

# TS-HC Series 105°C, 2000 hours

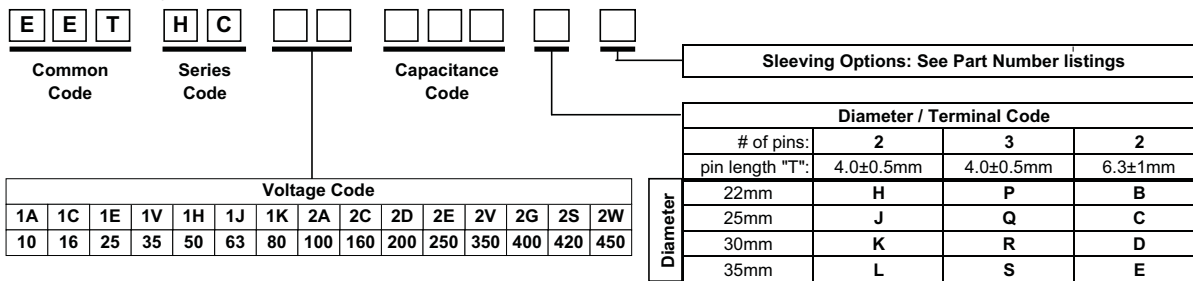
- Long life with high capacitance (30% smaller than HB series)
- 2 and 3 pin versions available
- RoHS compliant PVC and RoHS compliant PET sleeve options



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: $\frac{\text{(rated cap. } [\mu\text{F}] - 33000)}{1000}$		
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
	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): 105°C    85°C    70°C    60°C    ≤45°C
		Multiplier: 1.0    1.7    2.0    2.2    2.35
Endurance:	2000 hours at +105°C with maximum specified ripple current (see page4)	

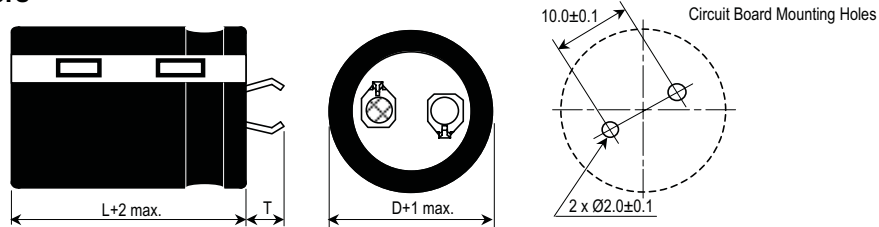
\*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

### Part Number System

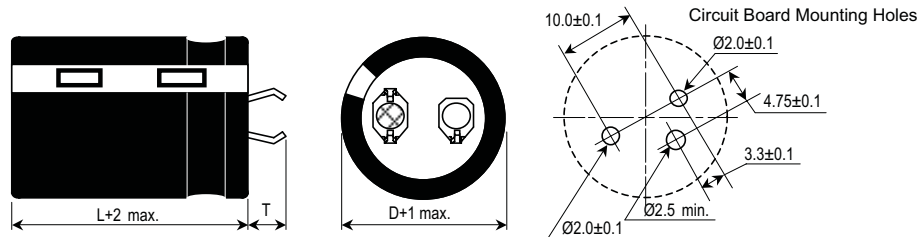


### Dimensions in millimeters

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. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>10 VDC Working, 13 VDC Surge</b>							
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
<b>16 VDC Working, 20 VDC Surge</b>							
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
<b>25 VDC Working, 32 VDC Surge</b>							
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. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>25 VDC Working, 32 VDC Surge (continued)</b>							
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
<b>35 VDC Working, 44 VDC Surge</b>							
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
<b>50 VDC Working, 63 VDC Surge</b>							
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	EETHC1H682JJA
	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
<b>63 VDC Working, 79 VDC Surge</b>							
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. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>63 VDC Working, 79 VDC Surge (continued)</b>							
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
<b>80 VDC Working, 100 VDC Surge</b>							
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
<b>100 VDC Working, 125 VDC Surge</b>							
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
<b>160 VDC Working, 200 VDC Surge</b>							
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. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)		
		120Hz	10kHz~	120Hz	20kHz	PVC sleeve with Top Plate	PET sleeve without Top Plate	
<b>160 VDC Working, 200 VDC Surge (continued)</b>								
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	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	
1000	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
1200	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	
<b>200 VDC Working, 250 VDC Surge</b>								
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	
<b>250 VDC Working, 300 VDC Surge</b>								
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. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>250 VDC Working, 300 VDC Surge (continued)</b>							
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
<b>350 VDC Working, 400 VDC Surge</b>							
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
<b>400 VDC Working, 450 VDC Surge</b>							
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. ( $\mu$ F)	Size (mm) D x L	Max 85°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>400 VDC Working, 450 VDC Surge (continued)</b>							
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
<b>420 VDC Working, 470 VDC Surge</b>							
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
390	35 x 35	1.42	1.99	0.553	0.249	EETHC2S331LA	EETHC2S331LJ
	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
<b>450 VDC Working, 500 VDC Surge</b>							
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

Cap. ( $\mu\text{F}$ )	Size (mm) D x L	Max 105°C R.C. ( $A_{\text{rms}}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleaving Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>450 VDC Working, 500 VDC Surge (continued)</b>							
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