0.166	0.108	EETHC2A152HA	EETHC2A152HJ
	25 x 30	2.10	2.42	0.166	0.108	EETHC2A152JA	EETHC2A152JJ
1800	22 x 40	2.30	2.65	0.138	0.090	EETHC2A182HA	EETHC2A182HJ
	25 x 35	2.30	2.65	0.138	0.090	EETHC2A182JA	EETHC2A182JJ
	30 x 25	2.30	2.65	0.138	0.090	EETHC2A182KA	EETHC2A182KJ
2200	22 x 45	2.60	2.99	0.113	0.073	EETHC2A222HA	EETHC2A222HJ
	25 x 40	2.60	2.99	0.113	0.073	EETHC2A222JA	EETHC2A222JJ
	30 x 30	2.60	2.99	0.113	0.073	EETHC2A222KA	EETHC2A222KJ
	35 x 25	2.60	2.99	0.113	0.073	EETHC2A222LA	EETHC2A222LJ
2700	25 x 45	2.90	3.34	0.092	0.060	EETHC2A272JA	EETHC2A272JJ
	30 x 35	2.90	3.34	0.092	0.060	EETHC2A272KA	EETHC2A272KJ
3300	25 x 50	3.20	3.68	0.075	0.049	EETHC2A332JA	EETHC2A332JJ
	30 x 40	3.20	3.68	0.075	0.049	EETHC2A332KA	EETHC2A332KJ
	35 x 30	3.20	3.68	0.075	0.049	EETHC2A332LA	EETHC2A332LJ
3900	30 x 45	3.60	4.14	0.064	0.043	EETHC2A392KA	EETHC2A392KJ
	35 x 35	3.60	4.14	0.064	0.043	EETHC2A392LA	EETHC2A392LJ
4700	30 x 50	3.80	4.37	0.053	0.038	EETHC2A472KA	EETHC2A472KJ
	35 x 40	3.80	4.37	0.053	0.037	EETHC2A472LA	EETHC2A472LJ
5600	35 x 45	4.20	4.83	0.044	0.031	EETHC2A562LA	EETHC2A562LJ
6800	35 x 50	4.70	5.41	0.037	0.027	EETHC2A682LA	EETHC2A682LJ
160 VDC Working, 200 VDC Surge							
470	22 x 25	1.40	1.96	0.423	0.190	EETHC2C471HA	EETHC2C471HJ

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC sleeve with Top Plate	PET sleeve without Top Plate
160 VDC Working, 200 VDC Surge (continued)							
560	22 x 30	1.50	2.10	0.355	0.160	EETHC2C561HA	EETHC2C561HJ
680	22 x 30	1.70	2.38	0.293	0.132	EETHC2C681HA	EETHC2C681HJ
	25 x 25	1.70	2.38	0.293	0.132	EETHC2C681JA	EETHC2C681JJ
820	22 x 35	2.00	2.80	0.243	0.109	EETHC2C821HA	EETHC2C821HJ
	25 x 30	2.00	2.80	0.243	0.109	EETHC2C821JA	EETHC2C821JJ
1000 1000	22 x 40	2.20	3.08	0.199	0.090	EETHC2C102HA	EETHC2C102HJ
	25 x 35	2.20	3.08	0.199	0.090	EETHC2C102JA	EETHC2C102JJ
	30 x 25	2.20	3.08	0.216	0.108	EETHC2C102KA	EETHC2C102KJ
1200	22 x 45	2.30	3.22	0.166	0.075	EETHC2C122HA	EETHC2C122HJ
	25 x 40	2.30	3.22	0.166	0.075	EETHC2C122JA	EETHC2C122JJ
	30 x 30	2.30	3.22	0.166	0.075	EETHC2C122KA	EETHC2C122KJ
	35 x 25	2.30	3.22	0.180	0.090	EETHC2C122LA	EETHC2C122LJ
1500	25 x 45	2.50	3.50	0.133	0.060	EETHC2C152JA	EETHC2C152JJ
	30 x 35	2.50	3.50	0.133	0.060	EETHC2C152KA	EETHC2C152KJ
	35 x 30	2.50	3.50	0.155	0.077	EETHC2C152LA	EETHC2C152LJ
1800	25 x 50	2.70	3.78	0.111	0.050	EETHC2C182JA	EETHC2C182JJ
	30 x 40	2.70	3.78	0.111	0.050	EETHC2C182KA	EETHC2C182KJ
	35 x 30	2.70	3.78	0.120	0.060	EETHC2C182LA	EETHC2C182LJ
2200	30 x 45	2.90	4.06	0.090	0.041	EETHC2C222KA	EETHC2C222KJ
	35 x 35	2.90	4.06	0.098	0.049	EETHC2C222LA	EETHC2C222LJ
2700	30 x 50	3.10	4.34	0.080	0.040	EETHC2C272KA	EETHC2C272KJ
	35 x 40	3.10	4.34	0.086	0.043	EETHC2C272LA	EETHC2C272LJ
3300	35 x 50	3.30	4.62	0.070	0.042	EETHC2C332LA	EETHC2C332LJ
200 VDC Working, 250 VDC Surge							
390	22 x 25	1.31	1.83	0.510	0.230	EETHC2D391HA	EETHC2D391HJ
470	22 x 30	1.45	2.03	0.423	0.190	EETHC2D471HA	EETHC2D471HJ
	25 x 25	1.45	2.03	0.423	0.190	EETHC2D471JF	EETHC2D471JC
560	22 x 30	1.67	2.34	0.355	0.160	EETHC2D561HA	EETHC2D561HJ
680	22 x 40	1.75	2.45	0.293	0.132	EETHC2D681HA	EETHC2D681HJ
	25 x 30	1.75	2.45	0.293	0.132	EETHC2D681JA	EETHC2D681JJ
820	22 x 45	2.04	2.86	0.243	0.109	EETHC2D821HA	EETHC2D821HJ
	25 x 35	2.04	2.86	0.243	0.109	EETHC2D821JA	EETHC2D821JJ
	30 x 25	2.04	2.86	0.243	0.109	EETHC2D821KA	EETHC2D821KJ
1000	22 x 50	2.30	3.22	0.199	0.090	EETHC2D102HA	EETHC2D102HJ
	25 x 40	2.30	2.90	0.199	0.090	EETHC2D102JF	EETHC2D102JC
	25 x 45	2.30	3.22	0.199	0.090	EETHC2D102JA	EETHC2D102JJ
	30 x 30	2.30	3.22	0.199	0.090	EETHC2D102KA	EETHC2D102KJ
	35 x 25	2.30	3.22	0.216	0.097	EETHC2D102LA	EETHC2D102LA
1200	25 x 45	2.65	3.33	0.166	0.075	EETHC2D122JF	EETHC2D122JC
	25 x 50	2.65	3.71	0.166	0.075	EETHC2D122JA	EETHC2D122JJ
	30 x 35	2.65	3.71	0.166	0.075	EETHC2D122KA	EETHC2D122KJ
	35 x 30	2.65	3.71	0.180	0.090	EETHC2D122LA	EETHC2D122LA
1500	30 x 40	2.80	3.92	0.133	0.060	EETHC2D152KA	EETHC2D152KJ
	35 x 30	2.80	3.92	0.144	0.072	EETHC2D152LA	EETHC2D152LA
1800	30 x 45	3.08	4.31	0.111	0.050	EETHC2D182KA	EETHC2D182KJ
	35 x 40	3.08	4.31	0.129	0.064	EETHC2D182LA	EETHC2D182LA
2200	30 x 50	3.48	4.87	0.090	0.041	EETHC2D222KA	EETHC2D222KJ
	35 x 45	3.48	4.87	0.098	0.044	EETHC2D222LA	EETHC2D222LA
250 VDC Working, 300 VDC Surge							
270	22 x 25	1.10	1.54	0.614	0.276	EETHC2E271HA	EETHC2E271HJ
330	22 x 30	1.20	1.68	0.502	0.226	EETHC2E331HA	EETHC2E331HJ
	25 x 25	1.20	1.68	0.502	0.226	EETHC2E331JA	EETHC2E331JJ
390	22 x 30	1.20	1.68	0.425	0.191	EETHC2E391HF	EETHC2E391HC
	22 x 35	1.30	1.82	0.425	0.191	EETHC2E391HA	EETHC2E391HJ
	25 x 25	1.30	1.82	0.425	0.191	EETHC2E391JA	EETHC2E391JJ
470	22 x 35	1.20	1.68	0.353	0.159	EETHC2E471HF	EETHC2E471HC
	22 x 40	1.40	1.96	0.353	0.159	EETHC2E471HA	EETHC2E471HJ
	25 x 30	1.40	1.96	0.353	0.159	EETHC2E471JA	EETHC2E471JJ
	30 x 25	1.40	1.96	0.353	0.159	EETHC2E471KA	EETHC2E471KJ
560	22 x 40	1.40	1.96	0.296	0.133	EETHC2E561HF	EETHC2E561HC
	22 x 45	1.50	2.10	0.296	0.133	EETHC2E561HA	EETHC2E561HJ
	25 x 35	1.50	2.10	0.296	0.133	EETHC2E561JA	EETHC2E561JJ
	30 x 25	1.50	2.10	0.296	0.133	EETHC2E561KA	EETHC2E561KJ

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μ F)	Size (mm) D x L	Max 105°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
250 VDC Working, 300 VDC Surge (continued)							
680	22 x 45	1.50	2.10	0.244	0.110	EETHC2E681HF	EETHC2E681HC
	22 x 50	1.70	2.38	0.244	0.110	EETHC2E681HA	EETHC2E681HJ
	25 x 40	1.70	2.38	0.244	0.110	EETHC2E681JA	EETHC2E681JJ
	30 x 30	1.70	2.38	0.244	0.110	EETHC2E681KA	EETHC2E681KJ
	35 x 25	1.70	2.38	0.244	0.110	EETHC2E681LA	EETHC2E681LJ
820	25 x 45	2.00	2.80	0.202	0.091	EETHC2E821JA	EETHC2E821JJ
	30 x 35	2.00	2.80	0.202	0.091	EETHC2E821KA	EETHC2E821KJ
	35 x 30	2.00	2.80	0.202	0.091	EETHC2E821LA	EETHC2E821LJ
1000	25 x 50	2.20	3.08	0.166	0.075	EETHC2E102JF	EETHC2E102JC
	30 x 40	2.20	3.08	0.166	0.075	EETHC2E102KA	EETHC2E102KJ
	35 x 30	2.20	3.08	0.166	0.075	EETHC2E102LA	EETHC2E102LJ
1200	30 x 45	2.30	3.22	0.138	0.062	EETHC2E122KA	EETHC2E122KJ
	35 x 35	2.30	3.22	0.138	0.062	EETHC2E122LA	EETHC2E122LJ
1500	35 x 45	2.50	3.50	0.111	0.050	EETHC2E152LA	EETHC2E152LJ
1800	35 x 45	2.50	3.50	0.092	0.041	EETHC2E182LF	EETHC2E182LC
	35 x 50	2.70	3.78	0.092	0.041	EETHC2E182LA	EETHC2E182LJ
350 VDC Working, 400 VDC Surge							
120	22 x 25	0.75	1.05	1.382	0.622	EETHC2V121HA	EETHC2V121HJ
150	22 x 30	0.82	1.15	1.105	0.497	EETHC2V151HA	EETHC2V151HJ
180	22 x 30	0.90	1.26	0.921	0.414	EETHC2V181HA	EETHC2V181HJ
	25 x 25	0.90	1.26	0.921	0.414	EETHC2V181JA	EETHC2V181JJ
220	22 x 35	1.00	1.40	0.754	0.339	EETHC2V221HA	EETHC2V221HJ
	25 x 30	1.00	1.40	0.754	0.339	EETHC2V221JA	EETHC2V221JJ
270	22 x 40	1.10	1.54	0.614	0.276	EETHC2V271HF	EETHC2V271HC
	25 x 35	1.10	1.54	0.614	0.276	EETHC2V271JA	EETHC2V271JJ
	30 x 25	1.10	1.54	0.614	0.276	EETHC2V271KA	EETHC2V271KJ
330	22 x 45	1.20	1.68	0.502	0.226	EETHC2V331HF	EETHC2V331HC
	25 x 40	1.20	1.68	0.502	0.226	EETHC2V331JA	EETHC2V331JJ
	30 x 30	1.20	1.68	0.502	0.226	EETHC2V331KA	EETHC2V331KJ
390	25 x 45	1.30	1.82	0.425	0.191	EETHC2V391JA	EETHC2V391JJ
	30 x 30	1.30	1.82	0.425	0.191	EETHC2V391KF	EETHC2V391KC
	30 x 35	1.30	1.82	0.425	0.191	EETHC2V391KA	EETHC2V391KJ
470	25 x 50	1.40	1.96	0.353	0.159	EETHC2V471JA	EETHC2V471JJ
	30 x 35	1.40	1.96	0.353	0.159	EETHC2V471KF	EETHC2V471KC
	35 x 30	1.40	1.96	0.353	0.159	EETHC2V471LA	EETHC2V471LJ
560	30 x 40	1.50	2.10	0.296	0.133	EETHC2V561KF	EETHC2V561KC
	30 x 45	1.50	2.10	0.296	0.133	EETHC2V561KA	EETHC2V561KJ
	35 x 35	1.50	2.10	0.296	0.133	EETHC2V561LA	EETHC2V561LJ
680	30 x 45	1.70	2.38	0.244	0.110	EETHC2V681KF	EETHC2V681KC
	30 x 50	1.70	2.38	0.244	0.110	EETHC2V681KA	EETHC2V681KJ
	35 x 40	1.70	2.38	0.244	0.110	EETHC2V681LA	EETHC2V681LJ
820	35 x 45	1.90	2.66	0.202	0.091	EETHC2V821LA	EETHC2V821LJ
1000	35 x 50	1.90	2.66	0.202	0.091	EETHC2V102LF	EETHC2V102LC
400 VDC Working, 450 VDC Surge							
100	22 x 25	0.70	0.98	1.824	0.821	EETHC2G101HA	EETHC2G101HJ
120	22 x 30	0.75	1.05	1.520	0.684	EETHC2G121HA	EETHC2G121HJ
150	22 x 30	0.88	1.23	1.216	0.547	EETHC2G151HA	EETHC2G151HJ
	25 x 25	0.88	1.23	1.216	0.547	EETHC2G151JF	EETHC2G151JC
180	22 x 35	0.95	1.33	1.013	0.456	EETHC2G181HA	EETHC2G181HJ
	25 x 30	0.95	1.33	1.013	0.456	EETHC2G181JA	EETHC2G181JJ
220	22 x 40	1.00	1.40	0.829	0.373	EETHC2G221HF	EETHC2G221HC
	22 x 45	1.10	1.54	0.829	0.373	EETHC2G221HA	EETHC2G221HJ
	25 x 35	1.10	1.54	0.829	0.373	EETHC2G221JA	EETHC2G221JJ
	30 x 25	1.10	1.54	0.829	0.373	EETHC2G221KA	EETHC2G221KJ
270	22 x 45	1.10	1.54	0.675	0.304	EETHC2G271HF	EETHC2G271HC
	22 x 50	1.22	1.71	0.675	0.304	EETHC2G271HA	EETHC2G271HJ
	25 x 40	1.22	1.71	0.675	0.304	EETHC2G271JA	EETHC2G271JJ
	30 x 30	1.22	1.71	0.675	0.304	EETHC2G271KA	EETHC2G271KJ
	35 x 25	1.22	1.71	0.675	0.304	EETHC2G271LA	EETHC2G271LJ
330	25 x 45	1.44	2.02	0.553	0.249	EETHC2G331JA	EETHC2G331JJ
	30 x 30	1.44	2.02	0.553	0.249	EETHC2G331KF	EETHC2G331KC
	30 x 35	1.44	2.02	0.553	0.249	EETHC2G331KA	EETHC2G331KJ
	35 x 30	1.44	2.02	0.553	0.249	EETHC2G331LA	EETHC2G331LJ

Aluminum Electrolytic Capacitors

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 85°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
400 VDC Working, 450 VDC Surge (continued)							
390	25 x 50	1.55	2.17	0.468	0.210	EETHC2G391JA	EETHC2G391JJ
	30 x 35	1.40	1.96	0.468	0.210	EETHC2G391KF	EETHC2G391KC
	30 x 40	1.55	2.17	0.468	0.210	EETHC2G391KA	EETHC2G391KJ
	35 x 30	1.55	2.17	0.468	0.210	EETHC2G391LA	EETHC2G391LJ
470	30 x 45	1.68	2.35	0.388	0.175	EETHC2G471KA	EETHC2G471KJ
	35 x 35	1.68	2.35	0.388	0.175	EETHC2G471LA	EETHC2G471LJ
560	30 x 45	1.90	2.66	0.326	0.147	EETHC2G561KF	EETHC2G561KC
	30 x 50	1.90	2.66	0.326	0.147	EETHC2G561KA	EETHC2G561KJ
	35 x 40	1.90	2.66	0.326	0.147	EETHC2G561LA	EETHC2G561LJ
680	35 x 45	2.12	2.97	0.268	0.121	EETHC2G681LA	EETHC2G681LJ
820	35 x 50	2.30	3.22	0.202	0.091	EETHC2G821LA	EETHC2G821LJ
420 VDC Working, 470 VDC Surge							
120	22 x 30	0.74	1.04	1.520	0.684	EETHC2S121HA	EETHC2S121HJ
	25 x 25	0.74	1.04	1.520	0.684	EETHC2S121JA	EETHC2S121JJ
150	22 x 35	0.84	1.18	1.216	0.547	EETHC2S151HA	EETHC2S151HJ
180	22 x 40	0.91	1.27	1.103	0.456	EETHC2S181HA	EETHC2S181HJ
	25 x 30	0.91	1.27	1.103	0.456	EETHC2S181JA	EETHC2S181JJ
220	22 x 45	1.05	1.47	0.829	0.373	EETHC2S221HA	EETHC2S221HJ
	25 x 35	1.05	1.47	0.829	0.373	EETHC2S221JA	EETHC2S221JJ
	30 x 25	1.05	1.47	0.829	0.373	EETHC2S221KA	EETHC2S221KJ
270	22 x 50	1.20	1.68	0.675	0.304	EETHC2S271HA	EETHC2S271HJ
	25 x 40	1.20	1.68	0.675	0.304	EETHC2S271JA	EETHC2S271JJ
	30 x 30	1.20	1.68	0.675	0.304	EETHC2S271KA	EETHC2S271KJ
	35 x 25	1.20	1.68	0.675	0.304	EETHC2S271LA	EETHC2S271LJ
330	25 x 50	1.42	1.99	0.553	0.249	EETHC2S331JA	EETHC2S331JJ
	30 x 35	1.42	1.99	0.553	0.249	EETHC2S331KA	EETHC2S331KJ
	35 x 35	1.42	1.99	0.553	0.249	EETHC2S331LA	EETHC2S331LJ
390	30 x 40	1.55	2.17	0.468	0.210	EETHC2S391KA	EETHC2S391KJ
	35 x 35	1.55	2.17	0.468	0.210	EETHC2S391LA	EETHC2S391LJ
470	30 x 45	1.71	2.39	0.388	0.175	EETHC2S471KA	EETHC2S471KJ
	35 x 35	1.71	2.39	0.388	0.175	EETHC2S471LA	EETHC2S471LJ
560	30 x 50	1.90	2.66	0.326	0.147	EETHC2S561KA	EETHC2S561KJ
	35 x 45	1.90	2.66	0.326	0.147	EETHC2S561LA	EETHC2S561LJ
680	35 x 50	2.10	2.94	0.268	0.121	EETHC2S681LA	EETHC2S681LJ
450 VDC Working, 500 VDC Surge							
100	22 x 30	0.64	0.90	1.824	0.821	EETHC2W101HA	EETHC2W101HJ
	25 x 25	0.64	0.90	1.824	0.821	EETHC2W101JA	EETHC2W101JJ
120	22 x 35	0.72	1.01	1.520	0.684	EETHC2W121HA	EETHC2W121HJ
	25 x 30	0.72	1.01	1.520	0.684	EETHC2W121JA	EETHC2W121JJ
150	22 x 35	0.79	1.11	1.216	0.547	EETHC2W151HF	EETHC2W151HC
	22 x 40	0.79	1.11	1.216	0.547	EETHC2W151HA	EETHC2W151HJ
	25 x 30	0.79	1.11	1.216	0.547	EETHC2W151JA	EETHC2W151JJ
	30 x 25	0.79	1.11	1.216	0.547	EETHC2W151KA	EETHC2W151KJ
180	22 x 45	0.87	1.22	1.013	0.456	EETHC2W181HA	EETHC2W181HJ
	25 x 35	0.87	1.22	1.013	0.456	EETHC2W181JF	EETHC2W181JC
	25 x 40	0.87	1.22	1.013	0.456	EETHC2W181JA	EETHC2W181JJ
	30 x 25	0.87	1.22	1.013	0.456	EETHC2W181KF	EETHC2W181KC
	30 x 30	0.87	1.22	1.013	0.456	EETHC2W181KA	EETHC2W181KJ
220	22 x 50	1.00	1.40	0.829	0.373	EETHC2W221HA	EETHC2W221HJ
	25 x 40	1.00	1.40	0.829	0.373	EETHC2W221JF	EETHC2W221JC
	25 x 45	1.00	1.40	0.829	0.373	EETHC2W221JA	EETHC2W221JJ
	30 x 30	1.00	1.40	0.829	0.373	EETHC2W221KA	EETHC2W221KJ
	35 x 25	1.00	1.40	0.829	0.373	EETHC2W221LA	EETHC2W221LJ
270	25 x 45	1.19	1.67	0.675	0.304	EETHC2W271JF	EETHC2W271JC
	25 x 50	1.19	1.67	0.675	0.304	EETHC2W271JA	EETHC2W271JJ
	30 x 35	1.19	1.67	0.675	0.304	EETHC2W271KF	EETHC2W271KC
	30 x 40	1.19	1.67	0.675	0.304	EETHC2W271KA	EETHC2W271KJ
	35 x 30	1.19	1.67	0.675	0.304	EETHC2W271LA	EETHC2W271LJ
330	25 x 50	1.38	1.93	0.553	0.249	EETHC2W331JF	EETHC2W331JC
	30 x 40	1.38	1.93	0.553	0.249	EETHC2W331KF	EETHC2W331KC
	30 x 45	1.38	1.93	0.553	0.249	EETHC2W331KA	EETHC2W331KJ
	35 x 30	1.38	1.93	0.553	0.249	EETHC2W331LF	EETHC2W331LC
	35 x 35	1.38	1.93	0.553	0.249	EETHC2W331LA	EETHC2W331LJ

TS-HC Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Tantalum Standard Ratings (continued)							
Cap. (μ F)	Size (mm) D x L	Max 105°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
450 VDC Working, 500 VDC Surge (continued)							
390	30 x 45	1.55	2.17	0.468	0.210	EETHC2W391KF	EETHC2W391KC
	30 x 50	1.55	2.17	0.468	0.210	EETHC2W391KA	EETHC2W391KJ
	35 x 35	1.55	2.17	0.468	0.210	EETHC2W391LF	EETHC2W391LC
	35 x 40	1.55	2.17	0.468	0.210	EETHC2W391LA	EETHC2W391LJ
470	30 x 50	1.74	2.44	0.388	0.175	EETHC2W471KF	EETHC2W471KC
	35 x 40	1.74	2.44	0.388	0.175	EETHC2W471LF	EETHC2W471LC
	35 x 45	1.74	2.44	0.388	0.175	EETHC2W471LA	EETHC2W471LJ
560	35 x 50	1.90	2.66	0.326	0.147	EETHC2W561LA	EETHC2W561LJ

- *Long 3000 hour life at 105°C with high ripple current capability*
- *2 and 3 pin versions available*
- *Can vent construction*



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

The diagram illustrates the layout of a 12-pin connector. The pins are arranged in two rows of six. The labels and their corresponding pin positions are as follows:

- Terminal Style:** A table with 3 columns: Prefix, Length, and # of Pins. It lists three styles: ECOS (6.3mm, 2 pins), ECEC (4.0mm, 2 pins), and ECE3 (4.0mm, 3 pins).
- Series Code:** A table with 2 columns: A and B. It lists two series: A (Standard Ratings) and B (Extended CV Ratings).
- Capacitance Code:** A table with 2 columns: A and B. It lists two capacitance codes: A (Standard Ratings) and B (Extended CV Ratings).
- Voltage Code:** A table with 12 columns: 1A, 1C, 1E, 1V, 1H, 1J, 1K, 2A, 2C, 2D, 2E, 2T, 2G, 2W. It lists 12 voltage codes: 10, 16, 25, 35, 50, 63, 80, 100, 160, 200, 250, 385, 400, 450.
- Suffix:** A table with 2 columns: A, X, L. It lists three suffixes: A (Standard Ratings), X (Extended CV Ratings), and L (20mm Length Ratings).
- Diameter:** A table with 2 columns: Diameter and Code. It lists four diameters: 22 (B), 25 (C), 30 (D), and 35 (E).

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

2.0 max. 0.8^{+0.2}_{-0.1} 4.0 6.3±1.0 Top of Capacitor Body 1.5±0.2

"T" 6.3mm Length: Standard on 2 Pin Mounting Style

2.0 max. 0.8^{+0.2}_{-0.1} 3.5 4.0±0.5 1.5±0.2

4mm Length: Standard on 3 Pin. Available on 2 Pin Mounting Styles

TS-HA Standard Ratings

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 105°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
10 VDC Working, 13 VDC Surge							
10000	22 x 25	1.80	2.07	0.075	0.063	ECOS1AA103BA	ECEC1AA103BA
12000	22 x 30	2.20	2.53	0.062	0.053	ECOS1AA123BA	ECEC1AA123BA
15000	22 x 35	2.30	2.65	0.053	0.045	ECOS1AA153BA	ECEC1AA153BA
	25 x 25	2.30	2.65	0.053	0.045	ECOS1AA153CA	ECEC1AA153CA
18000	22 x 40	2.40	2.76	0.044	0.038	ECOS1AA183BA	ECEC1AA183BA
	25 x 30	2.40	2.76	0.044	0.038	ECOS1AA183CA	ECEC1AA183CA
22000	22 x 45	2.60	2.99	0.038	0.032	ECOS1AA223BA	ECEC1AA223BA
	25 x 35	2.60	2.99	0.038	0.032	ECOS1AA223CA	ECEC1AA223CA
	30 x 25	2.60	2.99	0.038	0.032	ECOS1AA223DA	ECEC1AA223DA
27000	22 x 50	3.10	3.57	0.033	0.028	ECOS1AA273BA	ECEC1AA273BA
	25 x 40	3.10	3.57	0.033	0.028	ECOS1AA273CA	ECEC1AA273CA
	30 x 30	3.10	3.57	0.033	0.028	ECOS1AA273DA	ECEC1AA273DA
	35 x 25	3.10	3.57	0.033	0.028	ECOS1AA273EA	ECEC1AA273EA
33000	25 x 45	3.40	3.91	0.027	0.023	ECOS1AA333CA	ECEC1AA333CA
	30 x 35	3.40	3.91	0.027	0.023	ECOS1AA333DA	ECEC1AA333DA
	35 x 30	3.40	3.91	0.027	0.023	ECOS1AA333EA	ECEC1AA333EA
39000	25 x 50	3.70	4.26	0.025	0.021	ECOS1AA393CA	ECEC1AA393CA
	30 x 40	3.70	4.26	0.025	0.021	ECOS1AA393DA	ECEC1AA393DA
	35 x 30	3.70	4.26	0.025	0.021	ECOS1AA393EA	ECEC1AA393EA
47000	30 x 45	4.20	4.83	0.023	0.020	ECOS1AA473DA	ECEC1AA473DA
	35 x 35	4.20	4.83	0.023	0.020	ECOS1AA473EA	ECEC1AA473EA
56000	30 x 50	5.00	5.75	0.022	0.019	ECOS1AA563DA	ECEC1AA563DA
	35 x 40	5.00	5.75	0.022	0.021	ECOS1AA563EA	ECEC1AA563EA
68000	35 x 50	5.50	6.33	0.021	0.020	ECOS1AA683EA	ECEC1AA683EA
16 VDC Working, 20 VDC Surge							
3300	22 x 20	1.30	1.50	0.216	0.173	ECOS1CA332BL	ECEC1CA332BL
4700	25 x 20	1.60	1.84	0.152	0.121	ECOS1CA472CL	ECEC1CA472CL
6800	22 x 25	2.20	2.53	0.085	0.068	ECOS1CA682BA	ECEC1CA682BA
	30 x 20	1.80	2.07	0.105	0.084	ECOS1CA682DL	ECEC1CA682DL
8200	22 x 30	2.40	2.76	0.071	0.057	ECOS1CA822BA	ECEC1CA822BA
10000	22 x 30	2.60	2.99	0.066	0.053	ECOS1CA103BA	ECEC1CA103BA
	25 x 25	2.60	2.99	0.066	0.053	ECOS1CA103CA	ECEC1CA103CA
	35 x 20	2.40	2.76	0.071	0.057	ECOS1CA103EL	ECEC1CA103EL
12000	22 x 35	2.90	3.34	0.055	0.044	ECOS1CA123BA	ECEC1CA123BA
	25 x 30	2.90	3.34	0.055	0.044	ECOS1CA123CA	ECEC1CA123CA
	30 x 25	2.90	3.34	0.055	0.044	ECOS1CA123DA	ECEC1CA123DA
15000	22 x 40	3.20	3.68	0.046	0.037	ECOS1CA153BA	ECEC1CA153BA
	25 x 35	3.20	3.68	0.046	0.037	ECOS1CA153CA	ECEC1CA153CA
	30 x 30	3.20	3.68	0.046	0.037	ECOS1CA153DA	ECEC1CA153DA
18000	22 x 45	3.50	4.03	0.040	0.034	ECOS1CA183BA	ECEC1CA183BA
	25 x 40	3.50	4.03	0.040	0.034	ECOS1CA183CA	ECEC1CA183CA
	30 x 30	3.50	4.03	0.040	0.034	ECOS1CA183DA	ECEC1CA183DA
	35 x 25	3.50	4.03	0.040	0.034	ECOS1CA183EA	ECEC1CA183EA
22000	25 x 45	3.80	4.37	0.033	0.028	ECOS1CA223CA	ECEC1CA223CA
	30 x 35	3.80	4.37	0.033	0.028	ECOS1CA223DA	ECEC1CA223DA
	35 x 30	3.80	4.37	0.033	0.028	ECOS1CA223EA	ECEC1CA223EA
27000	25 x 50	4.20	4.83	0.028	0.025	ECOS1CA273CA	ECEC1CA273CA
	30 x 40	4.20	4.83	0.028	0.025	ECOS1CA273DA	ECEC1CA273DA
	35 x 30	4.20	4.83	0.028	0.025	ECOS1CA273EA	ECEC1CA273EA
33000	30 x 45	4.70	5.41	0.023	0.020	ECOS1CA333DA	ECEC1CA333DA
	35 x 35	4.70	5.41	0.023	0.020	ECOS1CA333EA	ECEC1CA333EA
39000	30 x 50	5.10	5.87	0.022	0.020	ECOS1CA393DA	ECEC1CA393DA
	35 x 40	5.10	5.87	0.022	0.020	ECOS1CA393EA	ECEC1CA393EA
47000	35 x 45	5.50	6.33	0.020	0.018	ECOS1CA473EA	ECEC1CA473EA
56000	35 x 50	6.00	6.90	0.019	0.017	ECOS1CA563EA	ECEC1CA563EA
25 VDC Working, 32 VDC Surge							
2200	22 x 20	1.30	1.50	0.241	0.181	ECOS1EA222BL	ECEC1EA222BL
3300	25 x 20	1.60	1.84	0.161	0.121	ECOS1EA332CL	ECEC1EA332CL
4700	22 x 25	2.00	2.30	0.106	0.079	ECOS1EA472BA	ECEC1EA472BA
	30 x 20	1.80	2.07	0.113	0.085	ECOS1EA472DL	ECEC1EA472DL
5600	22 x 30	2.20	2.53	0.089	0.067	ECOS1EA562BA	ECEC1EA562BA
6800	22 x 30	2.40	2.76	0.073	0.055	ECOS1EA682BA	ECEC1EA682BA
	25 x 25	2.40	2.76	0.073	0.055	ECOS1EA682CA	ECEC1EA682CA
	35 x 20	2.30	2.65	0.080	0.060	ECOS1EA682EL	ECEC1EA682EL

TS-HA Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 105°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
25 VDC Working, 32 VDC Surge (continued)							
8200	22 x 35	2.70	3.11	0.061	0.045	ECOS1EA822BA	ECEC1EA822BA
	25 x 30	2.70	3.11	0.061	0.045	ECOS1EA822CA	ECEC1EA822CA
	30 x 25	2.70	3.11	0.061	0.045	ECOS1EA822DA	ECEC1EA822DA
10000	22 x 40	3.00	3.45	0.051	0.039	ECOS1EA103BA	ECEC1EA103BA
	25 x 35	3.00	3.45	0.051	0.039	ECOS1EA103CA	ECEC1EA103CA
	30 x 30	3.00	3.45	0.051	0.039	ECOS1EA103DA	ECEC1EA103DA
12000	22 x 45	3.20	3.68	0.044	0.033	ECOS1EA123BA	ECEC1EA123BA
	25 x 40	3.20	3.68	0.044	0.035	ECOS1EA123CA	ECEC1EA123CA
	30 x 30	3.20	3.68	0.044	0.035	ECOS1EA123DA	ECEC1EA123DA
	35 x 25	3.20	3.68	0.044	0.035	ECOS1EA123EA	ECEC1EA123EA
15000	25 x 45	3.60	4.14	0.036	0.031	ECOS1EA153CA	ECEC1EA153CA
	30 x 35	3.60	4.14	0.036	0.031	ECOS1EA153DA	ECEC1EA153DA
	35 x 30	3.60	4.14	0.036	0.031	ECOS1EA153EA	ECEC1EA153EA
18000	25 x 50	3.90	4.49	0.030	0.027	ECOS1EA183CA	ECEC1EA183CA
	30 x 40	3.90	4.49	0.030	0.027	ECOS1EA183DA	ECEC1EA183DA
	35 x 35	3.90	4.49	0.030	0.027	ECOS1EA183EA	ECEC1EA183EA
22000	30 x 45	4.30	4.95	0.025	0.022	ECOS1EA223DA	ECEC1EA223DA
	35 x 35	4.30	4.95	0.025	0.022	ECOS1EA223EA	ECEC1EA223EA
27000	35 x 45	4.80	5.52	0.021	0.019	ECOS1EA273EA	ECEC1EA273EA
33000	35 x 50	5.50	6.33	0.018	0.016	ECOS1EA333EA	ECEC1EA333EA
35 VDC Working, 44 VDC Surge							
1500	22 x 20	1.10	1.27	0.287	0.216	ECOS1VA152BL	ECEC1VA152BL
2200	25 x 20	1.40	1.61	0.196	0.147	ECOS1VA222CL	ECEC1VA222CL
3300	22 x 25	1.90	2.19	0.121	0.090	ECOS1VA332BA	ECEC1VA332BA
	30 x 20	1.70	1.96	0.131	0.098	ECOS1VA332DL	ECEC1VA332DL
3900	22 x 30	2.00	2.30	0.111	0.083	ECOS1VA392BA	ECEC1VA392BA
4700	22 x 35	2.20	2.53	0.088	0.066	ECOS1VA472BA	ECEC1VA472BA
	25 x 25	2.20	2.53	0.088	0.066	ECOS1VA472CA	ECEC1VA472CA
	35 x 20	2.00	2.30	0.095	0.071	ECOS1VA472EL	ECEC1VA472EL
5600	22 x 35	2.40	2.76	0.074	0.056	ECOS1VA562BA	ECEC1VA562BA
	25 x 30	2.40	2.76	0.074	0.056	ECOS1VA562CA	ECEC1VA562CA
	30 x 25	2.40	2.76	0.074	0.056	ECOS1VA562DA	ECEC1VA562DA
6800	22 x 40	2.60	2.99	0.061	0.046	ECOS1VA682BA	ECEC1VA682BA
	25 x 35	2.60	2.99	0.061	0.046	ECOS1VA682CA	ECEC1VA682CA
	30 x 30	2.60	2.99	0.061	0.046	ECOS1VA682DA	ECEC1VA682DA
8200	22 x 50	2.90	3.34	0.051	0.038	ECOS1VA822BA	ECEC1VA822BA
	25 x 40	2.90	3.34	0.051	0.038	ECOS1VA822CA	ECEC1VA822CA
	30 x 30	2.90	3.34	0.051	0.038	ECOS1VA822DA	ECEC1VA822DA
	35 x 25	2.90	3.34	0.051	0.038	ECOS1VA822EA	ECEC1VA822EA
10000	25 x 45	3.20	3.68	0.041	0.031	ECOS1VA103CA	ECEC1VA103CA
	30 x 35	3.20	3.68	0.041	0.031	ECOS1VA103DA	ECEC1VA103DA
	35 x 30	3.20	3.68	0.041	0.031	ECOS1VA103EA	ECEC1VA103EA
12000	25 x 50	3.50	4.03	0.035	0.026	ECOS1VA123CA	ECEC1VA123CA
	30 x 40	3.50	4.03	0.035	0.026	ECOS1VA123DA	ECEC1VA123DA
	35 x 30	3.50	4.03	0.035	0.026	ECOS1VA123EA	ECEC1VA123EA
15000	30 x 45	3.90	4.49	0.030	0.022	ECOS1VA153DA	ECEC1VA153DA
	35 x 35	3.90	4.49	0.030	0.022	ECOS1VA153EA	ECEC1VA153EA
18000	35 x 40	4.30	4.95	0.028	0.021	ECOS1VA183EA	ECEC1VA183EA
22000	35 x 50	5.00	5.75	0.023	0.017	ECOS1VA223EA	ECEC1VA223EA
50 VDC Working, 63 VDC Surge							
1000	22 x 20	0.90	1.04	0.265	0.199	ECOS1HA102BL	ECEC1HA102BL
1500	25 x 20	1.20	1.38	0.177	0.133	ECOS1HA152CL	ECEC1HA152CL
1800	22 x 25	1.50	1.73	0.129	0.097	ECOS1HA182BA	ECEC1HA182BA
2200	22 x 30	1.70	1.96	0.105	0.079	ECOS1HA222BA	ECEC1HA222BA
	30 x 20	1.40	1.61	0.121	0.090	ECOS1HA222DL	ECEC1HA222DL
2700	22 x 30	1.80	2.07	0.086	0.064	ECOS1HA272BA	ECEC1HA272BA
	25 x 25	1.80	2.07	0.086	0.064	ECOS1HA272CA	ECEC1HA272CA
3300	22 x 35	2.00	2.30	0.070	0.053	ECOS1HA332BA	ECEC1HA332BA
	25 x 30	2.00	2.30	0.070	0.053	ECOS1HA332CA	ECEC1HA332CA
	35 x 20	1.70	1.96	0.085	0.064	ECOS1HA332EL	ECEC1HA332EL
3900	22 x 40	2.20	2.53	0.064	0.048	ECOS1HA392BA	ECEC1HA392BA
	25 x 35	2.20	2.53	0.064	0.048	ECOS1HA392CA	ECEC1HA392CA
	30 x 25	2.20	2.53	0.064	0.048	ECOS1HA392DA	ECEC1HA392DA
4700	22 x 45	2.50	2.88	0.053	0.040	ECOS1HA472BA	ECEC1HA472BA
	25 x 40	2.50	2.88	0.053	0.040	ECOS1HA472CA	ECEC1HA472CA

TS-HA Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μF)	Size (mm) D x L	Max 105°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
50 VDC Working, 63 VDC Surge (continued)							
4700	30 x 30	2.50	2.88	0.053	0.040	ECOS1HA472DA	ECEC1HA472DA
	35 x 25	2.50	2.88	0.053	0.040	ECOS1HA472EA	ECEC1HA472EA
5600	22 x 50	2.80	3.22	0.050	0.038	ECOS1HA562BA	ECEC1HA562BA
	25 x 40	2.80	3.22	0.050	0.038	ECOS1HA562CA	ECEC1HA562CA
	30 x 35	2.80	3.22	0.050	0.038	ECOS1HA562DA	ECEC1HA562DA
	35 x 30	2.80	3.22	0.050	0.038	ECOS1HA562EA	ECEC1HA562EA
6800	25 x 50	3.30	3.80	0.046	0.035	ECOS1HA682CA	ECEC1HA682CA
	30 x 40	3.30	3.80	0.046	0.035	ECOS1HA682DA	ECEC1HA682DA
	35 x 30	3.30	3.80	0.046	0.035	ECOS1HA682EA	ECEC1HA682EA
8200	30 x 45	3.60	4.14	0.038	0.029	ECOS1HA822DA	ECEC1HA822DA
	35 x 35	3.60	4.14	0.038	0.029	ECOS1HA822EA	ECEC1HA822EA
10000	30 x 50	4.00	4.60	0.033	0.025	ECOS1HA103DA	ECEC1HA103DA
	35 x 40	4.00	4.60	0.033	0.025	ECOS1HA103EA	ECEC1HA103EA
12000	35 x 45	4.50	5.18	0.028	0.022	ECOS1HA123EA	ECEC1HA123EA
15000	35 x 50	4.80	5.52	0.022	0.018	ECOS1HA153EA	ECEC1HA153EA
63 VDC Working, 79 VDC Surge							
680	22 x 20	0.90	1.04	0.463	0.347	ECOS1JA681BL	ECEC1JA681BL
1000	25 x 20	1.20	1.38	0.315	0.236	ECOS1JA102CL	ECEC1JA102CL
1200	22 x 25	1.40	1.61	0.235	0.176	ECOS1JA122BA	ECEC1JA122BA
1500	22 x 30	1.50	1.73	0.188	0.141	ECOS1JA152BA	ECEC1JA152BA
	30 x 20	1.30	1.50	0.210	0.157	ECOS1JA152DL	ECEC1JA152DL
1800	22 x 30	1.70	1.96	0.157	0.117	ECOS1JA182BA	ECEC1JA182BA
	25 x 25	1.70	1.96	0.157	0.117	ECOS1JA182CA	ECEC1JA182CA
2200	22 x 35	2.00	2.30	0.128	0.096	ECOS1JA222BA	ECEC1JA222BA
	25 x 30	2.00	2.30	0.128	0.096	ECOS1JA222CA	ECEC1JA222CA
	35 x 20	1.50	1.73	0.143	0.107	ECOS1JA222EL	ECEC1JA222EL
2700	22 x 40	2.20	2.53	0.104	0.078	ECOS1JA272BA	ECEC1JA272BA
	25 x 35	2.20	2.53	0.104	0.078	ECOS1JA272CA	ECEC1JA272CA
	30 x 25	2.20	2.53	0.104	0.078	ECOS1JA272DA	ECEC1JA272DA
3300	22 x 50	2.50	2.88	0.090	0.068	ECOS1JA332BA	ECEC1JA332BA
	25 x 40	2.50	2.88	0.090	0.068	ECOS1JA332CA	ECEC1JA332CA
	30 x 30	2.50	2.88	0.090	0.068	ECOS1JA332DA	ECEC1JA332DA
	35 x 25	2.50	2.88	0.090	0.068	ECOS1JA332EA	ECEC1JA332EA
3900	25 x 45	2.70	3.11	0.077	0.057	ECOS1JA392CA	ECEC1JA392CA
	30 x 35	2.70	3.11	0.077	0.057	ECOS1JA392DA	ECEC1JA392DA
	35 x 30	2.70	3.11	0.077	0.057	ECOS1JA392EA	ECEC1JA392EA
4700	25 x 50	3.00	3.45	0.063	0.048	ECOS1JA472CA	ECEC1JA472CA
	30 x 40	3.00	3.45	0.063	0.048	ECOS1JA472DA	ECEC1JA472DA
	35 x 30	3.00	3.45	0.063	0.048	ECOS1JA472EA	ECEC1JA472EA
5600	30 x 45	3.30	3.80	0.053	0.040	ECOS1JA562DA	ECEC1JA562DA
	35 x 35	3.30	3.80	0.053	0.040	ECOS1JA562EA	ECEC1JA562EA
6800	30 x 50	3.60	4.14	0.049	0.037	ECOS1JA682DA	ECEC1JA682DA
	35 x 40	3.60	4.14	0.049	0.037	ECOS1JA682EA	ECEC1JA682EA
8200	35 x 45	3.90	4.49	0.040	0.030	ECOS1JA822EA	ECEC1JA822EA
10000	35 x 50	4.40	5.06	0.033	0.028	ECOS1JA103EA	ECEC1JA103EA
80 VDC Working, 100 VDC Surge							
470	22 x 20	0.80	0.92	0.459	0.298	ECOS1KA471BL	ECEC1KA471BL
560	25 x 20	1.00	1.15	0.317	0.206	ECOS1KA681CL	ECEC1KA681CL
820	22 x 25	1.20	1.38	0.222	0.145	ECOS1KA821BA	ECEC1KA821BA
1000	22 x 30	1.30	1.50	0.182	0.119	ECOS1KA102BA	ECEC1KA102BA
	25 x 25	1.30	1.50	0.182	0.119	ECOS1KA102CA	ECEC1KA102CA
	30 x 20	1.20	1.38	0.216	0.140	ECOS1KA102DL	ECEC1KA102DL
1200	22 x 30	1.50	1.73	0.166	0.116	ECOS1KA122BA	ECEC1KA122BA
	25 x 25	1.50	1.73	0.166	0.116	ECOS1KA122CA	ECEC1KA122CA
1500	22 x 35	1.70	1.96	0.133	0.093	ECOS1KA152BA	ECEC1KA152BA
	25 x 30	1.70	1.96	0.133	0.093	ECOS1KA152CA	ECEC1KA152CA
	35 x 20	1.40	1.61	0.155	0.108	ECOS1KA152EL	ECEC1KA152EL
1800	22 x 40	1.80	2.07	0.111	0.077	ECOS1KA182BA	ECEC1KA182BA
	25 x 35	1.80	2.07	0.111	0.077	ECOS1KA182CA	ECEC1KA182CA
	30 x 25	1.80	2.07	0.111	0.077	ECOS1KA182DA	ECEC1KA182DA
2200	22 x 45	2.10	2.42	0.090	0.063	ECOS1KA222BA	ECEC1KA222BA
	25 x 35	2.10	2.42	0.090	0.063	ECOS1KA222CA	ECEC1KA222CA
	30 x 30	2.10	2.42	0.090	0.063	ECOS1KA222DA	ECEC1KA222DA
	35 x 25	2.10	2.42	0.090	0.063	ECOS1KA222EA	ECEC1KA222EA

TS-HA/HB Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μF)	Size (mm) D x L	Max 105°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
80 VDC Working, 100 VDC Surge (continued)							
2700	25 x 45	2.40	2.76	0.074	0.055	ECOS1KA272CA	ECEC1KA272CA
	30 x 35	2.40	2.76	0.074	0.055	ECOS1KA272DA	ECEC1KA272DA
	35 x 30	2.40	2.76	0.074	0.055	ECOS1KA272EA	ECEC1KA272EA
3300	25 x 50	2.60	2.99	0.065	0.049	ECOS1KA332CA	ECEC1KA332CA
	30 x 40	2.60	2.99	0.065	0.049	ECOS1KA332DA	ECEC1KA332DA
	35 x 30	2.60	2.99	0.065	0.049	ECOS1KA332EA	ECEC1KA332EA
3900	30 x 45	3.00	3.45	0.060	0.045	ECOS1KA392DA	ECEC1KA392DA
	35 x 35	3.00	3.45	0.060	0.045	ECOS1KA392EA	ECEC1KA392EA
4700	30 x 50	3.30	3.80	0.049	0.037	ECOS1KA472DA	ECEC1KA472DA
	35 x 40	3.30	3.80	0.049	0.037	ECOS1KA472EA	ECEC1KA472EA
5600	35 x 45	3.70	4.26	0.050	0.038	ECOS1KA562EA	ECEC1KA562EA
6800	35 x 50	3.90	4.49	0.041	0.031	ECOS1KA682EA	ECEC1KA682EA
100 VDC Working, 125 VDC Surge							
330	22 x 20	0.80	1.20	0.653	0.392	ECOS2AA331BL	ECEC2AA331BL
470	25 x 20	1.00	1.50	0.459	0.275	ECOS2AA471CL	ECEC2AA471CL
560	22 x 25	1.10	1.65	0.296	0.178	ECOS2AA561BA	ECEC2AA561BA
680	30 x 20	1.10	1.65	0.317	0.190	ECOS2AA681DL	ECEC2AA681DL
820	22 x 30	1.40	2.10	0.202	0.121	ECOS2AA821BA	ECEC2AA821BA
	25 x 25	1.40	2.10	0.202	0.121	ECOS2AA821CA	ECEC2AA821CA
1000	22 x 35	1.70	2.55	0.182	0.109	ECOS2AA102BA	ECEC2AA102BA
	25 x 30	1.70	2.55	0.182	0.109	ECOS2AA102CA	ECEC2AA102CA
	35 x 20	1.20	1.80	0.216	0.129	ECOS2AA102EL	ECEC2AA102EL
1200	22 x 40	1.80	2.70	0.152	0.091	ECOS2AA122BA	ECEC2AA122BA
	25 x 35	1.80	2.70	0.152	0.091	ECOS2AA122CA	ECEC2AA122CA
	30 x 25	1.80	2.70	0.152	0.091	ECOS2AA122DA	ECEC2AA122DA
1500	22 x 45	2.10	3.15	0.122	0.073	ECOS2AA152BA	ECEC2AA152BA
	25 x 40	2.10	3.15	0.122	0.079	ECOS2AA152CA	ECEC2AA152CA
	30 x 30	2.10	3.15	0.122	0.079	ECOS2AA152DA	ECEC2AA152DA
	35 x 25	2.10	3.15	0.122	0.079	ECOS2AA152EA	ECEC2AA152EA
1800	25 x 45	2.30	3.45	0.111	0.072	ECOS2AA182CA	ECEC2AA182CA
	30 x 35	2.30	3.45	0.111	0.072	ECOS2AA182DA	ECEC2AA182DA
	35 x 30	2.30	3.45	0.111	0.072	ECOS2AA182EA	ECEC2AA182EA
2200	25 x 50	2.60	3.90	0.090	0.059	ECOS2AA222CA	ECEC2AA222CA
	30 x 40	2.60	3.90	0.090	0.059	ECOS2AA222DA	ECEC2AA222DA
	35 x 30	2.60	3.90	0.090	0.059	ECOS2AA222EA	ECEC2AA222EA
2700	30 x 45	2.90	4.35	0.080	0.052	ECOS2AA272DA	ECEC2AA272DA
	35 x 35	2.90	4.35	0.080	0.052	ECOS2AA272EA	ECEC2AA272EA
3300	30 x 50	3.20	4.80	0.075	0.053	ECOS2AA332DA	ECEC2AA332DA
	35 x 40	3.20	4.80	0.075	0.053	ECOS2AA332EA	ECEC2AA332EA
3900	35 x 45	3.60	5.40	0.064	0.045	ECOS2AA392EA	ECEC2AA392EA
4700	35 x 50	3.80	5.70	0.053	0.040	ECOS2AA472EA	ECEC2AA472EA
160 VDC Working, 200 VDC Surge							
470	22 x 30	1.40	1.96	0.423	0.190	ECOS2CB471BA	ECEC2CB471BA
560	22 x 35	1.50	2.10	0.355	0.160	ECOS2CB561BA	ECEC2CB561BA
680	22 x 40	1.70	2.38	0.293	0.132	ECOS2CB681BA	ECEC2CB681BA
	25 x 30	1.70	2.38	0.293	0.132	ECOS2CB681CA	ECEC2CB681CA
820	22 x 45	2.00	2.80	0.243	0.109	ECOS2CB821BA	ECEC2CB821BA
	25 x 35	2.00	2.80	0.243	0.109	ECOS2CB821CA	ECEC2CB821CA
1000	22 x 50	2.20	3.08	0.199	0.090	ECOS2CB102BA	ECEC2CB102BA
	25 x 40	2.20	3.08	0.199	0.090	ECOS2CB102CA	ECEC2CB102CA
	30 x 30	2.20	3.08	0.199	0.090	ECOS2CB102DA	ECEC2CB102DA
	35 x 25	2.20	3.08	0.199	0.090	ECOS2CB102EA	ECEC2CB102EA
1200	25 x 45	2.30	3.22	0.180	0.090	ECOS2CB122CA	ECEC2CB122CA
	30 x 35	2.30	3.22	0.180	0.090	ECOS2CB122DA	ECEC2CB122DA
	35 x 30	2.30	3.22	0.180	0.090	ECOS2CB122EA	ECEC2CB122EA
1500	30 x 40	2.50	3.50	0.144	0.072	ECOS2CB152DA	ECEC2CB152DA
	35 x 30	2.50	3.50	0.144	0.072	ECOS2CB152EA	ECEC2CB152EA
1800	30 x 45	2.70	3.78	0.129	0.064	ECOS2CB182DA	ECEC2CB182DA
	35 x 35	2.70	3.78	0.129	0.064	ECOS2CB182EA	ECEC2CB182EA
2200	35 x 45	2.90	4.06	0.105	0.063	ECOS2CB222EA	ECEC2CB222EA
2700	35 x 50	3.10	4.34	0.086	0.052	ECOS2CB272EA	ECEC2CB272EA
200 VDC Working, 250 VDC Surge							
390	22 x 30	1.30	1.82	0.510	0.230	ECOS2DB391BA	ECEC2DB391BA
	25 x 25	1.30	1.82	0.510	0.230	ECOS2DB391CA	ECEC2DB391CA
470	22 x 35	1.40	1.96	0.423	0.190	ECOS2DB471BA	ECEC2DB471BA

TS-HB Standard Ratings (continued)

Part numbers shown with 2 pins

Cap. (μ F)	Size (mm) D x L	Max 105°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
200 VDC Working, 250 VDC Surge (continued)							
470	25 x 30	1.40	1.96	0.423	0.190	ECOS2DB471CA	ECEC2DB471CA
560	22 x 40	1.50	2.10	0.355	0.160	ECOS2DB561BA	ECEC2DB561BA
	25 x 30	1.50	2.10	0.355	0.160	ECOS2DB561CA	ECEC2DB561CA
	30 x 25	1.50	2.10	0.355	0.160	ECOS2DB561DA	ECEC2DB561DA
680	22 x 45	1.70	2.38	0.293	0.132	ECOS2DB681BA	ECEC2DB681BA
	25 x 35	1.70	2.38	0.293	0.132	ECOS2DB681CA	ECEC2DB681CA
820	25 x 45	2.00	2.80	0.263	0.118	ECOS2DB821CA	ECEC2DB821CA
	30 x 30	2.00	2.80	0.263	0.118	ECOS2DB821DA	ECEC2DB821DA
	35 x 25	2.00	2.80	0.263	0.118	ECOS2DB821EA	ECEC2DB821EA
1000	25 x 50	2.20	3.08	0.216	0.108	ECOS2DB102CA	ECEC2DB102CA
	30 x 35	2.20	3.08	0.216	0.108	ECOS2DB102DA	ECEC2DB102DA
	35 x 30	2.20	3.08	0.216	0.108	ECOS2DB102EA	ECEC2DB102EA
1200	30 x 40	2.30	3.22	0.193	0.097	ECOS2DB122DA	ECEC2DB122DA
	35 x 35	2.30	3.22	0.193	0.097	ECOS2DB122EA	ECEC2DB122EA
1500	30 x 50	2.50	3.50	0.155	0.077	ECOS2DB152DA	ECEC2DB152DA
	35 x 40	2.50	3.50	0.155	0.077	ECOS2DB152EA	ECEC2DB152EA
1800	35 x 45	2.70	3.78	0.129	0.077	ECOS2DB182EA	ECEC2DB182EA
2200	35 x 50	2.90	4.06	0.105	0.063	ECOS2DB222EA	ECEC2DB222EA
250 VDC Working, 300 VDC Surge							
180	22 x 25	0.90	1.26	0.921	0.461	ECOS2EB181BA	ECEC2EB181BA
220	22 x 30	1.00	1.40	0.754	0.377	ECOS2EB221BA	ECEC2EB221BA
270	22 x 35	1.10	1.54	0.614	0.307	ECOS2EB271BA	ECEC2EB271BA
330	22 x 40	1.20	1.68	0.502	0.251	ECOS2EB331BA	ECEC2EB331BA
	25 x 30	1.20	1.68	0.502	0.251	ECOS2EB331CA	ECEC2EB331CA
390	22 x 45	1.30	1.82	0.425	0.213	ECOS2EB391BA	ECEC2EB391BA
	30 x 25	1.30	1.82	0.425	0.213	ECOS2EB391DA	ECEC2EB391DA
470	22 x 50	1.40	1.96	0.353	0.176	ECOS2EB471BA	ECEC2EB471BA
	25 x 40	1.40	1.96	0.353	0.176	ECOS2EB471CA	ECEC2EB471CA
	30 x 30	1.40	1.96	0.353	0.176	ECOS2EB471DA	ECEC2EB471DA
560	25 x 45	1.50	2.10	0.296	0.148	ECOS2EB561CA	ECEC2EB561CA
	35 x 25	1.50	2.10	0.296	0.148	ECOS2EB561EA	ECEC2EB561EA
680	25 x 50	1.70	2.38	0.244	0.134	ECOS2EB681CA	ECEC2EB681CA
	30 x 40	1.70	2.38	0.244	0.134	ECOS2EB681DA	ECEC2EB681DA
	35 x 30	1.70	2.38	0.244	0.134	ECOS2EB681EA	ECEC2EB681EA
820	30 x 45	2.00	2.80	0.202	0.111	ECOS2EB821DA	ECEC2EB821DA
	35 x 35	2.00	2.80	0.202	0.111	ECOS2EB821EA	ECEC2EB821EA
1000	30 x 50	2.20	3.08	0.199	0.109	ECOS2EB102DA	ECEC2EB102DA
	35 x 40	2.20	3.08	0.199	0.109	ECOS2EB102EA	ECEC2EB102EA
1200	35 x 45	2.30	3.22	0.166	0.099	ECOS2EB122EA	ECEC2EB122EA
1500	35 x 50	2.50	3.50	0.144	0.093	ECOS2EB152EA	ECEC2EB152EA
385 VDC Working, 425 VDC Surge							
82	22 x 30	0.64	0.90	2.022	0.809	ECOS2TB820BA	ECEC2TB820BA
100	22 x 30	0.69	0.97	1.658	0.663	ECOS2TB101BA	ECEC2TB101BA
	25 x 25	0.69	0.97	1.658	0.663	ECOS2TB101CA	ECEC2TB101CA
120	22 x 35	0.75	1.05	1.382	0.553	ECOS2TB121BA	ECEC2TB121BA
	25 x 30	0.75	1.05	1.382	0.553	ECOS2TB121CA	ECEC2TB121CA
150	22 x 40	0.82	1.15	1.105	0.442	ECOS2TB151BA	ECEC2TB151BA
	25 x 30	0.82	1.15	1.105	0.442	ECOS2TB151CA	ECEC2TB151CA
	30 x 25	0.82	1.15	1.105	0.442	ECOS2TB151DA	ECEC2TB151DA
180	22 x 45	0.95	1.33	0.921	0.368	ECOS2TB181BA	ECEC2TB181BA
	25 x 35	0.95	1.33	0.921	0.368	ECOS2TB181CA	ECEC2TB181CA
	30 x 30	0.95	1.33	0.921	0.368	ECOS2TB181DA	ECEC2TB181DA
220	25 x 45	1.10	1.54	0.754	0.301	ECOS2TB221CA	ECEC2TB221CA
	30 x 30	1.10	1.54	0.829	0.332	ECOS2TB221DA	ECEC2TB221DA
	35 x 25	1.10	1.54	0.829	0.332	ECOS2TB221EA	ECEC2TB221EA
270	25 x 50	1.20	1.68	0.675	0.270	ECOS2TB271CA	ECEC2TB271CA
	35 x 30	1.20	1.68	0.675	0.270	ECOS2TB271EA	ECEC2TB271EA
330	30 x 45	1.35	1.89	0.553	0.221	ECOS2TB331DA	ECEC2TB331DA
	35 x 35	1.35	1.89	0.553	0.221	ECOS2TB331EA	ECEC2TB331EA
390	30 x 50	1.55	2.17	0.510	0.204	ECOS2TB391DA	ECEC2TB391DA
470	35 x 45	1.75	2.45	0.423	0.212	ECOS2TB471EA	ECEC2TB471EA
560	35 x 50	1.80	2.52	0.355	0.178	ECOS2TB561EA	ECEC2TB561EA
400 VDC Working, 450 VDC Surge							
82	22 x 30	0.64	0.90	2.022	0.708	ECOS2GB820BA	ECEC2GB820BA
100	22 x 30	0.69	0.97	1.658	0.580	ECOS2GB101BA	ECEC2GB101BA

TS-HB 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	25 x 25	0.69	0.97	1.658	0.580	ECOS2GB101CA	ECEC2GB101CA
120	22 x 35	0.75	1.05	1.382	0.484	ECOS2GB121BA	ECEC2GB121BA
	25 x 30	0.75	1.05	1.382	0.484	ECOS2GB121CA	ECEC2GB121CA
150	22 x 40	0.82	1.15	1.105	0.387	ECOS2GB151BA	ECEC2GB151BA
	25 x 30	0.82	1.15	1.105	0.387	ECOS2GB151CA	ECEC2GB151CA
	30 x 25	0.82	1.15	1.105	0.387	ECOS2GB151DA	ECEC2GB151DA
180	22 x 45	0.95	1.33	0.921	0.322	ECOS2GB181BA	ECEC2GB181BA
	25 x 35	0.95	1.33	0.921	0.322	ECOS2GB181CA	ECEC2GB181CA
	30 x 30	0.95	1.33	0.921	0.322	ECOS2GB181DA	ECEC2GB181DA
220	25 x 45	1.10	1.54	0.754	0.264	ECOS2GB221CA	ECEC2GB221CA
	30 x 30	1.10	1.54	0.754	0.264	ECOS2GB221DA	ECEC2GB221DA
	35 x 25	1.10	1.54	0.754	0.264	ECOS2GB221EA	ECEC2GB221EA
270	25 x 50	1.20	1.68	0.614	0.215	ECOS2GB271CA	ECEC2GB271CA
	30 x 35	1.20	1.68	0.614	0.215	ECOS2GB271DA	ECEC2GB271DA
	35 x 30	1.20	1.68	0.614	0.215	ECOS2GB271EA	ECEC2GB271EA
330	30 x 45	1.35	1.89	0.502	0.201	ECOS2GB331DA	ECEC2GB331DA
	35 x 35	1.35	1.89	0.502	0.201	ECOS2GB331EA	ECEC2GB331EA
390	30 x 50	1.55	2.17	0.425	0.170	ECOS2GB391DA	ECEC2GB391DA
	35 x 40	1.55	2.17	0.425	0.170	ECOS2GB391EA	ECEC2GB391EA
470	35 x 45	1.75	2.45	0.353	0.141	ECOS2GB471EA	ECEC2GB471EA
560	35 x 50	1.80	2.52	0.296	0.118	ECOS2GB561EA	ECEC2GB561EA
420 VDC Working, 470 VDC Surge							
100	22 x 30	0.64	0.90	1.824	0.821	ECOS2SB101BA	ECEC2SB101BA
	25 x 25	0.64	0.90	1.824	0.821	ECOS2SB101CA	ECEC2SB101CA
120	22 x 35	0.72	1.01	1.520	0.684	ECOS2SB121BA	ECEC2SB121BA
	25 x 30	0.72	1.01	1.520	0.684	ECOS2SB121CA	ECEC2SB121CA
150	22 x 40	0.79	1.11	1.216	0.547	ECOS2SB151BA	ECEC2SB151BA
	25 x 30	0.79	1.11	1.216	0.547	ECOS2SB151CA	ECEC2SB151CA
	30 x 25	0.79	1.11	1.216	0.547	ECOS2SB151DA	ECEC2SB151DA
180	22 x 45	0.87	1.22	1.013	0.456	ECOS2SB181BA	ECEC2SB181BA
	25 x 40	0.87	1.22	1.013	0.456	ECOS2SB181CA	ECEC2SB181CA
	30 x 30	0.87	1.22	1.013	0.456	ECOS2SB181DA	ECEC2SB181DA
220	25 x 45	1.00	1.40	0.829	0.373	ECOS2SB221CA	ECEC2SB221CA
	30 x 30	1.00	1.40	0.829	0.373	ECOS2SB221DA	ECEC2SB221DA
	35 x 25	1.00	1.40	0.829	0.373	ECOS2SB221EA	ECEC2SB221EA
270	25 x 50	1.19	1.67	0.675	0.304	ECOS2SB271CA	ECEC2SB271CA
	30 x 40	1.19	1.67	0.675	0.304	ECOS2SB271DA	ECEC2SB271DA
	35 x 30	1.19	1.67	0.675	0.304	ECOS2SB271EA	ECEC2SB271EA
330	30 x 45	1.38	1.93	0.553	0.249	ECOS2SB331DA	ECEC2SB331DA
	35 x 35	1.38	1.93	0.553	0.249	ECOS2SB331EA	ECEC2SB331EA
390	30 x 50	1.55	2.17	0.468	0.210	ECOS2SB391DA	ECEC2SB391DA
	35 x 40	1.55	2.17	0.468	0.210	ECOS2SB391EA	ECEC2SB391EA
470	35 x 45	1.74	2.44	0.388	0.175	ECOS2SB471EA	ECEC2SB471EA
560	35 x 50	1.90	2.66	0.326	0.147	ECOS2SB561EA	ECEC2SB561EA
450 VDC Working, 500 VDC Surge							
82	22 x 30	0.56	0.78	2.022	0.708	ECOS2WB820BA	ECEC2WB820BA
	25 x 25	0.56	0.78	2.022	0.708	ECOS2WB820CA	ECEC2WB820CA
100	22 x 35	0.64	0.90	1.658	0.580	ECOS2WB101BA	ECEC2WB101BA
	25 x 30	0.64	0.90	1.658	0.580	ECOS2WB101CA	ECEC2WB101CA
120	22 x 40	0.72	1.01	1.382	0.484	ECOS2WB121BA	ECEC2WB121BA
	25 x 35	0.72	1.01	1.382	0.484	ECOS2WB121CA	ECEC2WB121CA
	30 x 25	0.72	1.01	1.382	0.484	ECOS2WB121DA	ECEC2WB121DA
150	22 x 50	0.79	1.11	1.105	0.387	ECOS2WB151BA	ECEC2WB151BA
	25 x 40	0.79	1.11	1.105	0.387	ECOS2WB151CA	ECEC2WB151CA
	30 x 30	0.79	1.11	1.105	0.387	ECOS2WB151DA	ECEC2WB151DA
	35 x 25	0.79	1.11	1.105	0.387	ECOS2WB151EA	ECEC2WB151EA
180	25 x 45	0.87	1.22	0.921	0.322	ECOS2WB181CA	ECEC2WB181CA
	30 x 35	0.87	1.22	0.921	0.322	ECOS2WB181DA	ECEC2WB181DA
220	25 x 50	1.00	1.40	0.754	0.264	ECOS2WB221CA	ECEC2WB221CA
	30 x 40	1.00	1.40	0.754	0.264	ECOS2WB221DA	ECEC2WB221DA
	35 x 30	1.00	1.40	0.754	0.264	ECOS2WB221EA	ECEC2WB221EA
270	30 x 45	1.19	1.67	0.614	0.215	ECOS2WB271DA	ECEC2WB271DA
	35 x 35	1.19	1.67	0.614	0.215	ECOS2WB271EA	ECEC2WB271EA
330	30 x 50	1.38	1.93	0.502	0.176	ECOS2WB331DA	ECEC2WB331DA
	35 x 40	1.38	1.93	0.502	0.176	ECOS2WB331EA	ECEC2WB331EA
390	35 x 45	1.55	2.17	0.425	0.149	ECOS2WB391EA	ECEC2WB391EA
470	35 x 50	1.74	2.44	0.353	0.123	ECOS2WB471EA	ECEC2WB471EA

T-HA Series 105°C, 3000 hours

- Long Life - endurance rating of 3000 hours at 105°C
- 4 or 5 terminal mounting provides stability and keyed polarity
- Extended higher CV ratings

RoHS
Compliant

Rated Working Voltage:	16 ~ 250 VDC						350 ~ 450 VDC						
Operating Temperature:	-40 ~ +105°C						-25 ~ +105°C						
Nominal Capacitance:	820~250000µF						330~2200µF						
Capacitance Tolerance:	± 20%												
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:	16	25	35	50	63	80	100	160 ~ 450				
	Max. D.F. (%):	50	40	35	30	25	20	20	15				
	For capacitance values > 33000µF, add the value of: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$												
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):	105°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	1.7	2.0	2.2	2.35
Endurance:	3000 hours at +105°C with maximum specified ripple current (see page 4)												

Aluminum Electrolytic Capacitors

T-HA Standard Ratings

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
16 VDC Working, 20 VDC Surge							
39000	35 x 40	5.10	5.87	0.022	0.020	ECET1CA393EA	
47000	40 x 40	5.50	6.33	0.020	0.018	ECET1CA473FA	ECEP1CA473FA
56000	35 x 50	6.00	6.90	0.019	0.017	ECET1CA563EA	
68000	35 x 63	6.62	7.61	0.017	0.015	ECET1CA683EA	
	40 x 50	7.29	8.38	0.015	0.014	ECET1CA683FA	ECEP1CA683FA
82000	40 x 63	7.66	8.81	0.017	0.015	ECET1CA823FA	ECEP1CA823FA
100000	35 x 80	8.03	9.23	0.015	0.013	ECET1CA104EA	
120000	35 x 105	8.71	10.02	0.014	0.012	ECET1CA124EA	
	40 x 80	8.79	10.11	0.014	0.012	ECET1CA124FA	ECEP1CA124FA
	50 x 50	9.02	10.37	0.015	0.014		ECEP1CA124HA
150000	40 x 105	9.88	11.36	0.013	0.012	ECET1CA154FA	ECEP1CA154FA
	50 x 63	10.15	11.67	0.014	0.013		ECEP1CA154HA
180000	50 x 80	11.02	12.67	0.013	0.012		ECEP1CA184HA
220000	50 x 92	11.71	13.47	0.012	0.011		ECEP1CA224HA
250000	50 x 105	12.31	14.16	0.011	0.010		ECEP1CA254HA
25 VDC Working, 32 VDC Surge							
27000	35 x 40	4.80	5.52	0.018	0.017	ECET1EA273EA	
33000	35 x 50	5.50	6.33	0.018	0.016	ECET1EA333EA	
	40 x 40	5.50	6.33	0.018	0.016	ECET1EA333FA	ECEP1EA333FA
47000	35 x 63	6.56	7.54	0.017	0.015	ECET1EA473EA	
	40 x 50	6.47	7.44	0.015	0.014	ECET1EA473FA	ECEP1EA473FA
56000	35 x 80	7.25	8.34	0.015	0.013	ECET1EA563EA	
	40 x 63	7.17	8.25	0.014	0.013	ECET1EA563FA	ECEP1EA563FA
82000	35 x 105	8.58	9.87	0.013	0.012	ECET1EA823EA	
	40 x 80	8.68	9.98	0.013	0.012	ECET1EA823FA	ECEP1EA823FA
	50 x 50	9.20	10.58	0.016	0.015		ECEP1EA823HA
100000	40 x 105	9.76	11.22	0.012	0.010	ECET1EA104FA	ECEP1EA104FA
	50 x 63	10.02	11.52	0.015	0.013		ECEP1EA104HA
120000	50 x 80	10.93	12.57	0.013	0.012		ECEP1EA124HA
150000	50 x 92	11.70	13.46	0.012	0.011		ECEP1EA154HA
180000	50 x 105	12.42	14.28	0.010	0.009		ECEP1EA184HA
35 VDC Working, 44 VDC Surge							
18000	35 x 40	4.30	4.95	0.028	0.021	ECET1VA183EA	
22000	35 x 50	5.00	5.75	0.023	0.017	ECET1VA223EA	
	40 x 40	5.00	5.75	0.023	0.017	ECET1VA223FA	ECEP1VA223FA
27000	35 x 63	5.53	6.36	0.025	0.018	ECET1VA273EA	
	40 x 50	5.44	6.26	0.020	0.015	ECET1VA273FA	ECEP1VA273FA
33000	40 x 63	6.61	7.60	0.019	0.014	ECET1VA333FA	ECEP1VA333FA
39000	35 x 80	6.52	7.50	0.019	0.014	ECET1VA393EA	
47000	35 x 105	8.07	9.28	0.017	0.013	ECET1VA473EA	
	40 x 80	7.79	8.96	0.018	0.013	ECET1VA473FA	ECEP1VA473FA
	50 x 50	8.25	9.49	0.021	0.016		ECEP1VA473HA
56000	50 x 63	9.07	10.43	0.019	0.014		ECEP1VA563HA
68000	40 x 105	9.27	10.66	0.016	0.012	ECET1VA683FA	ECEP1VA683FA
	50 x 80	10.07	11.58	0.017	0.013		ECEP1VA683HA
82000	50 x 92	10.89	12.52	0.015	0.011		ECEP1VA823HA
100000	50 x 105	11.75	13.51	0.013	0.010		ECEP1VA104HA
50 VDC Working, 63 VDC Surge							
10000	35 x 40	4.00	4.60	0.033	0.025	ECET1HA103EA	
15000	35 x 50	4.80	5.52	0.022	0.018	ECET1HA153EA	
	40 x 40	4.80	5.52	0.022	0.018	ECET1HA153FA	ECEP1HA153FA
18000	35 x 63	5.27	6.06	0.020	0.016	ECET1HA183EA	
22000	40 x 50	5.15	5.92	0.016	0.013	ECET1HA223FA	ECEP1HA223FA
27000	35 x 80	6.16	7.08	0.015	0.012	ECET1HA273EA	
	40 x 63	6.05	6.96	0.015	0.012	ECET1HA273FA	ECEP1HA273FA
33000	35 x 105	7.23	8.31	0.013	0.010	ECET1HA333EA	
	50 x 50	7.75	8.91	0.018	0.014		ECEP1HA333HA
39000	40 x 80	7.55	8.68	0.014	0.011	ECET1HA393FA	ECEP1HA393FA
	50 x 63	8.40	9.66	0.016	0.013		ECEP1HA393HA
47000	40 x 105	8.18	9.41	0.012	0.010	ECET1HA473FA	ECEP1HA473FA
	50 x 80	9.19	10.57	0.014	0.011		ECEP1HA473HA
56000	50 x 92	9.79	11.26	0.012	0.009		ECEP1HA563HA

Aluminum Electrolytic Capacitors

T-HA Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
50 VDC Working, 63 VDC Surge (continued)							
68000	50 x 105	10.42	11.98	0.011	0.009		ECEP1HA683HA
63 VDC Working, 79 VDC Surge							
6800	35 x 40	3.60	4.14	0.049	0.037	ECET1JA682EA	
12000	35 x 50	4.40	5.06	0.028	0.023	ECET1JA123EA	
	40 x 40	4.52	5.20	0.030	0.026	ECET1JA123FA	ECEP1JA123FA
15000	35 x 63	4.92	5.66	0.024	0.021	ECET1JA153EA	
	40 x 50	4.80	5.52	0.027	0.023	ECET1JA153FA	ECEP1JA153FA
18000	35 x 80	5.79	6.66	0.022	0.019	ECET1JA183EA	
	40 x 63	5.39	6.20	0.023	0.020	ECET1JA183FA	ECEP1JA183FA
22000	50 x 50	6.76	7.77	0.019	0.016		ECEP1JA223HA
27000	35 x 105	6.53	7.51	0.017	0.014	ECET1JA273EA	
	40 x 80	6.59	7.58	0.017	0.014	ECET1JA273FA	ECEP1JA273FA
	50 x 63	7.34	8.44	0.017	0.014		ECEP1JA273HA
33000	50 x 80	8.00	9.20	0.015	0.013		ECEP1JA333HA
39000	40 x 105	7.53	8.66	0.014	0.012	ECET1JA393FA	ECEP1JA393FA
	50 x 92	8.48	9.75	0.014	0.012		ECEP1JA393HA
47000	50 x 105	8.99	10.34	0.012	0.010		ECEP1JA473HA
80 VDC Working, 100 VDC Surge							
4700	35 x 40	3.30	3.80	0.049	0.037	ECET1KA472EA	
6800	35 x 50	3.90	4.49	0.041	0.031	ECET1KA682EA	
	40 x 40	3.90	4.49	0.041	0.031	ECET1KA682FA	ECEP1KA682FA
8200	35 x 63	4.39	5.05	0.036	0.027	ECET1KA822EA	
	40 x 50	4.29	4.93	0.036	0.027	ECET1KA822FA	ECEP1KA822FA
10000	35 x 80	4.88	5.61	0.031	0.024	ECET1KA103EA	
	40 x 63	4.73	5.44	0.033	0.025	ECET1KA103FA	ECEP1KA103FA
12000	50 x 50	6.03	6.93	0.035	0.026		ECEP1KA123HA
15000	35 x 105	6.13	7.05	0.024	0.018	ECET1KA153EA	
	40 x 80	5.97	6.87	0.025	0.019	ECET1KA153FA	ECEP1KA153FA
	50 x 63	6.65	7.65	0.028	0.021		ECEP1KA153HA
18000	50 x 80	7.29	8.38	0.026	0.019		ECEP1KA183HA
22000	40 x 105	6.95	7.99	0.019	0.014	ECET1KA223FA	ECEP1KA223FA
	50 x 92	7.83	9.00	0.022	0.016		ECEP1KA223HA
27000	50 x 105	8.38	9.64	0.018	0.014		ECEP1KA273HA
100 VDC Working, 125 VDC Surge							
3300	35 x 40	3.20	3.68	0.075	0.053	ECET2AA332EA	
4700	35 x 50	3.80	4.37	0.053	0.040	ECET2AA472EA	
	40 x 40	3.80	4.37	0.053	0.040	ECET2AA472FA	ECEP2AA472FA
5600	35 x 63	4.06	4.67	0.044	0.033	ECET2AA562EA	
6800	40 x 50	4.57	5.26	0.037	0.027	ECET2AA682FA	ECEP2AA682FA
8200	35 x 80	5.15	5.92	0.030	0.023	ECET2AA822EA	
	40 x 63	5.02	5.77	0.030	0.023	ECET2AA822FA	ECEP2AA822FA
	50 x 50	6.14	7.06	0.030	0.023		ECEP2AA822HA
10000	35 x 105	6.38	7.34	0.025	0.019	ECET2AA103EA	
12000	40 x 80	6.44	7.41	0.021	0.016	ECET2AA123FA	ECEP2AA123FA
	50 x 63	7.17	8.25	0.022	0.017		ECEP2AA123HA
15000	40 x 105	7.37	8.48	0.017	0.012	ECET2AA153FA	ECEP2AA153FA
	50 x 80	8.01	9.21	0.019	0.014		ECEP2AA153HA
18000	50 x 92	8.64	9.94	0.017	0.012		ECEP2AA183HA
22000	50 x 105	9.32	10.72	0.015	0.011		ECEP2AA223HA
200 VDC Working, 250 VDC Surge							
1200	35 x 40	2.50	3.50	0.133	0.066	ECET2DA122EA	
1800	40 x 40	2.70	3.78	0.129	0.077	ECET2DA182FA	ECEP2DA182FA
2200	35 x 50	2.90	4.06	0.098	0.059	ECET2DA222EA	
2700	35 x 63	3.65	5.11	0.080	0.048	ECET2DA272EA	
	40 x 50	3.55	4.97	0.086	0.052	ECET2DA272FA	ECEP2DA272FA
3300	35 x 80	4.52	6.33	0.065	0.039	ECET2DA332EA	
	40 x 63	4.40	6.16	0.070	0.042	ECET2DA332FA	ECEP2DA332FA
	50 x 50	5.20	7.28	0.075	0.045		ECEP2DA332HA
3900	50 x 50	5.65	7.91	0.064	0.038		ECEP2DA392HX
	50 x 63	5.90	8.26	0.064	0.038		ECEP2DA392HA
4700	35 x 105	5.70	7.98	0.046	0.028	ECET2DA472EA	
	40 x 80	5.76	8.06	0.049	0.030	ECET2DA472FA	ECEP2DA472FA
	50 x 63	6.48	9.07	0.053	0.032		ECEP2DA472HX

T-HA Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
200 VDC Working, 250 VDC Surge (continued)							
4700	50 x 80	6.82	9.55	0.053	0.032		ECEP2DA472HA
5600	40 x 105	6.76	9.46	0.041	0.025	ECET2DA562FA	ECEP2DA562FA
	50 x 92	7.68	10.75	0.044	0.027		ECEP2DA562HA
6800	50 x 92	8.46	11.84	0.034	0.020		ECEP2DA682HX
	50 x 105	8.71	12.19	0.034	0.020		ECEP2DA682HA
8200	50 x 105	9.56	13.38	0.028	0.016		ECEP2DA822HA
250 VDC Working, 300 VDC Surge							
820	35 x 40	2.20	3.08	0.243	0.133	ECET2EA821EA	
1200	35 x 50	2.30	3.22	0.180	0.117	ECET2EA122EA	
	40 x 40	2.66	3.72	0.180	0.117	ECET2EA122FA	ECEP2EA122FA
1500	35 x 63	2.57	3.60	0.144	0.093	ECET2EA152EA	
1800	40 x 50	3.15	4.41	0.120	0.078	ECET2EA182FA	ECEP2EA182FA
2200	35 x 80	3.75	5.25	0.098	0.064	ECET2EA222EA	
	40 x 63	3.68	5.15	0.098	0.064	ECET2EA222FA	ECEP2EA222FA
	50 x 50	4.35	6.09	0.098	0.064		ECEP2EA222HA
2700	35 x 105	4.80	6.72	0.080	0.052	ECET2EA272EA	
	50 x 50	4.80	6.72	0.080	0.052		ECEP2EA272HX
	50 x 63	4.98	6.97	0.080	0.052		ECEP2EA272HA
3300	35 x 105	4.86	6.80	0.065	0.042	ECET2EA332EA	
	40 x 80	4.86	6.80	0.065	0.042	ECET2EA332FA	ECEP2EA332FA
	50 x 63	5.48	7.67	0.065	0.042		ECEP2EA332HA
3900	40 x 105	5.61	7.85	0.055	0.036	ECET2EA392FA	ECEP2EA392FA
	50 x 80	6.10	8.54	0.055	0.036		ECEP2EA392HA
4300	50 x 92	6.67	9.34	0.050	0.033		ECEP2EA432HA
4700	50 x 92	6.93	9.70	0.046	0.030		ECEP2EA472HX
	50 x 105	7.03	9.84	0.046	0.030		ECEP2EA472HA
5600	50 x 105	7.67	10.74	0.039	0.025		ECEP2EA562HA
350 VDC Working, 400 VDC Surge							
470	35 x 40	2.00	2.80	0.459	0.183	ECET2VA471EA	
680	35 x 50	2.15	3.01	0.317	0.127	ECET2VA681EA	
	40 x 40	2.30	3.22	0.317	0.127	ECET2VA681FA	ECEP2VA681FA
820	35 x 63	2.65	3.71	0.263	0.105	ECET2VA821EA	
	40 x 50	2.65	3.71	0.263	0.105	ECET2VA821FA	ECEP2VA821FA
1000	50 x 50	3.56	4.98	0.216	0.086		ECEP2VA102HA
1200	35 x 80	3.22	4.51	0.180	0.072	ECET2VA122EA	
	40 x 63	3.22	4.51	0.180	0.072	ECET2VA122FA	ECEP2VA122FA
1500	35 x 105	4.78	6.69	0.144	0.057	ECET2VA152EA	
	40 x 80	3.75	5.25	0.144	0.057	ECET2VA152FA	ECEP2VA152FA
	50 x 63	4.16	5.82	0.144	0.057		ECEP2VA152HA
1800	40 x 105	5.23	7.32	0.120	0.048	ECET2VA182FA	ECEP2VA182FA
	50 x 80	5.69	7.97	0.120	0.048		ECEP2VA182HA
2000	50 x 92	6.34	8.88	0.108	0.043		ECEP2VA202HA
2200	50 x 105	7.03	9.84	0.098	0.039		ECEP2VA222HA
400 VDC Working, 450 VDC Surge							
390	35 x 45	1.55	2.17	0.425	0.170	ECET2GA391EA	
470	40 x 40	1.75	2.45	0.353	0.141	ECET2GA471FA	ECEP2GA471FA
560	35 x 50	1.80	2.52	0.296	0.118	ECET2GA561EA	
680	40 x 50	2.17	3.04	0.244	0.098	ECET2GA681FA	ECEP2GA681FA
820	35 x 63	2.44	3.42	0.202	0.081	ECET2GA821EA	
	40 x 50	2.58	3.61	0.202	0.081	ECET2GA821FA	ECEP2GA821FA
	50 x 50	3.15	4.41	0.202	0.081		ECEP2GA821HA
1000	35 x 80	3.00	4.20	0.166	0.066	ECET2GA102EA	
	40 x 63	3.00	4.20	0.166	0.066	ECET2GA102FA	ECEP2GA102FA
	50 x 50	3.45	4.83	0.166	0.066		ECEP2GA102HA
1200	35 x 105	3.75	5.25	0.138	0.055	ECET2GA122EA	
	40 x 80	3.79	5.31	0.138	0.055	ECET2GA122FA	ECEP2GA122FA
	50 x 63	4.22	5.91	0.152	0.061		ECEP2GA122HA
1500	40 x 105	4.81	6.73	0.111	0.044	ECET2GA152FA	ECEP2GA152FA
	50 x 80	5.22	7.31	0.122	0.049		ECEP2GA152HA
1600	50 x 92	5.69	7.97	0.114	0.046		ECEP2GA162HA

T-HA Standard Ratings (continued)

Part numbers shown with 6.3mm Length Snap-in Terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number	
		120Hz	10kHz~	120Hz	20kHz	4 Pin Style	5 Pin Style
400 VDC Working, 450 VDC Surge (continued)							
1800	40 x 105	5.06	7.08	0.101	0.041	ECET2GA182FA	ECEP2GA182FA
	50 x 80	5.50	7.70	0.101	0.041		ECEP2GA182HX
	50 x 105	6.48	9.07	0.101	0.041		ECEP2GA182HA
2200	50 x 92	6.55	9.17	0.082	0.033		ECEP2GA222HA
450 VDC Working, 500 VDC Surge							
330	35 x 40	1.37	1.92	0.502	0.176	ECET2WA331EA	
470	35 x 50	1.74	2.44	0.353	0.123	ECET2WA471EA	
	40 x 40	1.68	2.35	0.353	0.123	ECET2WA471FA	ECEP2WA471FA
560	35 x 63	2.15	3.01	0.296	0.104	ECET2WA561EA	
	40 x 50	2.10	2.94	0.296	0.104	ECET2WA561FA	ECEP2WA561FA
680	40 x 63	2.50	3.50	0.244	0.085	ECET2WA681FA	ECEP2WA681FA
	50 x 50	2.90	4.06	0.244	0.085		ECEP2WA681HA
820	35 x 80	2.70	3.78	0.202	0.071	ECET2WA821EA	
	50 x 50	3.42	4.79	0.222	0.079		ECEP2WA821HX
	50 x 63	3.42	4.79	0.222	0.078		ECEP2WA821HA
1000	35 x 105	3.47	4.86	0.166	0.058	ECET2WA102EA	
	40 x 80	3.50	4.90	0.166	0.058	ECET2WA102FA	ECEP2WA102FA
	50 x 63	3.74	5.24	0.172	0.065		ECEP2WA102HA
1200	40 x 105	4.33	6.06	0.138	0.048	ECET2WA122FA	ECEP2WA122FA
	50 x 80	4.70	6.58	0.152	0.053		ECEP2WA122HA
1300	50 x 92	5.18	7.25	0.140	0.049		ECEP2WA132HA
1500	50 x 105	6.03	8.44	0.122	0.043		ECEP2WA152HA
1800	50 x 105	6.23	8.72	0.101	0.036		ECEP2WA182HA

TS-EE Series 105°C, 3000 hours

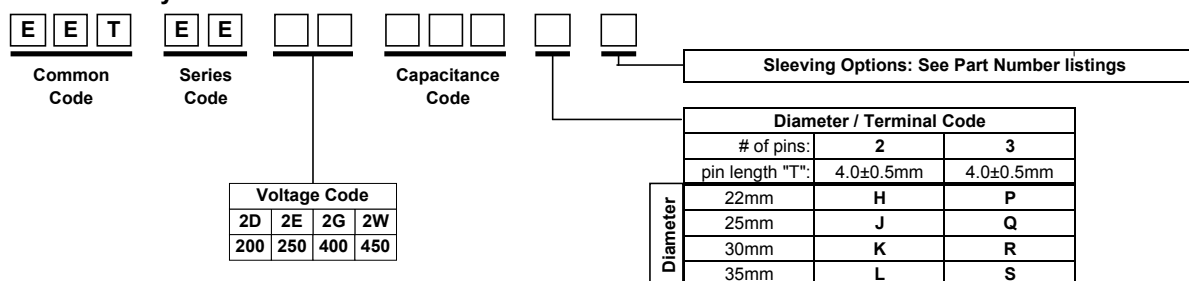
- Highest ripple current capability for demanding inverter applications
- Suitable for high ambient temperatures and continuous operation
- RoHS compliant PVC and RoHS compliant PET sleeve options

RoHS
Compliant

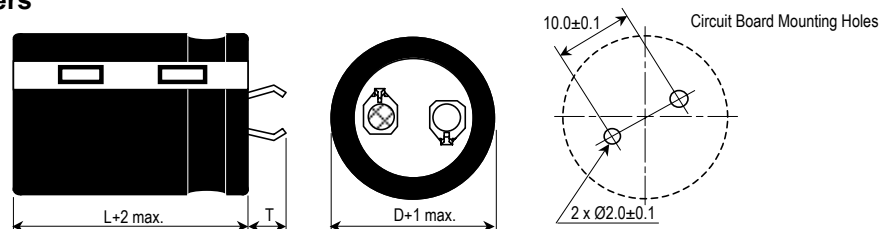


Rated Working Voltage:	200 ~ 250 VDC					400 ~ 450 VDC					
Operating Temperature:	-40 ~ +105°C					-25 ~ +105°C					
Nominal Capacitance:	220~1800 μF					75 ~ 560μF					
Capacitance Tolerance:	± 20%										
Dissipation Factor: (120 Hz, +20°C)	WV (V):		200~400		450						
	D.F.(%)		15 max.		20 max.						
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*			
	200~250WV:	0.75	0.80	1.0	1.20	1.25	1.30	Temperature (°C):	105°C	85°C	≤70°C
	400~450WV:	0.75	0.80	1.0	1.20	1.25	1.40	Multiplier:	1.0	1.42	1.6
Endurance:	3000 hours at +105°C with maximum specified ripple current (see page4)										

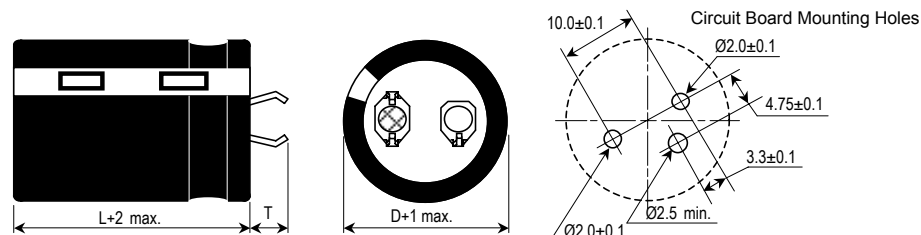
*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System**Dimensions in millimeters**

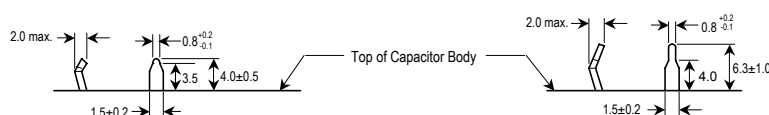
2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles

6.3mm Length: Available on 2 Pin Mounting Style Only

Aluminum Electrolytic Capacitors

TS-EE Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Slewing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
200 VDC Working, 250 VDC Surge							
300	22 x 25	1.70	2.21	0.829	0.592	EETEE2D301HA	EETEE2D301HJ
390	22 x 30	2.17	2.82	0.637	0.455	EETEE2D391HA	EETEE2D391HJ
590	22 x 40	2.30	2.99	0.421	0.300	EETEE2D591HA	EETEE2D591HJ
	25 x 30	2.30	2.99	0.421	0.300	EETEE2D591JA	EETEE2D591JJ
700	22 x 45	2.65	3.45	0.355	0.254	EETEE2D701HA	EETEE2D701HJ
	25 x 35	2.65	3.45	0.355	0.254	EETEE2D701JA	EETEE2D701JJ
590	30 x 25	3.08	4.00	0.421	0.300	EETEE2D591KA	EETEE2D591KJ
800	22 x 50	3.08	4.00	0.311	0.222	EETEE2D801HA	EETEE2D801HJ
	25 x 40	3.08	4.00	0.311	0.222	EETEE2D801JA	EETEE2D801JJ
1000	30 x 30	3.48	4.52	0.311	0.222	EETEE2D801KA	EETEE2D801KJ
	35 x 25	3.48	4.52	0.311	0.222	EETEE2D801LA	EETEE2D801LJ
	25 x 50	3.48	4.52	0.249	0.178	EETEE2D102JA	EETEE2D102JJ
	30 x 35	3.98	5.17	0.249	0.178	EETEE2D102KA	EETEE2D102KJ
	35 x 30	4.20	5.46	0.249	0.178	EETEE2D102LA	EETEE2D102LJ
1200	30 x 40	4.20	5.46	0.209	0.149	EETEE2D122KA	EETEE2D122KJ
1300	30 x 45	4.62	6.01	0.191	0.136	EETEE2D132KA	EETEE2D132KJ
1500	35 x 40	4.62	6.01	0.166	0.118	EETEE2D152LA	EETEE2D152LJ
	30 x 50	5.22	6.79	0.166	0.118	EETEE2D152KA	EETEE2D152KJ
1800	35 x 45	5.22	6.79	0.138	0.099	EETEE2D182LA	EETEE2D182LJ
250 VDC Working, 300 VDC Surge							
220	22 x 25	1.43	1.86	1.130	0.807	EETEE2E221HA	EETEE2E221HJ
300	22 x 30	1.56	2.03	0.829	0.592	EETEE2E301HA	EETEE2E301HJ
	25 x 25	1.70	2.21	0.829	0.592	EETEE2E301JA	EETEE2E301JJ
370	22 x 35	1.70	2.21	0.672	0.480	EETEE2E371HA	EETEE2E371HJ
420	22 x 40	1.82	2.37	0.592	0.423	EETEE2E421HA	EETEE2E421HJ
	25 x 30	1.82	2.37	0.592	0.423	EETEE2E421JA	EETEE2E421JJ
520	22 x 45	2.00	2.60	0.478	0.342	EETEE2E521HA	EETEE2E521HJ
	25 x 35	2.00	2.60	0.478	0.342	EETEE2E521JA	EETEE2E521JJ
420	30 x 25	2.20	2.86	0.592	0.423	EETEE2E421KA	EETEE2E421KJ
590	22 x 50	2.30	2.99	0.421	0.301	EETEE2E591HA	EETEE2E591HJ
	25 x 40	2.30	2.99	0.421	0.301	EETEE2E591JA	EETEE2E591JJ
	30 x 30	2.50	3.25	0.421	0.301	EETEE2E591KA	EETEE2E591KJ
	35 x 25	2.50	3.25	0.421	0.301	EETEE2E591LA	EETEE2E591LJ
730	25 x 45	2.70	3.51	0.341	0.243	EETEE2E731JA	EETEE2E731JJ
	30 x 35	3.00	3.90	0.341	0.243	EETEE2E731KA	EETEE2E731KJ
	35 x 30	3.00	3.90	0.341	0.243	EETEE2E731LA	EETEE2E731LJ
860	30 x 40	3.30	4.29	0.289	0.207	EETEE2E861KA	EETEE2E861KJ
1000	30 x 45	3.45	4.49	0.249	0.178	EETEE2E102KA	EETEE2E102KJ
1300	35 x 45	3.75	4.88	0.191	0.137	EETEE2E132LA	EETEE2E132LJ
1500	35 x 50	4.05	5.27	0.166	0.118	EETEE2E152LA	EETEE2E152LJ
400 VDC Working, 450 VDC Surge							
100	22 x 25	0.95	1.33	2.487	1.776	EETEE2G101HA	EETEE2G101HJ
120	22 x 30	1.22	1.71	2.072	1.480	EETEE2G121HA	EETEE2G121HJ
150	22 x 35	1.33	1.86	1.658	1.184	EETEE2G151HA	EETEE2G151HJ
180	25 x 30	1.33	1.86	1.382	0.987	EETEE2G181JA	EETEE2G181JJ
220	22 x 45	1.55	2.17	1.130	0.807	EETEE2G221HA	EETEE2G221HJ
	25 x 35	1.55	2.17	1.130	0.807	EETEE2G221JA	EETEE2G221JJ
180	30 x 25	1.68	2.35	1.382	0.987	EETEE2G181KA	EETEE2G181KJ
270	22 x 50	1.68	2.35	0.921	0.658	EETEE2G271HA	EETEE2G271HJ
	25 x 40	1.68	2.35	0.921	0.658	EETEE2G271JA	EETEE2G271JJ
220	30 x 30	1.79	2.51	1.130	0.807	EETEE2G221KA	EETEE2G221KJ
250	35 x 25	1.79	2.51	0.995	0.711	EETEE2G251LA	EETEE2G251LJ
320	25 x 45	1.90	2.66	0.777	0.555	EETEE2G321JA	EETEE2G321JJ
270	30 x 35	2.12	2.97	0.921	0.658	EETEE2G271KA	EETEE2G271KJ
370	25 x 50	2.12	2.97	0.672	0.480	EETEE2G371JA	EETEE2G371JJ
330	30 x 40	2.33	3.26	0.754	0.538	EETEE2G331KA	EETEE2G331KJ
	35 x 30	2.33	3.26	0.754	0.538	EETEE2G331LA	EETEE2G331LJ
390	30 x 45	2.52	3.53	0.638	0.455	EETEE2G391KA	EETEE2G391KJ
	35 x 35	2.52	3.53	0.638	0.455	EETEE2G391LA	EETEE2G391LJ
470	30 x 50	2.85	3.99	0.529	0.378	EETEE2G471KA	EETEE2G471KJ
	35 x 40	2.85	3.99	0.529	0.378	EETEE2G471LA	EETEE2G471LJ
560	35 x 45	3.18	4.45	0.444	0.317	EETEE2G561LA	EETEE2G561LJ

TS-EE Standard Ratings (continued)

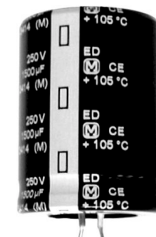
Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μ F)	Size (mm) D x L	Max 105°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Slewing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
450 VDC Working, 500 VDC Surge							
75	22 × 25	0.83	1.16	4.421	3.158	EETEE2W750HA	EETEE2W750HJ
100	22 × 30	0.95	1.33	3.316	2.368	EETEE2W101HA	EETEE2W101HJ
	25 × 25	0.95	1.33	3.316	2.368	EETEE2W101JA	EETEE2W101JJ
120	22 × 35	1.15	1.61	2.763	1.974	EETEE2W121HA	EETEE2W121HJ
150	22 × 40	1.22	1.71	2.210	1.579	EETEE2W151HA	EETEE2W151HJ
120	25 × 30	1.22	1.71	2.763	1.974	EETEE2W121JA	EETEE2W121JJ
	30 × 25	1.22	1.71	2.763	1.974	EETEE2W121KA	EETEE2W121KJ
180	22 × 45	1.35	1.89	1.842	1.316	EETEE2W181HA	EETEE2W181HJ
	25 × 40	1.35	1.89	1.842	1.316	EETEE2W181JA	EETEE2W181JJ
220	25 × 45	1.55	2.17	1.507	1.077	EETEE2W221JA	EETEE2W221JJ
180	30 × 30	1.60	2.24	1.842	1.316	EETEE2W181KA	EETEE2W181KJ
	35 × 25	1.60	2.24	1.842	1.316	EETEE2W181LA	EETEE2W181LJ
270	25 × 50	1.74	2.44	1.228	0.877	EETEE2W271JA	EETEE2W271JJ
	30 × 40	1.90	2.66	1.228	0.877	EETEE2W271KA	EETEE2W271KJ
250	35 × 30	1.90	2.66	1.228	0.877	EETEE2W251LA	EETEE2W251LJ
330	30 × 45	2.20	3.08	1.005	0.718	EETEE2W331KA	EETEE2W331KJ
300	35 × 35	2.20	3.08	1.105	0.789	EETEE2W301LA	EETEE2W301LJ
390	30 × 50	2.40	3.36	0.850	0.607	EETEE2W391KA	EETEE2W391KJ
330	35 × 40	2.40	3.36	1.005	0.718	EETEE2W331LA	EETEE2W331LJ
390	35 × 45	2.61	3.65	0.850	0.607	EETEE2W391LA	EETEE2W391LJ
470	35 × 50	2.85	3.99	0.705	0.504	EETEE2W471LA	EETEE2W471LJ

TS-ED Series 105°C, 3000 hours

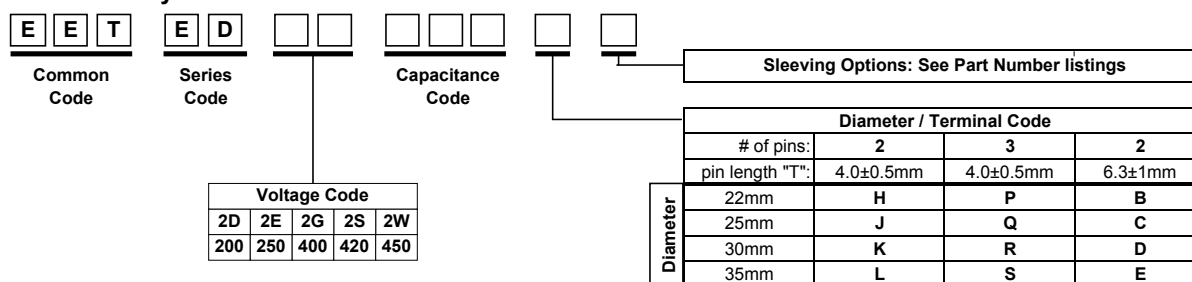
- High ripple current capability for demanding inverter applications
- 2 and 3 pin versions available
- RoHS compliant PVC and RoHS compliant PET sleeve options

RoHS
Compliant

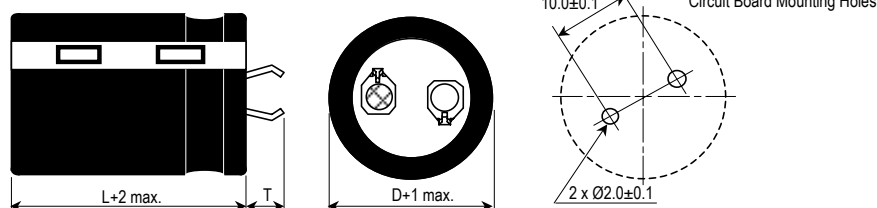


Rated Working Voltage:	200 ~ 250 VDC	400 ~ 450 VDC
Operating Temperature:	-40 ~ +105°C	-25 ~ +105°C
Nominal Capacitance:	220~2200 μ F	56 ~ 560 μ F
Capacitance Tolerance:	$\pm 20\%$	
Dissipation Factor: (120 Hz, +20°C)	15% max.	
Leakage Current:	$3\sqrt{CV}$ (μ A) max. after 5 minutes; C = Capacitance in μ F, V = WV	
Ripple Current Multipliers:	Frequency(Hz):	50 60 100~120 500 1k 10k
	16~100WV:	0.93 0.95 1.0 1.05 1.08 1.15
	160~450WV:	0.75 0.8 1.0 1.2 1.25 1.4
Ripple Current Ambient Temperature Factors*		
Temperature (°C):		
Multiplier:		
105°C 85°C 70°C 60°C $\leq 45^\circ\text{C}$		
1.0 1.7 2.0 2.2 2.35		
Endurance:	3000 hours at +105°C with maximum specified ripple current (see page4)	

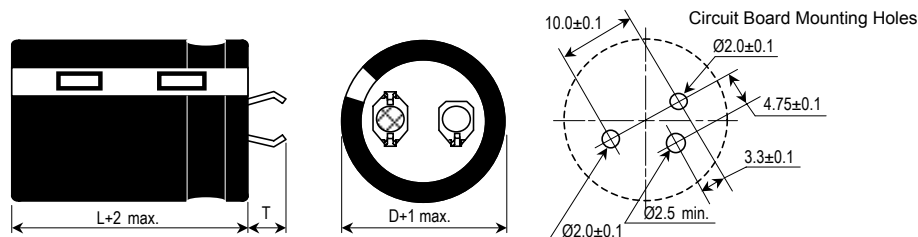
*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System**Dimensions in millimeters**

2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles

6.3mm Length: Available on 2 Pin Mounting Style Only

TS-ED Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
200 VDC Working, 250 VDC Surge							
270	22 x 25	1.42	2.03	0.553	0.249	EETED2D271HA	EETED2D271HJ
330	22 x 30	1.56	2.23	0.452	0.203	EETED2D331HA	EETED2D331HJ
390	22 x 30	1.71	2.44	0.383	0.172	EETED2D391HA	EETED2D391HJ
	25 x 25	1.71	2.44	0.383	0.172	EETED2D391JA	EETED2D391JJ
470	22 x 35	1.85	2.64	0.317	0.143	EETED2D471HA	EETED2D471HJ
	25 x 30	1.85	2.64	0.317	0.143	EETED2D471JA	EETED2D471JJ
560	22 x 40	2.14	3.05	0.266	0.120	EETED2D561HA	EETED2D561HJ
	25 x 30	2.14	3.05	0.266	0.120	EETED2D561JA	EETED2D561JJ
	30 x 25	2.14	3.05	0.266	0.120	EETED2D561KA	EETED2D561KJ
680	22 x 45	2.42	3.45	0.219	0.099	EETED2D681HA	EETED2D681HJ
	25 x 35	2.42	3.45	0.219	0.099	EETED2D681JA	EETED2D681JJ
	30 x 30	2.42	3.45	0.219	0.099	EETED2D681KA	EETED2D681KJ
820	22 x 50	2.63	3.76	0.182	0.082	EETED2D821HA	EETED2D821HJ
	25 x 40	2.63	3.76	0.182	0.082	EETED2D821JA	EETED2D821JJ
	30 x 30	2.63	3.76	0.182	0.082	EETED2D821KA	EETED2D821KJ
	35 x 25	2.63	3.76	0.182	0.091	EETED2D821LA	EETED2D821LJ
1000	25 x 45	2.84	4.06	0.149	0.067	EETED2D102JA	EETED2D102JJ
	30 x 35	2.84	4.06	0.149	0.067	EETED2D102KA	EETED2D102KJ
	35 x 30	2.84	4.06	0.149	0.067	EETED2D102LA	EETED2D102LJ
1200	30 x 40	3.13	4.47	0.124	0.062	EETED2D122KA	EETED2D122KJ
	35 x 35	3.13	4.47	0.124	0.062	EETED2D122LA	EETED2D122LJ
1500	30 x 50	3.56	5.08	0.099	0.050	EETED2D152KA	EETED2D152KJ
	35 x 40	3.56	5.08	0.099	0.050	EETED2D152LA	EETED2D152LJ
1800	35 x 45	3.84	5.48	0.083	0.041	EETED2D182LA	EETED2D182LJ
2200	35 x 50	4.12	5.89	0.068	0.033	EETED2D222LA	EETED2D222LJ
250 VDC Working, 300 VDC Surge							
220	22 x 30	1.28	1.83	0.678	0.305	EETED2E221HA	EETED2E221HJ
270	22 x 30	1.42	2.03	0.553	0.249	EETED2E271HA	EETED2E271HJ
	25 x 25	1.42	2.03	0.553	0.249	EETED2E271JA	EETED2E271JJ
330	22 x 35	1.64	2.34	0.452	0.203	EETED2E331HA	EETED2E331HJ
	25 x 30	1.56	2.23	0.452	0.203	EETED2E331JA	EETED2E331JJ
390	22 x 40	1.72	2.45	0.383	0.172	EETED2E391HA	EETED2E391HJ
	25 x 30	1.71	2.44	0.383	0.172	EETED2E391JA	EETED2E391JJ
	30 x 25	1.71	2.44	0.383	0.172	EETED2E391KA	EETED2E391KJ
470	22 x 45	1.85	2.64	0.317	0.143	EETED2E471HA	EETED2E471HJ
	25 x 35	1.85	2.64	0.317	0.143	EETED2E471JA	EETED2E471JJ
	30 x 30	1.85	2.64	0.317	0.143	EETED2E471KA	EETED2E471KJ
560	25 x 40	2.14	3.05	0.266	0.120	EETED2E561JA	EETED2E561JJ
	30 x 30	2.14	3.05	0.266	0.120	EETED2E561KA	EETED2E561KJ
	35 x 25	2.14	3.05	0.266	0.133	EETED2E561LA	EETED2E561LJ
680	25 x 45	2.42	3.45	0.219	0.099	EETED2E681JA	EETED2E681JJ
	30 x 35	2.42	3.45	0.219	0.099	EETED2E681KA	EETED2E681KJ
	35 x 30	2.42	3.45	0.219	0.110	EETED2E681LA	EETED2E681LJ
820	30 x 40	2.63	3.76	0.182	0.082	EETED2E821KA	EETED2E821KJ
	35 x 35	2.63	3.76	0.182	0.091	EETED2E821LA	EETED2E821LJ
1000	30 x 50	2.84	4.06	0.149	0.067	EETED2E102KA	EETED2E102KJ
	35 x 40	2.84	4.06	0.149	0.067	EETED2E102LA	EETED2E102LJ
1200	35 x 45	3.13	4.47	0.124	0.062	EETED2E122LA	EETED2E122LJ
1500	35 x 50	3.56	5.08	0.099	0.050	EETED2E152LA	EETED2E152LJ
400 VDC Working, 450 VDC Surge							
82	22 x 25	0.80	1.14	1.617	0.728	EETED2G820HA	EETED2G820HJ
100	22 x 30	0.91	1.30	1.326	0.597	EETED2G101HA	EETED2G101HJ
	25 x 25	0.91	1.30	1.326	0.597	EETED2G101JA	EETED2G101JJ
120	22 x 35	1.02	1.46	1.105	0.497	EETED2G121HA	EETED2G121HJ
	25 x 30	1.02	1.46	1.105	0.497	EETED2G121JA	EETED2G121JJ
150	22 x 40	1.07	1.53	0.884	0.398	EETED2G151HA	EETED2G151HJ
	25 x 30	1.07	1.53	0.884	0.398	EETED2G151JA	EETED2G151JJ
	30 x 25	1.07	1.53	0.884	0.398	EETED2G151KA	EETED2G151KJ
180	22 x 45	1.12	1.60	0.737	0.332	EETED2G181HA	EETED2G181HJ
	25 x 35	1.12	1.60	0.737	0.332	EETED2G181JA	EETED2G181JJ
	30 x 30	1.12	1.60	0.737	0.332	EETED2G181KA	EETED2G181KJ
220	22 x 50	1.42	2.03	0.603	0.271	EETED2G221HA	EETED2G221HJ
	25 x 40	1.42	2.03	0.603	0.271	EETED2G221JA	EETED2G221JJ
	30 x 30	1.42	2.03	0.603	0.271	EETED2G221KA	EETED2G221KJ

TS-ED Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
400 VDC Working, 450 VDC Surge (continued)							
220	35 x 25	1.42	2.03	0.603	0.271	EETED2G221LA	EETED2G221LJ
270	25 x 45	1.56	2.23	0.491	0.221	EETED2G271JA	EETED2G271JJ
	30 x 35	1.56	2.23	0.491	0.221	EETED2G271KA	EETED2G271KJ
	35 x 30	1.56	2.23	0.491	0.221	EETED2G271LA	EETED2G271LJ
330	30 x 40	1.71	2.44	0.402	0.181	EETED2G331KA	EETED2G331KJ
	35 x 30	1.71	2.44	0.402	0.181	EETED2G331LA	EETED2G331LJ
390	30 x 45	1.85	2.64	0.340	0.153	EETED2G391KA	EETED2G391KJ
	35 x 35	1.85	2.64	0.340	0.153	EETED2G391LA	EETED2G391LJ
470	35 x 40	2.01	2.87	0.282	0.127	EETED2G471LA	EETED2G471LJ
560	35 x 45	2.35	3.36	0.237	0.107	EETED2G561LA	EETED2G561LJ
420 VDC Working, 470 VDC Surge							
68	22 x 25	0.67	0.95	1.950	0.878	EETED2S680HA	EETED2S680HJ
82	22 x 30	0.76	1.08	1.617	0.728	EETED2S820HA	EETED2S820HJ
	25 x 25	0.76	1.08	1.617	0.728	EETED2S820JA	EETED2S820JJ
100	22 x 30	0.80	1.14	1.326	0.597	EETED2S101HA	EETED2S101HJ
	25 x 25	0.80	1.14	1.326	0.597	EETED2S101JA	EETED2S101JJ
120	22 x 35	0.91	1.30	1.105	0.497	EETED2S121HA	EETED2S121HJ
	25 x 30	0.91	1.30	1.105	0.497	EETED2S121JA	EETED2S121JJ
150	22 x 40	1.02	1.46	0.884	0.398	EETED2S151HA	EETED2S151HJ
	25 x 35	1.02	1.46	0.884	0.398	EETED2S151JA	EETED2S151JJ
	30 x 25	1.02	1.46	0.884	0.398	EETED2S151KA	EETED2S151KJ
180	22 x 45	1.07	1.53	0.737	0.332	EETED2S181HA	EETED2S181HJ
	25 x 40	1.07	1.53	0.737	0.332	EETED2S181JA	EETED2S181JJ
	30 x 30	1.07	1.53	0.737	0.332	EETED2S181KA	EETED2S181KJ
	35 x 25	1.07	1.53	0.737	0.332	EETED2S181LA	EETED2S181LJ
220	25 x 45	1.12	1.60	0.603	0.271	EETED2S221JA	EETED2S221JJ
	30 x 35	1.12	1.60	0.603	0.271	EETED2S221KA	EETED2S221KJ
	35 x 30	1.12	1.60	0.603	0.271	EETED2S221LA	EETED2S221LJ
270	25 x 50	1.42	2.03	0.491	0.221	EETED2S271JA	EETED2S271JJ
	30 x 40	1.42	2.03	0.491	0.221	EETED2S271KA	EETED2S271KJ
	35 x 30	1.42	2.03	0.491	0.221	EETED2S271LA	EETED2S271LJ
330	30 x 45	1.72	2.45	0.402	0.181	EETED2S331KA	EETED2S331KJ
	35 x 35	1.72	2.45	0.402	0.181	EETED2S331LA	EETED2S331LJ
390	30 x 50	1.85	2.64	0.340	0.153	EETED2S391KA	EETED2S391KJ
	35 x 40	1.85	2.64	0.340	0.153	EETED2S391LA	EETED2S391LJ
470	35 x 45	1.97	2.82	0.282	0.127	EETED2S471LA	EETED2S471LJ
450 VDC Working, 500 VDC Surge							
56	22 x 25	0.67	0.95	2.368	1.066	EETED2W560HA	EETED2W560HJ
68	22 x 30	0.76	1.08	1.950	0.878	EETED2W680HA	EETED2W680HJ
	25 x 25	0.76	1.08	1.950	0.878	EETED2W680JA	EETED2W680JJ
82	22 x 30	0.80	1.14	1.617	0.728	EETED2W820HA	EETED2W820HJ
	25 x 25	0.80	1.14	1.617	0.728	EETED2W820JA	EETED2W820JJ
100	22 x 35	0.91	1.30	1.326	0.597	EETED2W101HA	EETED2W101HJ
	25 x 30	0.91	1.30	1.326	0.597	EETED2W101JA	EETED2W101JJ
120	22 x 40	1.02	1.46	1.105	0.497	EETED2W121HA	EETED2W121HJ
	25 x 35	1.02	1.46	1.105	0.497	EETED2W121JA	EETED2W121JJ
	30 x 25	1.02	1.46	1.105	0.497	EETED2W121KA	EETED2W121KJ
150	22 x 45	1.07	1.53	0.884	0.398	EETED2W151HA	EETED2W151HJ
	25 x 40	1.07	1.53	0.884	0.398	EETED2W151JA	EETED2W151JJ
	30 x 30	1.07	1.53	0.884	0.398	EETED2W151KA	EETED2W151KJ
	35 x 25	1.07	1.53	0.884	0.398	EETED2W151LA	EETED2W151LJ
180	22 x 50	1.12	1.60	0.737	0.332	EETED2W181HA	EETED2W181HJ
	25 x 40	1.12	1.60	0.737	0.332	EETED2W181JA	EETED2W181JJ
	30 x 30	1.12	1.60	0.737	0.332	EETED2W181KA	EETED2W181KJ
	35 x 25	1.12	1.60	0.737	0.332	EETED2W181LA	EETED2W181LJ
220	25 x 45	1.42	2.03	0.603	0.271	EETED2W221JA	EETED2W221JJ
	30 x 35	1.42	2.03	0.603	0.271	EETED2W221KA	EETED2W221KJ
	35 x 30	1.42	2.03	0.603	0.271	EETED2W221LA	EETED2W221LJ
270	30 x 40	1.72	2.45	0.491	0.221	EETED2W271KA	EETED2W271KJ
	35 x 35	1.72	2.45	0.491	0.221	EETED2W271LA	EETED2W271LJ
330	30 x 50	1.85	2.64	0.402	0.181	EETED2W331KA	EETED2W331KJ
	35 x 40	1.85	2.64	0.402	0.181	EETED2W331LA	EETED2W331LJ
390	35 x 40	1.97	2.82	0.340	0.153	EETED2W391LA	EETED2W391LJ
470	35 x 50	2.47	3.53	0.282	0.127	EETED2W471LA	EETED2W471LJ

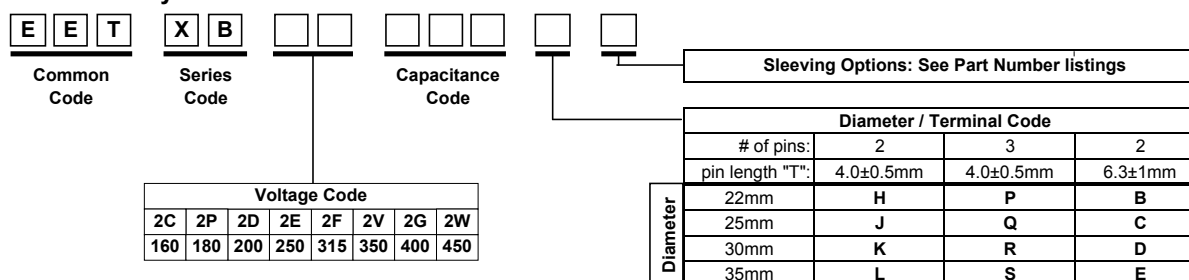
TS-XB Series 105°C, 7000 hours

- Designed for long life industrial applications
- 2 and 3 pin versions available
- RoHS compliant PVC and RoHS compliant PET sleeve options

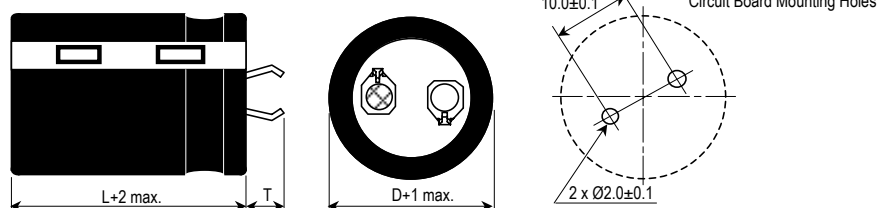
RoHS
Compliant

Rated Working Voltage:	160 ~ 250 VDC	315 ~ 450 VDC
Operating Temperature:	-40 ~ +105°C	-25 ~ +105°C
Nominal Capacitance:	180~2200 μ F	39 ~ 680 μ F
Capacitance Tolerance:	$\pm 20\%$	
Dissipation Factor: (120 Hz, +20°C)	15% max.	
Leakage Current:	$3\sqrt{CV}$ (μ A) max. after 5 minutes; C = Capacitance in μ F, V = WV	
Ripple Current Multipliers:	Frequency(Hz):	50 60 100~120 500 1k 10k
	16~100WV:	0.93 0.95 1.0 1.05 1.08 1.15
	160~450WV:	0.75 0.8 1.0 1.2 1.25 1.4
Ripple Current Ambient Temperature Factors*		
Temperature (°C):		
Multiplier:		
105°C 85°C 70°C 60°C $\leq 45^\circ\text{C}$		
1.0 1.7 2.0 2.2 2.35		
Endurance:	7000 hours at +105°C with maximum specified ripple current (see page4)	

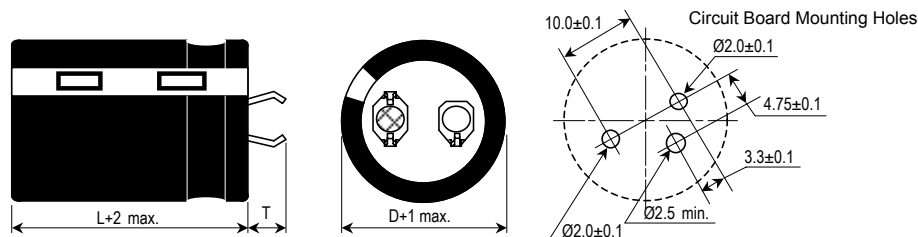
*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

Part Number System**Dimensions in millimeters**

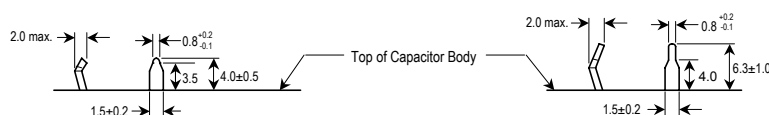
2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles

6.3mm Length: Available on 2 Pin Mounting Style Only

TS-XB Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
160 VDC Working, 200 VDC Surge							
270	22 x 25	1.10	1.54	0.655	0.295	EETXB2C271HA	EETXB2C271HJ
330	22 x 30	1.20	1.68	0.536	0.241	EETXB2C331HA	EETXB2C331HJ
390	22 x 30	1.30	1.82	0.453	0.204	EETXB2C391HA	EETXB2C391HJ
	25 x 25	1.30	1.82	0.453	0.204	EETXB2C391JA	EETXB2C391JJ
470	22 x 35	1.40	1.96	0.376	0.169	EETXB2C471HA	EETXB2C471HJ
	25 x 30	1.40	1.96	0.376	0.169	EETXB2C471JA	EETXB2C471JJ
560	22 x 40	1.50	2.10	0.316	0.142	EETXB2C561HA	EETXB2C561HJ
	25 x 30	1.50	2.10	0.316	0.142	EETXB2C561JA	EETXB2C561JJ
	30 x 25	1.50	2.10	0.316	0.142	EETXB2C561KA	EETXB2C561KJ
680	22 x 45	1.70	2.38	0.260	0.117	EETXB2C681HA	EETXB2C681HJ
	25 x 35	1.70	2.38	0.260	0.117	EETXB2C681JA	EETXB2C681JJ
	30 x 30	1.70	2.38	0.260	0.117	EETXB2C681KA	EETXB2C681KJ
820	25 x 40	2.00	2.80	0.216	0.097	EETXB2C821JA	EETXB2C821JJ
	30 x 30	2.00	2.80	0.216	0.097	EETXB2C821KA	EETXB2C821KJ
1000	25 x 45	2.20	3.08	0.177	0.080	EETXB2C102JA	EETXB2C102JJ
	30 x 35	2.20	3.08	0.177	0.080	EETXB2C102KA	EETXB2C102KJ
1200	25 x 50	2.30	3.22	0.160	0.080	EETXB2C122JA	EETXB2C122JJ
	30 x 40	2.30	3.22	0.160	0.080	EETXB2C122KA	EETXB2C122KJ
	35 x 35	2.30	3.22	0.160	0.080	EETXB2C122LA	EETXB2C122LJ
1500	30 x 45	2.50	3.50	0.128	0.064	EETXB2C152KA	EETXB2C152KJ
	35 x 35	2.50	3.50	0.128	0.064	EETXB2C152LA	EETXB2C152LJ
1800	30 x 50	2.70	3.78	0.115	0.057	EETXB2C182KA	EETXB2C182KJ
	35 x 40	2.70	3.78	0.115	0.057	EETXB2C182LA	EETXB2C182LJ
2200	35 x 50	2.90	4.06	0.094	0.056	EETXB2C222LA	EETXB2C222LJ
180 VDC Working, 225 VDC Surge							
220	22 x 25	1.00	1.40	0.804	0.36	EETXB2P221HA	EETXB2P221HJ
270	22 x 25	1.10	1.54	0.655	0.29	EETXB2P271HA	EETXB2P271HJ
330	22 x 30	1.20	1.68	0.536	0.24	EETXB2P331HA	EETXB2P331HJ
	25 x 25	1.20	1.68	0.536	0.24	EETXB2P331JA	EETXB2P331JJ
390	22 x 30	1.30	1.82	0.453	0.20	EETXB2P391HA	EETXB2P391HJ
	25 x 25	1.30	1.82	0.453	0.20	EETXB2P391JA	EETXB2P391JJ
470	22 x 35	1.40	1.96	0.376	0.17	EETXB2P471HA	EETXB2P471HJ
	25 x 30	1.40	1.96	0.376	0.17	EETXB2P471JA	EETXB2P471JJ
	30 x 25	1.40	1.96	0.376	0.17	EETXB2P471KA	EETXB2P471KJ
560	22 x 40	1.50	2.10	0.316	0.14	EETXB2P561HA	EETXB2P561HJ
	25 x 35	1.50	2.10	0.316	0.14	EETXB2P561JA	EETXB2P561JJ
	30 x 25	1.50	2.10	0.316	0.14	EETXB2P561KA	EETXB2P561KJ
680	22 x 50	1.70	2.38	0.260	0.12	EETXB2P681HA	EETXB2P681HJ
	25 x 40	1.70	2.38	0.260	0.12	EETXB2P681JA	EETXB2P681JJ
	30 x 30	1.70	2.38	0.260	0.12	EETXB2P681KA	EETXB2P681KJ
820	25 x 45	2.00	2.80	0.216	0.10	EETXB2P821JA	EETXB2P821JJ
	30 x 35	2.00	2.80	0.234	0.11	EETXB2P821KA	EETXB2P821KJ
	35 x 30	2.00	2.80	0.234	0.11	EETXB2P821LA	EETXB2P821LJ
1000	30 x 40	2.20	3.08	0.192	0.10	EETXB2P102KA	EETXB2P102KJ
	35 x 30	2.20	3.08	0.192	0.10	EETXB2P102LA	EETXB2P102LJ
1200	30 x 45	2.30	3.22	0.160	0.08	EETXB2P122KA	EETXB2P122KJ
	35 x 35	2.30	3.22	0.172	0.09	EETXB2P122LA	EETXB2P122LJ
1500	30 x 50	2.50	3.50	0.138	0.07	EETXB2P152KA	EETXB2P152KJ
	35 x 40	2.50	3.50	0.138	0.07	EETXB2P152LA	EETXB2P152LJ
1800	35 x 45	2.70	3.78	0.115	0.07	EETXB2P182LA	EETXB2P182LJ
2200	35 x 50	2.90	4.06	0.094	0.06	EETXB2P222LA	EETXB2P222LJ
200 VDC Working, 250 VDC Surge							
220	22 x 25	1.00	1.40	0.804	0.36	EETXB2D221HA	EETXB2D221HJ
270	22 x 30	1.10	1.54	0.655	0.29	EETXB2D271HA	EETXB2D271HJ
	25 x 25	1.10	1.54	0.655	0.29	EETXB2D271JA	EETXB2D271JJ
330	22 x 30	1.20	1.68	0.536	0.24	EETXB2D331HA	EETXB2D331HJ
	25 x 25	1.20	1.68	0.536	0.24	EETXB2D331JA	EETXB2D331JJ
390	22 x 35	1.30	1.82	0.453	0.20	EETXB2D391HA	EETXB2D391HJ
	25 x 30	1.30	1.82	0.453	0.20	EETXB2D391JA	EETXB2D391JJ
	30 x 25	1.30	1.82	0.453	0.20	EETXB2D391KA	EETXB2D391KJ
470	22 x 40	1.40	1.96	0.376	0.17	EETXB2D471HA	EETXB2D471HJ
	25 x 35	1.40	1.96	0.376	0.17	EETXB2D471JA	EETXB2D471JJ
	30 x 30	1.40	1.96	0.376	0.17	EETXB2D471KA	EETXB2D471KJ
560	22 x 45	1.50	2.10	0.316	0.14	EETXB2D561HA	EETXB2D561HJ

TS-XB Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
200 VDC Working, 250 VDC Surge (continued)							
560	25 x 35	1.50	2.10	0.316	0.14	EETXB2D561JA	EETXB2D561JJ
	30 x 30	1.50	2.10	0.316	0.14	EETXB2D561KA	EETXB2D561KJ
680	25 x 40	1.70	2.38	0.260	0.12	EETXB2D681JA	EETXB2D681JJ
	30 x 35	1.70	2.38	0.260	0.12	EETXB2D681KA	EETXB2D681KJ
820	25 x 50	2.00	2.80	0.216	0.10	EETXB2D821JA	EETXB2D821JJ
	30 x 40	2.00	2.80	0.216	0.10	EETXB2D821KA	EETXB2D821KJ
	35 x 30	2.00	2.80	0.216	0.10	EETXB2D821LA	EETXB2D821LJ
1000	30 x 45	2.20	3.08	0.177	0.09	EETXB2D102KA	EETXB2D102KJ
	35 x 35	2.20	3.08	0.177	0.09	EETXB2D102LA	EETXB2D102LJ
1200	30 x 50	2.30	3.22	0.160	0.08	EETXB2D122KA	EETXB2D122KJ
	35 x 40	2.30	3.22	0.160	0.08	EETXB2D122LA	EETXB2D122LJ
1500	35 x 50	2.50	3.50	0.128	0.06	EETXB2D152LA	EETXB2D152LJ
250 VDC Working, 300 VDC Surge							
180	22 x 30	0.90	1.26	0.819	0.41	EETXB2E181HA	EETXB2E181HJ
	25 x 25	0.90	1.26	0.819	0.41	EETXB2E181JA	EETXB2E181JJ
220	22 x 30	1.00	1.40	0.670	0.33	EETXB2E221HA	EETXB2E221HJ
	25 x 25	1.00	1.40	0.670	0.33	EETXB2E221JA	EETXB2E221JJ
270	22 x 35	1.10	1.54	0.546	0.27	EETXB2E271HA	EETXB2E271HJ
	25 x 30	1.10	1.54	0.546	0.27	EETXB2E271JA	EETXB2E271JJ
	30 x 25	1.10	1.54	0.546	0.27	EETXB2E271KA	EETXB2E271KJ
330	22 x 40	1.20	1.68	0.447	0.22	EETXB2E331HA	EETXB2E331HJ
	25 x 35	1.20	1.68	0.447	0.22	EETXB2E331JA	EETXB2E331JJ
	30 x 25	1.20	1.68	0.447	0.22	EETXB2E331KA	EETXB2E331KJ
390	22 x 45	1.30	1.82	0.378	0.19	EETXB2E391HA	EETXB2E391HJ
	25 x 35	1.30	1.82	0.378	0.19	EETXB2E391JA	EETXB2E391JJ
	30 x 30	1.30	1.82	0.378	0.19	EETXB2E391KA	EETXB2E391KJ
470	25 x 45	1.40	1.96	0.314	0.16	EETXB2E471JA	EETXB2E471JJ
	30 x 35	1.40	1.96	0.314	0.16	EETXB2E471KA	EETXB2E471KJ
	35 x 30	1.40	1.96	0.314	0.16	EETXB2E471LA	EETXB2E471LJ
560	25 x 50	1.50	2.10	0.263	0.13	EETXB2E561JA	EETXB2E561JJ
	30 x 35	1.50	2.10	0.263	0.13	EETXB2E561KA	EETXB2E561KJ
	35 x 30	1.50	2.10	0.263	0.13	EETXB2E561LA	EETXB2E561LJ
680	30 x 45	1.70	2.38	0.217	0.12	EETXB2E681KA	EETXB2E681KJ
	35 x 35	1.70	2.38	0.217	0.12	EETXB2E681LA	EETXB2E681LJ
820	30 x 50	2.00	2.80	0.180	0.10	EETXB2E821KA	EETXB2E821KJ
	35 x 40	2.00	2.80	0.180	0.10	EETXB2E821LA	EETXB2E821LJ
1000	35 x 45	2.20	3.08	0.177	0.10	EETXB2E102LA	EETXB2E102LJ
1200	35 x 50	2.30	3.22	0.147	0.09	EETXB2E122LA	EETXB2E122LJ
315 VDC Working, 365 VDC Surge							
82	22 x 25	0.64	0.90	1.797	0.90	EETXB2F820HA	EETXB2F820HJ
100	22 x 30	0.69	0.97	1.474	0.74	EETXB2F101HA	EETXB2F101HJ
120	22 x 30	0.75	1.05	1.228	0.61	EETXB2F121HA	EETXB2F121HJ
	25 x 25	0.75	1.05	1.228	0.61	EETXB2F121JA	EETXB2F121JJ
150	22 x 35	0.82	1.15	0.982	0.49	EETXB2F151HA	EETXB2F151HJ
	25 x 30	0.82	1.15	0.982	0.49	EETXB2F151JA	EETXB2F151JJ
	30 x 25	0.82	1.15	0.982	0.49	EETXB2F151KA	EETXB2F151KJ
180	22 x 40	0.90	1.26	0.819	0.41	EETXB2F181HA	EETXB2F181HJ
	25 x 35	0.90	1.26	0.819	0.41	EETXB2F181JA	EETXB2F181JJ
	30 x 25	0.90	1.26	0.819	0.41	EETXB2F181KA	EETXB2F181KJ
220	22 x 45	1.00	1.40	0.737	0.37	EETXB2F221HA	EETXB2F221HJ
	25 x 40	1.00	1.40	0.737	0.37	EETXB2F221JA	EETXB2F221JJ
	30 x 30	1.00	1.40	0.737	0.37	EETXB2F221KA	EETXB2F221KJ
270	25 x 45	1.10	1.54	0.600	0.30	EETXB2F271JA	EETXB2F271JJ
	30 x 35	1.10	1.54	0.600	0.30	EETXB2F271KA	EETXB2F271KJ
	35 x 30	1.10	1.54	0.600	0.30	EETXB2F271LA	EETXB2F271LJ
330	25 x 50	1.20	1.68	0.491	0.25	EETXB2F331JA	EETXB2F331JJ
	30 x 40	1.20	1.68	0.491	0.25	EETXB2F331KA	EETXB2F331KJ
	35 x 30	1.20	1.68	0.491	0.25	EETXB2F331LA	EETXB2F331LJ
390	30 x 45	1.30	1.82	0.453	0.23	EETXB2F391KA	EETXB2F391KJ
	35 x 35	1.30	1.82	0.453	0.23	EETXB2F391LA	EETXB2F391LJ
470	30 x 50	1.40	1.96	0.376	0.19	EETXB2F471KA	EETXB2F471KJ
	35 x 40	1.40	1.96	0.376	0.19	EETXB2F471LA	EETXB2F471LJ
560	35 x 45	1.50	2.10	0.316	0.16	EETXB2F561LA	EETXB2F561LJ
680	35 x 50	1.70	2.38	0.260	0.14	EETXB2F681LA	EETXB2F681LJ

TS-XB Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μ F)	Size (mm) D x L	Max 105°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
350 VDC Working, 400 VDC Surge							
82	22 x 25	0.64	0.90	1.797	0.90	EETXB2V820HA	EETXB2V820HJ
100	22 x 30	0.69	0.97	1.474	0.74	EETXB2V101HA	EETXB2V101HJ
	25 x 25	0.69	0.97	1.474	0.74	EETXB2V101JA	EETXB2V101JJ
120	22 x 35	0.75	1.05	1.228	0.61	EETXB2V121HA	EETXB2V121HJ
	25 x 30	0.75	1.05	1.228	0.61	EETXB2V121JA	EETXB2V121JJ
150	22 x 40	0.82	1.15	0.982	0.49	EETXB2V151HA	EETXB2V151HJ
	25 x 30	0.82	1.15	0.982	0.49	EETXB2V151JA	EETXB2V151JJ
	30 x 25	0.82	1.15	0.982	0.49	EETXB2V151KA	EETXB2V151KJ
180	22 x 45	0.90	1.26	0.819	0.41	EETXB2V181HA	EETXB2V181HJ
	25 x 35	0.90	1.26	0.819	0.41	EETXB2V181JA	EETXB2V181JJ
	30 x 30	0.90	1.26	0.819	0.41	EETXB2V181KA	EETXB2V181KJ
220	22 x 50	1.00	1.40	0.737	0.37	EETXB2V221HA	EETXB2V221HJ
	25 x 40	1.00	1.40	0.737	0.37	EETXB2V221JA	EETXB2V221JJ
	30 x 30	1.00	1.40	0.737	0.37	EETXB2V221KA	EETXB2V221KJ
270	25 x 50	1.10	1.54	0.600	0.30	EETXB2V271JA	EETXB2V271JJ
	30 x 35	1.10	1.54	0.600	0.30	EETXB2V271KA	EETXB2V271KJ
	35 x 30	1.10	1.54	0.600	0.30	EETXB2V271LA	EETXB2V271LJ
330	30 x 45	1.20	1.68	0.491	0.25	EETXB2V331KA	EETXB2V331KJ
	35 x 35	1.20	1.68	0.491	0.25	EETXB2V331LA	EETXB2V331LJ
390	30 x 50	1.30	1.82	0.453	0.23	EETXB2V391KA	EETXB2V391KJ
	35 x 40	1.30	1.82	0.453	0.23	EETXB2V391LA	EETXB2V391LJ
470	35 x 40	1.40	1.96	0.376	0.19	EETXB2V471LA	EETXB2V471LJ
560	35 x 50	1.50	2.10	0.316	0.16	EETXB2V561LA	EETXB2V561LJ
400 VDC Working, 450 VDC Surge							
56	22 x 25	0.51	0.71	2.631	0.92	EETXB2G560HA	EETXB2G560HJ
68	22 x 30	0.56	0.78	2.167	0.76	EETXB2G680HA	EETXB2G680HJ
	25 x 25	0.56	0.78	2.167	0.76	EETXB2G680JA	EETXB2G680JJ
82	22 x 35	0.64	0.90	1.797	0.63	EETXB2G820HA	EETXB2G820HJ
	25 x 25	0.64	0.90	1.797	0.63	EETXB2G820JA	EETXB2G820JJ
100	22 x 35	0.69	0.97	1.474	0.52	EETXB2G101HA	EETXB2G101HJ
	25 x 30	0.69	0.97	1.474	0.52	EETXB2G101JA	EETXB2G101JJ
120	22 x 40	0.75	1.05	1.228	0.43	EETXB2G121HA	EETXB2G121HJ
	25 x 35	0.75	1.05	1.228	0.43	EETXB2G121JA	EETXB2G121JJ
	30 x 25	0.75	1.05	1.228	0.43	EETXB2G121KA	EETXB2G121KJ
150	22 x 50	0.82	1.15	0.982	0.34	EETXB2G151HA	EETXB2G151HJ
	25 x 40	0.82	1.15	0.982	0.34	EETXB2G151JA	EETXB2G151JJ
	30 x 30	0.82	1.15	0.982	0.34	EETXB2G151KA	EETXB2G151KJ
180	25 x 45	0.90	1.26	0.819	0.29	EETXB2G181JA	EETXB2G181JJ
	30 x 35	0.90	1.26	0.819	0.29	EETXB2G181KA	EETXB2G181KJ
	35 x 25	0.90	1.26	0.819	0.29	EETXB2G181LA	EETXB2G181LJ
220	25 x 50	1.00	1.40	0.670	0.23	EETXB2G221JA	EETXB2G221JJ
	30 x 40	1.00	1.40	0.670	0.23	EETXB2G221KA	EETXB2G221KJ
	35 x 30	1.00	1.40	0.670	0.23	EETXB2G221LA	EETXB2G221LJ
270	30 x 45	1.10	1.54	0.546	0.19	EETXB2G271KA	EETXB2G271KJ
	35 x 35	1.10	1.54	0.546	0.19	EETXB2G271LA	EETXB2G271LJ
330	30 x 50	1.20	1.68	0.447	0.18	EETXB2G331KA	EETXB2G331KJ
	35 x 40	1.20	1.68	0.447	0.18	EETXB2G331LA	EETXB2G331LJ
390	35 x 45	1.30	1.82	0.378	0.15	EETXB2G391LA	EETXB2G391LJ
470	35 x 50	1.40	1.96	0.314	0.13	EETXB2G471LA	EETXB2G471LJ
450 VDC Working, 500 VDC Surge							
39	22 x 25	0.37	0.52	3.779	1.32	EETXB2W390HA	EETXB2W390HJ
47	22 x 30	0.40	0.56	3.135	1.10	EETXB2W470HA	EETXB2W470HJ
56	22 x 35	0.47	0.66	2.631	0.92	EETXB2W560HA	EETXB2W560HJ
	25 x 25	0.47	0.66	2.631	0.92	EETXB2W560JA	EETXB2W560JJ
68	22 x 40	0.53	0.74	2.167	0.76	EETXB2W680HA	EETXB2W680HJ
	25 x 30	0.53	0.74	2.167	0.76	EETXB2W680JA	EETXB2W680JJ
82	22 x 45	0.56	0.78	1.797	0.63	EETXB2W820HA	EETXB2W820HJ
	25 x 35	0.56	0.78	1.797	0.63	EETXB2W820JA	EETXB2W820JJ
	30 x 25	0.56	0.78	1.797	0.63	EETXB2W820KA	EETXB2W820KJ
100	22 x 50	0.64	0.90	1.474	0.52	EETXB2W101HA	EETXB2W101HJ
	25 x 40	0.64	0.90	1.474	0.52	EETXB2W101JA	EETXB2W101JJ
	30 x 30	0.64	0.90	1.474	0.52	EETXB2W101KA	EETXB2W101KJ
120	25 x 45	0.72	1.01	1.228	0.43	EETXB2W121JA	EETXB2W121JJ
	30 x 30	0.72	1.01	1.228	0.43	EETXB2W121KA	EETXB2W121KJ

TS-XB Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. (μ F)	Size (mm) D x L	Max 105°C R.C. (A_{rms})		20°C ESR (Ω , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
450 VDC Working, 500 VDC Surge (continued)							
150	25 x 50	0.79	1.11	0.982	0.34	EETXB2W151JA	EETXB2W151JJ
	30 x 40	0.79	1.11	0.982	0.34	EETXB2W151KA	EETXB2W151KJ
	35 x 30	0.79	1.11	0.982	0.34	EETXB2W151LA	EETXB2W151LJ
180	30 x 45	0.87	1.22	0.819	0.29	EETXB2W181KA	EETXB2W181KJ
	35 x 35	0.87	1.22	0.819	0.29	EETXB2W181LA	EETXB2W181LJ
220	30 x 50	1.00	1.40	0.670	0.23	EETXB2W221KA	EETXB2W221KJ
	35 x 40	1.00	1.40	0.670	0.23	EETXB2W221LA	EETXB2W221LJ
270	35 x 45	1.19	1.67	0.546	0.19	EETXB2W271LA	EETXB2W271LJ
330	35 x 50	1.38	1.93	0.447	0.16	EETXB2W331LA	EETXB2W331LJ

