

TS-HC Series

snap-in style

- **Highly miniaturized version (30% smaller than HB series)**
- **2 and 3 pin versions available**
- **2000 hour life at 105°C**
- **Can vent construction**



Rated Working Voltage:	10 ~ 250 VDC	350 ~ 450 VDC
Operating Temperature:	-40 ~ +105°C	-25 ~ +105°C
Nominal Capacitance:	270~100000 µF	100 ~ 820µF
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:	3vCV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV	
Ripple Current Multipliers:	Frequency(Hz):	50 60 100~120 500 1k 10k~
	10~100WV:	0.93 0.95 1.0 1.05 1.08 1.15
	160~500WV:	0.75 0.8 1.0 1.2 1.25 1.4
Ripple Current Ambient Temperature Factors*		
Ambient Temperature: 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 page 4)	

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

Part Number System

E E T
Common Code

H C
Series Code

□ □
Voltage Code

□ □ □
Capacitance Code

Diameter / Terminal Code			
# of pins:	2	2	3
pin length:	6.3mm	4.0mm	4.0mm
Diameter	22mm	B	H
	25mm	C	J
	30mm	D	K
	35mm	E	L
(Please see page 7 for details)			

Top Vinyl Plate	
A	with plate
	without plate (no suffix)

TS-HC Standard Ratings (part numbers shown with 2 pins, 6.3mm length terminal, and top vinyl plate)

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	
10 VDC Working, 13 VDC Surge						
12000	22 x 25	2.20	2.53	0.076	0.065	EETHC1A123BA
18000	22 x 30	2.40	2.76	0.051	0.043	EETHC1A183BA
	25 x 25	2.40	2.76	0.051	0.043	EETHC1A183CA
22000	22 x 35	2.60	2.99	0.041	0.035	EETHC1A223BA
	25 x 30	2.60	2.99	0.041	0.035	EETHC1A223CA
27000	22 x 40	3.10	3.57	0.034	0.029	EETHC1A273BA
	25 x 35	3.10	3.57	0.034	0.029	EETHC1A273CA
	30 x 25	3.10	3.57	0.034	0.029	EETHC1A273DA
33000	22 x 45	3.40	3.91	0.028	0.023	EETHC1A333BA
	25 x 40	3.40	3.91	0.028	0.023	EETHC1A333CA
39000	25 x 45	3.70	4.26	0.026	0.022	EETHC1A393CA
	30 x 30	3.70	4.26	0.026	0.023	EETHC1A393DA
	35 x 25	3.70	4.26	0.026	0.022	EETHC1A393EA
47000	25 x 50	4.20	4.83	0.024	0.021	EETHC1A473CA
	30 x 35	4.20	4.83	0.024	0.022	EETHC1A473DA
	35 x 30	4.20	4.83	0.024	0.021	EETHC1A473EA
56000	30 x 40	5.00	5.75	0.023	0.021	EETHC1A563DA
	35 x 35	5.00	5.75	0.023	0.020	EETHC1A563EA
68000	30 x 45	5.40	6.21	0.022	0.020	EETHC1A683DA
	35 x 40	5.40	6.21	0.022	0.019	EETHC1A683EA
82000	35 x 45	6.10	7.02	0.021	0.019	EETHC1A823EA
100000	35 x 50	6.90	7.94	0.020	0.019	EETHC1A104EA
16 VDC Working, 20 VDC Surge						
10000	22 x 25	2.60	2.99	0.075	0.063	EETHC1C103BA
12000	22 x 30	2.90	3.34	0.062	0.053	EETHC1C123BA
	25 x 25	2.90	3.34	0.062	0.053	EETHC1C123CA
15000	22 x 35	3.20	3.68	0.050	0.042	EETHC1C153BA
16 VDC Working, 20 VDC Surge (continued)						
18000	22 x 40	3.50	4.03	0.041	0.035	EETHC1C183BA
	25 x 30	3.50	4.03	0.041	0.035	EETHC1C183CA
22000	22 x 45	3.80	4.37	0.034	0.029	EETHC1C223BA
	25 x 35	3.80	4.37	0.034	0.029	EETHC1C223CA
	30 x 25	3.80	4.37	0.034	0.029	EETHC1C223DA
27000	22 x 50	4.20	4.83	0.028	0.023	EETHC1C273BA
	25 x 40	4.20	4.83	0.028	0.023	EETHC1C273CA
	30 x 30	4.20	4.83	0.028	0.023	EETHC1C273DA
	35 x 25	4.20	4.83	0.028	0.023	EETHC1C273EA
33000	25 x 45	4.70	5.41	0.023	0.019	EETHC1C333CA
	30 x 35	4.70	5.41	0.023	0.019	EETHC1C333DA
	35 x 30	4.70	5.41	0.023	0.020	EETHC1C333EA
39000	30 x 40	5.10	5.87	0.022	0.018	EETHC1C393DA
	35 x 35	5.10	5.87	0.022	0.020	EETHC1C393EA
47000	30 x 45	5.50	6.33	0.016	0.014	EETHC1C473DA
	35 x 40	5.50	6.33	0.021	0.019	EETHC1C473EA
56000	30 x 50	6.00	6.90	0.020	0.018	EETHC1C563DA
	35 x 45	6.00	6.90	0.020	0.018	EETHC1C563EA
25 VDC Working, 32 VDC Surge						
6800	22 x 25	2.40	2.76	0.085	0.064	EETHC1E682BA
8200	22 x 30	2.70	3.11	0.071	0.053	EETHC1E822BA
	25 x 25	2.70	3.11	0.071	0.053	EETHC1E822CA
10000	22 x 35	3.00	3.45	0.058	0.044	EETHC1E103BA
12000	22 x 40	3.20	3.68	0.048	0.036	EETHC1E123BA
	25 x 30	3.20	3.68	0.048	0.036	EETHC1E123CA
15000	22 x 45	3.60	4.14	0.039	0.029	EETHC1E153BA
	25 x 35	3.60	4.14	0.039	0.029	EETHC1E153CA

TS-HC Standard Ratings (continued)

Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A _{rms})		20°C ESR (Ω, max.)		Panasonic
		120Hz	10kHz~	120Hz	20kHz	Part Number
25 VDC Working, 32 VDC Surge (continued)						
15000	30 x 25	3.60	4.14	0.039	0.029	EETHC1E153DA
18000	22 x 50	3.90	4.49	0.032	0.024	EETHC1E183BA
	25 x 40	3.90	4.49	0.032	0.024	EETHC1E183CA
	30 x 30	3.90	4.49	0.032	0.024	EETHC1E183DA
	35 x 25	3.90	4.49	0.032	0.024	EETHC1E183EA
22000	25 x 45	4.30	4.95	0.026	0.020	EETHC1E223CA
	30 x 35	4.30	4.95	0.026	0.020	EETHC1E223DA
	35 x 30	4.30	4.95	0.026	0.020	EETHC1E223EA
27000	30 x 40	4.80	5.52	0.021	0.016	EETHC1E273DA
	35 x 35	4.80	5.52	0.021	0.016	EETHC1E273EA
33000	30 x 45	5.50	6.33	0.018	0.013	EETHC1E333DA
	35 x 40	5.50	6.33	0.018	0.014	EETHC1E333EA
39000	30 x 50	5.80	6.67	0.017	0.013	EETHC1E393DA
	35 x 45	5.80	6.67	0.017	0.014	EETHC1E393EA
47000	35 x 50	6.30	7.25	0.017	0.014	EETHC1E473EA
35 VDC Working, 44 VDC Surge						
4700	22 x 25	2.20	2.53	0.106	0.079	EETHC1V472BA
5600	22 x 30	2.40	2.76	0.089	0.067	EETHC1V562BA
	25 x 25	2.40	2.76	0.089	0.067	EETHC1V562CA
6800	22 x 35	2.60	2.99	0.073	0.055	EETHC1V682BA
8200	22 x 40	2.90	3.34	0.061	0.045	EETHC1V822BA
	25 x 30	2.90	3.34	0.061	0.045	EETHC1V822CA
10000	22 x 45	3.20	3.68	0.050	0.037	EETHC1V103BA
	25 x 35	3.20	3.68	0.050	0.037	EETHC1V103CA
	30 x 25	3.20	3.68	0.050	0.037	EETHC1V103DA
12000	25 x 40	3.50	4.03	0.041	0.031	EETHC1V123CA
	30 x 30	3.50	4.03	0.041	0.031	EETHC1V123DA
	35 x 25	3.50	4.03	0.041	0.031	EETHC1V123EA
15000	25 x 45	3.90	4.49	0.033	0.025	EETHC1V153CA
	30 x 35	3.90	4.49	0.033	0.025	EETHC1V153DA
	35 x 30	3.90	4.49	0.033	0.025	EETHC1V153EA
18000	30 x 40	4.30	4.95	0.028	0.021	EETHC1V183DA
	35 x 35	4.30	4.95	0.028	0.021	EETHC1V183EA
22000	30 x 45	5.00	5.75	0.023	0.017	EETHC1V223DA
	35 x 40	5.00	5.75	0.023	0.017	EETHC1V223EA
27000	30 x 50	5.30	6.10	0.018	0.014	EETHC1V273DA
	35 x 45	5.30	6.10	0.018	0.014	EETHC1V273EA
33000	35 x 50	5.90	6.79	0.015	0.012	EETHC1V333EA
50 VDC Working, 63 VDC Surge						
2700	22 x 25	1.80	2.07	0.154	0.115	EETHC1H272BA
3300	22 x 30	2.00	2.30	0.126	0.094	EETHC1H332BA
3900	22 x 35	2.20	2.53	0.106	0.080	EETHC1H392BA
	25 x 25	2.20	2.53	0.106	0.080	EETHC1H392CA
4700	22 x 40	2.50	2.88	0.088	0.066	EETHC1H472BA
	25 x 30	2.50	2.88	0.088	0.066	EETHC1H472CA
5600	22 x 45	2.80	3.22	0.074	0.056	EETHC1H562BA
	25 x 35	2.80	3.22	0.074	0.056	EETHC1H562CA
	30 x 25	2.80	3.22	0.074	0.056	EETHC1H562DA
6800	22 x 50	3.30	3.80	0.061	0.046	EETHC1H682BA
	25 x 40	3.30	3.80	0.061	0.046	EETHC1H682CA
	30 x 30	3.30	3.80	0.061	0.046	EETHC1H682DA
	35 x 25	3.30	3.80	0.061	0.046	EETHC1H682EA
8200	25 x 45	3.60	4.14	0.051	0.038	EETHC1H822CA
	30 x 35	3.60	4.14	0.051	0.038	EETHC1H822DA
10000	25 x 50	4.00	4.60	0.041	0.031	EETHC1H103CA
	30 x 40	4.00	4.60	0.041	0.031	EETHC1H103DA
	35 x 30	4.00	4.60	0.041	0.031	EETHC1H103EA
12000	30 x 45	4.50	5.18	0.035	0.026	EETHC1H123DA
	35 x 35	4.50	5.18	0.035	0.028	EETHC1H123EA
15000	30 x 50	4.80	5.52	0.028	0.021	EETHC1H153DA
	35 x 40	4.80	5.52	0.028	0.022	EETHC1H153EA
18000	35 x 45	5.60	6.44	0.023	0.018	EETHC1H183EA
63 VDC Working, 79 VDC Surge						
2200	22 x 25	2.00	2.30	0.151	0.113	EETHC1J222BA
2700	22 x 30	2.20	2.53	0.123	0.092	EETHC1J272BA
	25 x 25	2.20	2.53	0.123	0.092	EETHC1J272CA
3300	22 x 35	2.50	2.88	0.100	0.075	EETHC1J332BA
3900	22 x 40	2.70	3.11	0.085	0.064	EETHC1J392BA
	25 x 30	2.70	3.11	0.085	0.064	EETHC1J392CA
	30 x 25	2.70	3.11	0.085	0.064	EETHC1J392DA
4700	22 x 45	3.00	3.45	0.071	0.053	EETHC1J472BA
63 VDC Working, 79 VDC Surge (continued)						
4700	25 x 35	3.00	3.45	0.071	0.053	EETHC1J472CA
5600	22 x 50	3.30	3.80	0.059	0.044	EETHC1J562BA
	25 x 40	3.30	3.80	0.059	0.044	EETHC1J562CA
	30 x 30	3.30	3.80	0.059	0.044	EETHC1J562DA
	35 x 25	3.30	3.80	0.059	0.044	EETHC1J562EA
6800	25 x 45	3.60	4.14	0.049	0.037	EETHC1J682CA
	30 x 35	3.60	4.14	0.049	0.037	EETHC1J682DA
	35 x 30	3.60	4.14	0.049	0.037	EETHC1J682EA
8200	30 x 40	3.90	4.49	0.040	0.030	EETHC1J822BA
	35 x 35	3.90	4.49	0.040	0.030	EETHC1J822EA
10000	30 x 45	4.40	5.06	0.033	0.025	EETHC1J103DA
	35 x 40	4.40	5.06	0.033	0.025	EETHC1J103EA
12000	30 x 50	4.80	5.52	0.028	0.021	EETHC1J123DA
	35 x 45	4.80	5.52	0.028	0.022	EETHC1J123EA
15000	35 x 50	5.40	6.21	0.022	0.018	EETHC1J153EA
80 VDC Working, 100 VDC Surge						
1200	22 x 25	1.50	1.73	0.235	0.176	EETHC1K122BA
1500	22 x 30	1.70	1.96	0.188	0.141	EETHC1K152BA
	25 x 25	1.70	1.96	0.188	0.141	EETHC1K152CA
1800	22 x 35	1.80	2.07	0.157	0.117	EETHC1K182BA
2200	22 x 40	2.10	2.42	0.128	0.096	EETHC1K222BA
	25 x 30	2.10	2.42	0.128	0.096	EETHC1K222CA
2700	22 x 45	2.40	2.76	0.104	0.078	EETHC1K272BA
	25 x 35	2.40	2.76	0.104	0.078	EETHC1K272CA
	30 x 25	2.40	2.76	0.104	0.078	EETHC1K272DA
3300	22 x 50	2.60	2.99	0.085	0.064	EETHC1K332BA
	25 x 40	2.60	2.99	0.085	0.064	EETHC1K332CA
	30 x 30	2.60	2.99	0.085	0.064	EETHC1K332DA
	35 x 25	2.60	2.99	0.085	0.064	EETHC1K332EA
3900	25 x 45	3.00	3.45	0.072	0.054	EETHC1K392CA
	30 x 35	3.00	3.45	0.072	0.054	EETHC1K392DA
4700	25 x 50	3.30	3.80	0.060	0.045	EETHC1K472CA
	30 x 40	3.30	3.80	0.060	0.045	EETHC1K472DA
	35 x 30	3.30	3.80	0.060	0.045	EETHC1K472EA
5600	30 x 45	3.70	4.26	0.050	0.038	EETHC1K562DA
	35 x 35	3.70	4.26	0.050	0.038	EETHC1K562EA
6800	30 x 50	3.90	4.49	0.041	0.031	EETHC1K682DA
	35 x 40	3.90	4.49	0.041	0.032	EETHC1K682EA
8200	35 x 45	4.50	5.18	0.034	0.027	EETHC1K822EA
100 VDC Working, 125 VDC Surge						
820	22 x 25	1.40	1.61	0.303	0.197	EETHC2A821BA
1200	22 x 30	1.80	2.07	0.207	0.135	EETHC2A122BA
	25 x 25	1.80	2.07	0.207	0.135	EETHC2A122CA
1500	22 x 35	2.10	2.42	0.166	0.108	EETHC2A152BA
	25 x 30	2.10	2.42	0.166	0.108	EETHC2A152CA
1800	22 x 40	2.30	2.65	0.138	0.090	EETHC2A182BA
	25 x 35	2.30	2.65	0.138	0.090	EETHC2A182CA
	30 x 25	2.30	2.65	0.138	0.090	EETHC2A182DA
2200	22 x 45	2.60	2.99	0.113	0.073	EETHC2A222BA
	25 x 40	2.60	2.99	0.113	0.073	EETHC2A222CA
	30 x 30	2.60	2.99	0.113	0.073	EETHC2A222DA
	35 x 25	2.60	2.99	0.113	0.073	EETHC2A222EA
2700	25 x 45	2.90	3.34	0.092	0.060	EETHC2A272CA
	30 x 35	2.90	3.34	0.092	0.060	EETHC2A272DA
3300	25 x 50	3.20	3.68	0.075	0.049	EETHC2A332CA
	30 x 40	3.20	3.68	0.075	0.049	EETHC2A332DA
	35 x 30	3.20	3.68	0.075	0.049	EETHC2A332EA
3900	30 x 45	3.60	4.14	0.064	0.043	EETHC2A392DA
	35 x 35	3.60	4.14	0.064	0.043	EETHC2A392EA
4700	30 x 50	3.80	4.37	0.053	0.038	EETHC2A472DA
	35 x 40	3.80	4.37	0.053	0.037	EETHC2A472EA
5600	35 x 45	4.20	4.83	0.044	0.031	EETHC2A562EA
6800	35 x 50	4.70	5.41	0.037	0.027	EETHC2A682EA
160 VDC Working, 200 VDC Surge						
470	22 x 25	1.40	1.96	0.423	0.190	EETHC2C471BA
560	22 x 30	1.50	2.10	0.355	0.160	EETHC2C561BA
680	22 x 30	1.70	2.38	0.293	0.132	EETHC2C681BA
	25 x 25	1.70	2.38	0.293	0.132	EETHC2C681CA
820	22 x 35	2.00	2.80	0.243	0.109	EETHC2C821BA
	25 x 30	2.00	2.80	0.243	0.109	EETHC2C821CA
1000	22 x 40	2.20	3.08	0.199	0.090	EETHC2C102BA

TS-HC Standard Ratings (continued)

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	
160 VDC Working, 200 VDC Surge (continued)						
1000	25 x 35	2.20	3.08	0.199	0.090	EETHC2C102CA
	30 x 25	2.20	3.08	0.216	0.108	EETHC2C102DA
1200	22 x 45	2.30	3.22	0.166	0.075	EETHC2C122BA
	25 x 40	2.30	3.22	0.166	0.075	EETHC2C122CA
	30 x 30	2.30	3.22	0.166	0.075	EETHC2C122DA
	35 x 25	2.30	3.22	0.180	0.090	EETHC2C122EA
1500	25 x 45	2.50	3.50	0.133	0.060	EETHC2C152CA
	30 x 35	2.50	3.50	0.133	0.060	EETHC2C152DA
	35 x 30	2.50	3.50	0.155	0.077	EETHC2C152EA
1800	25 x 50	2.70	3.78	0.111	0.050	EETHC2C182CA
	30 x 40	2.70	3.78	0.111	0.050	EETHC2C182DA
	35 x 30	2.70	3.78	0.120	0.060	EETHC2C182EA
2200	30 x 45	2.90	4.06	0.090	0.041	EETHC2C222DA
	35 x 35	2.90	4.06	0.098	0.049	EETHC2C222EA
2700	30 x 50	3.10	4.34	0.080	0.040	EETHC2C272DA
	35 x 40	3.10	4.34	0.086	0.043	EETHC2C272EA
3300	35 x 50	3.30	4.62	0.070	0.042	EETHC2C332EA
200 VDC Working, 250 VDC Surge						
390	22 x 25	1.31	1.83	0.510	0.230	EETHC2D391BA
470	22 x 30	1.45	2.03	0.423	0.190	EETHC2D471BA
560	22 x 30	1.67	2.34	0.355	0.160	EETHC2D561BA
680	22 x 40	1.75	2.45	0.293	0.132	EETHC2D681BA
	25 x 30	1.75	2.45	0.293	0.132	EETHC2D681CA
820	22 x 45	2.04	2.86	0.243	0.109	EETHC2D821BA
	25 x 35	2.04	2.86	0.243	0.109	EETHC2D821CA
	30 x 25	2.04	2.86	0.243	0.109	EETHC2D821DA
1000	22 x 50	2.30	3.22	0.199	0.090	EETHC2D102BA
	25 x 45	2.30	3.22	0.199	0.090	EETHC2D102CA
	30 x 30	2.30	3.22	0.199	0.090	EETHC2D102DA
	35 x 25	2.30	3.22	0.216	0.097	EETHC2D102EA
1200	25 x 50	2.65	3.71	0.166	0.075	EETHC2D122CA
	30 x 35	2.65	3.71	0.166	0.075	EETHC2D122DA
	35 x 30	2.65	3.71	0.180	0.090	EETHC2D122EA
1500	30 x 40	2.80	3.92	0.133	0.060	EETHC2D152DA
	35 x 30	2.80	3.92	0.144	0.072	EETHC2D152EA
1800	30 x 45	3.08	4.31	0.111	0.050	EETHC2D182DA
	35 x 40	3.08	4.31	0.129	0.064	EETHC2D182EA
2200	30 x 50	3.48	4.87	0.090	0.041	EETHC2D222DA
	35 x 45	3.48	4.87	0.098	0.044	EETHC2D222EA
250 VDC Working, 300 VDC Surge						
270	22 x 25	1.10	1.54	0.614	0.276	EETHC2E271BA
330	22 x 30	1.20	1.68	0.502	0.226	EETHC2E331BA
	25 x 25	1.20	1.68	0.502	0.226	EETHC2E331CA
390	22 x 35	1.30	1.82	0.425	0.191	EETHC2E391BA
	25 x 25	1.30	1.82	0.425	0.191	EETHC2E391CA
470	22 x 40	1.40	1.96	0.353	0.159	EETHC2E471BA
	25 x 30	1.40	1.96	0.353	0.159	EETHC2E471CA
	30 x 25	1.40	1.96	0.353	0.159	EETHC2E471DA
560	22 x 45	1.50	2.10	0.296	0.133	EETHC2E561BA
	25 x 35	1.50	2.10	0.296	0.133	EETHC2E561CA
	30 x 25	1.50	2.10	0.296	0.133	EETHC2E561DA
680	22 x 50	1.70	2.38	0.244	0.110	EETHC2E681BA
	25 x 40	1.70	2.38	0.244	0.110	EETHC2E681CA
	30 x 30	1.70	2.38	0.244	0.110	EETHC2E681DA
	35 x 25	1.70	2.38	0.244	0.110	EETHC2E681EA
820	25 x 45	2.00	2.80	0.202	0.091	EETHC2E821CA
	30 x 35	2.00	2.80	0.202	0.091	EETHC2E821DA
	35 x 30	2.00	2.80	0.202	0.091	EETHC2E821EA
1000	30 x 40	2.20	3.08	0.166	0.075	EETHC2E102DA
1200	30 x 45	2.30	3.22	0.138	0.062	EETHC2E122DA
1500	35 x 45	2.50	3.50	0.111	0.050	EETHC2E152EA
1800	35 x 50	2.70	3.78	0.092	0.041	EETHC2E182EA
350 VDC Working, 400 VDC Surge						
120	22 x 25	0.75	1.05	1.382	0.622	EETHC2V121BA
150	22 x 30	0.82	1.15	1.105	0.497	EETHC2V151BA
180	22 x 30	0.90	1.26	0.921	0.414	EETHC2V181BA
	25 x 25	0.90	1.26	0.921	0.414	EETHC2V181CA
220	22 x 35	1.00	1.40	0.754	0.339	EETHC2V221BA
	25 x 30	1.00	1.40	0.754	0.339	EETHC2V221CA
270	25 x 35	1.10	1.54	0.614	0.276	EETHC2V271CA
	30 x 25	1.10	1.54	0.614	0.276	EETHC2V271DA

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	
350 VDC Working, 400 VDC Surge (continued)						
330	25 x 40	1.20	1.68	0.502	0.226	EETHC2V331CA
	30 x 30	1.20	1.68	0.502	0.226	EETHC2V331DA
390	25 x 45	1.30	1.82	0.425	0.191	EETHC2V391CA
	30 x 35	1.30	1.82	0.425	0.191	EETHC2V391DA
470	25 x 50	1.40	1.96	0.353	0.159	EETHC2V471CA
	35 x 30	1.40	1.96	0.353	0.159	EETHC2V471EA
560	30 x 45	1.50	2.10	0.296	0.133	EETHC2V561DA
	35 x 35	1.50	2.10	0.296	0.133	EETHC2V561EA
680	30 x 50	1.70	2.38	0.244	0.110	EETHC2V681DA
	35 x 40	1.70	2.38	0.244	0.110	EETHC2V681EA
820	35 x 45	1.90	2.66	0.202	0.091	EETHC2V821EA
400 VDC Working, 450 VDC Surge						
100	22 x 25	0.70	0.98	1.824	0.821	EETHC2G101BA
120	22 x 30	0.75	1.05	1.520	0.684	EETHC2G121BA
150	22 x 30	0.88	1.23	1.216	0.547	EETHC2G151BA
180	22 x 35	0.95	1.33	1.013	0.456	EETHC2G181BA
	25 x 30	0.95	1.33	1.013	0.456	EETHC2G181CA
220	22 x 45	1.10	1.54	0.829	0.373	EETHC2G221BA
	25 x 35	1.10	1.54	0.829	0.373	EETHC2G221CA
	30 x 25	1.10	1.54	0.829	0.373	EETHC2G221DA
	22 x 50	1.22	1.71	0.675	0.304	EETHC2G271BA
270	25 x 40	1.22	1.71	0.675	0.304	EETHC2G271CA
	30 x 30	1.22	1.71	0.675	0.304	EETHC2G271DA
	35 x 25	1.22	1.71	0.675	0.304	EETHC2G271EA
	25 x 45	1.44	2.02	0.553	0.249	EETHC2G331CA
330	30 x 35	1.44	2.02	0.553	0.249	EETHC2G331DA
	35 x 30	1.44	2.02	0.553	0.249	EETHC2G331EA
	25 x 50	1.55	2.17	0.468	0.210	EETHC2G391CA
390	30 x 40	1.55	2.17	0.468	0.210	EETHC2G391DA
	35 x 30	1.55	2.17	0.468	0.210	EETHC2G391EA
	30 x 45	1.68	2.35	0.388	0.175	EETHC2G471DA
470	35 x 35	1.68	2.35	0.388	0.175	EETHC2G471EA
	30 x 50	1.90	2.66	0.326	0.147	EETHC2G561DA
560	35 x 40	1.90	2.66	0.326	0.147	EETHC2G561EA
	35 x 45	2.12	2.97	0.268	0.121	EETHC2G681EA
450 VDC Working, 500 VDC Surge						
100	22 x 30	0.64	0.90	1.824	0.821	EETHC2W101BA
	25 x 25	0.64	0.90	1.824	0.821	EETHC2W101CA
120	22 x 35	0.72	1.01	1.520	0.684	EETHC2W121BA
	25 x 30	0.72	1.01	1.520	0.684	EETHC2W121CA
150	22 x 40	0.79	1.11	1.216	0.547	EETHC2W151BA
	25 x 30	0.79	1.11	1.216	0.547	EETHC2W151CA
	30 x 25	0.79	1.11	1.216	0.547	EETHC2W151DA
180	22 x 45	0.87	1.22	1.013	0.456	EETHC2W181BA
	25 x 40	0.87	1.22	1.013	0.456	EETHC2W181CA
	30 x 30	0.87	1.22	1.013	0.456	EETHC2W181DA
220	25 x 45	1.00	1.40	0.829	0.373	EETHC2W221CA
	30 x 30	1.00	1.40	0.829	0.373	EETHC2W221DA
	220	35 x 25	1.00	1.40	0.829	0.373
270	25 x 50	1.19	1.67	0.675	0.304	EETHC2W271CA
	30 x 40	1.19	1.67	0.675	0.304	EETHC2W271DA
	35 x 30	1.19	1.67	0.675	0.304	EETHC2W271EA
330	30 x 45	1.38	1.93	0.553	0.249	EETHC2W331DA
	35 x 35	1.38	1.93	0.553	0.249	EETHC2W331EA
390	30 x 50	1.55	2.17	0.468	0.210	EETHC2W391DA
	35 x 40	1.55	2.17	0.468	0.210	EETHC2W391EA
470	35 x 45	1.74	2.44	0.388	0.175	EETHC2W471EA
560	35 x 50	1.90	2.66	0.326	0.147	EETHC2W561EA