

## TS-HB Series 105°C, 3000 hours

- Compact size (20 ~ 25% smaller than TS-HA series)
- 2 and 3 pin versions available
- Long 3000 hour life at 105°C with high ripple current capability
- Can vent construction



Rated Working Voltage:	160 ~ 250 VDC	385 ~ 450 VDC										
Operating Temperature:	-40 ~ +105°C	-25 ~ +105°C										
Nominal Capacitance:	330 ~ 2700μF (±20%)	82 ~ 560μF (±20%)										
Dissipation Factor: (120 Hz, +20°C)	Working Voltage [V]:	160 ~ 450										
	Max. D.F. (%):	15										
Leakage Current:	3√CV (μA) max. after 5 minutes; C = Capacitance in μF, V = WV											
Ripple Current Multipliers:	Ripple Current Frequency Factors						Ripple Current Ambient Temperature Factors*					
	Frequency(Hz):	50	60	100~120	500	1k	10k~	Ambient Temperature:	105°C	85°C	70°C	60°C
Multiplier:	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 6)											

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

### Part Number System

<b>E</b>	<b>C</b>				<b>B</b>											
Voltage Code				Series		Capacitance Code			Diameter Code			Insulation Options				
Common Code / Terminal Type													Insulation Options			
ECOS													A		PVC with top plate	
ECEC													B		PVC without top plate	
ECE3													Contact factory for PET sleeve availability			
(Please see page 10 for details)																

### TS-HB 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 <sub>max</sub> )		20°C ESR (Ω, max.)		Panasonic Part Number	Cap. (μF)	Size (mm) D x L	Max 105°C R.C. (A <sub>max</sub> )		20°C ESR (Ω, max.)		Panasonic Part Number
		120Hz	10kHz~	120Hz	20kHz				120Hz	10kHz~	120Hz	20kHz	
<b>160 VDC Working, 200 VDC Surge</b>													
470	22 x 30	1.40	1.96	0.423	0.190	ECOS2CB471BA	<b>200 VDC Working, 250 VDC Surge (continued)</b>						
560	22 x 35	1.50	2.10	0.355	0.160	ECOS2CB561BA	1000	25 x 50	2.20	3.08	0.216	0.108	ECOS2DB102CA
680	22 x 40	1.70	2.38	0.293	0.132	ECOS2CB681BA	30 x 35	2.20	3.08	0.216	0.108	ECOS2DB102DA	
	25 x 30	1.70	2.38	0.293	0.132	ECOS2CB681CA	35 x 30	2.20	3.08	0.216	0.108	ECOS2DB102EA	
820	22 x 45	2.00	2.80	0.243	0.109	ECOS2CB821BA	1200	30 x 40	2.30	3.22	0.193	0.097	ECOS2DB122DA
	25 x 35	2.00	2.80	0.243	0.109	ECOS2CB821CA	35 x 35	2.30	3.22	0.193	0.097	ECOS2DB122EA	
1000	22 x 50	2.20	3.08	0.199	0.090	ECOS2CB102BA	1500	30 x 50	2.50	3.50	0.155	0.077	ECOS2DB152DA
	25 x 40	2.20	3.08	0.199	0.090	ECOS2CB102CA	35 x 40	2.50	3.50	0.155	0.077	ECOS2DB152EA	
	30 x 30	2.20	3.08	0.199	0.090	ECOS2CB102DA	1800	35 x 45	2.70	3.78	0.129	0.077	ECOS2DB182EA
	35 x 25	2.20	3.08	0.199	0.090	ECOS2CB102EA	2200	35 x 50	2.90	4.06	0.105	0.063	ECOS2DB222EA
<b>250 VDC Working, 300 VDC Surge</b>													
1200	25 x 45	2.30	3.22	0.180	0.090	ECOS2CB122CA	180	22 x 25	0.90	1.26	0.921	0.461	ECOS2EB181BA
	30 x 35	2.30	3.22	0.180	0.090	ECOS2CB122DA	220	22 x 30	1.00	1.40	0.754	0.377	ECOS2EB221BA
	35 x 30	2.30	3.22	0.180	0.090	ECOS2CB122EA	270	22 x 35	1.10	1.54	0.614	0.307	ECOS2EB271BA
1500	30 x 40	2.50	3.50	0.144	0.072	ECOS2CB152DA	330	22 x 40	1.20	1.68	0.502	0.251	ECOS2EB331BA
	35 x 30	2.50	3.50	0.144	0.072	ECOS2CB152EA	390	25 x 30	1.20	1.68	0.502	0.251	ECOS2EB331CA
1800	30 x 45	2.70	3.78	0.129	0.064	ECOS2CB182DA	470	22 x 45	1.30	1.82	0.425	0.213	ECOS2EB391BA
	35 x 35	2.70	3.78	0.129	0.064	ECOS2CB182EA	30 x 25	1.30	1.82	0.425	0.213	ECOS2EB391DA	
2200	35 x 45	2.90	4.06	0.105	0.063	ECOS2CB222EA	560	22 x 50	1.40	1.96	0.353	0.176	ECOS2EB471BA
2700	35 x 50	3.10	4.34	0.086	0.052	ECOS2CB272EA		25 x 40	1.40	1.96	0.353	0.176	ECOS2EB471CA
								30 x 30	1.40	1.96	0.353	0.176	ECOS2EB471DA
<b>200 VDC Working, 250 VDC Surge</b>													
390	22 x 30	1.30	1.82	0.510	0.230	ECOS2DB391BA	680	25 x 45	1.50	2.10	0.296	0.148	ECOS2EB561CA
	25 x 25	1.30	1.82	0.510	0.230	ECOS2DB391CA	35 x 25	1.50	2.10	0.296	0.148	ECOS2EB561EA	
470	22 x 35	1.40	1.96	0.423	0.190	ECOS2DB471BA	820	25 x 50	1.70	2.38	0.244	0.134	ECOS2EB681CA
	25 x 30	1.40	1.96	0.423	0.190	ECOS2DB471CA	30 x 40	1.70	2.38	0.244	0.134	ECOS2EB681DA	
560	22 x 40	1.50	2.10	0.355	0.160	ECOS2DB561BA	35 x 30	1.70	2.38	0.244	0.134	ECOS2EB681EA	
	25 x 30	1.50	2.10	0.355	0.160	ECOS2DB561CA	820	30 x 45	2.00	2.80	0.202	0.111	ECOS2EB821DA
	30 x 25	1.50	2.10	0.355	0.160	ECOS2DB561DA		35 x 35	2.00	2.80	0.202	0.111	ECOS2EB821EA
680	22 x 45	1.70	2.38	0.293	0.132	ECOS2DB681BA	1000	30 x 50	2.20	3.08	0.199	0.109	ECOS2EB102DA
	25 x 35	1.70	2.38	0.293	0.132	ECOS2DB681CA	35 x 40	2.20	3.08	0.199	0.109	ECOS2EB102EA	
820	25 x 45	2.00	2.80	0.263	0.118	ECOS2DB821CA	1200	35 x 45	2.30	3.22	0.166	0.099	ECOS2EB122EA
	30 x 30	2.00	2.80	0.263	0.118	ECOS2DB821DA	1500	35 x 50	2.50	3.50	0.144	0.093	ECOS2EB152EA
820	35 x 25	2.00	2.80	0.263	0.118	ECOS2DB821EA							

## TS-HB Standard Ratings (continued)

Cap. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number
		120Hz	10kHz~	120Hz	20kHz	
<b>385 VDC Working, 435 VDC Surge</b>						
82	22 x 30	0.64	0.90	2.022	0.809	ECOS2TB820BA
100	22 x 30	0.69	0.97	1.658	0.663	ECOS2TB101BA
	25 x 25	0.69	0.97	1.658	0.663	ECOS2TB101CA
120	22 x 35	0.75	1.05	1.382	0.553	ECOS2TB121BA
	25 x 30	0.75	1.05	1.382	0.553	ECOS2TB121CA
150	22 x 40	0.82	1.15	1.105	0.442	ECOS2TB151BA
	25 x 30	0.82	1.15	1.105	0.442	ECOS2TB151CA
	30 x 25	0.82	1.15	1.105	0.442	ECOS2TB151DA
180	22 x 45	0.95	1.33	0.921	0.368	ECOS2TB181BA
	25 x 35	0.95	1.33	0.921	0.368	ECOS2TB181CA
	30 x 30	0.95	1.33	0.921	0.368	ECOS2TB181DA
220	25 x 45	1.10	1.54	0.754	0.301	ECOS2TB221CA
	30 x 30	1.10	1.54	0.829	0.332	ECOS2TB221DA
	35 x 25	1.10	1.54	0.829	0.332	ECOS2TB221EA
270	25 x 50	1.20	1.68	0.675	0.270	ECOS2TB271CA
	35 x 30	1.20	1.68	0.675	0.270	ECOS2TB271EA
330	30 x 45	1.35	1.89	0.553	0.221	ECOS2TB331DA
	35 x 35	1.35	1.89	0.553	0.221	ECOS2TB331EA
390	30 x 50	1.55	2.17	0.510	0.204	ECOS2TB391DA
470	35 x 45	1.75	2.45	0.423	0.212	ECOS2TB471EA
560	35 x 50	1.80	2.52	0.355	0.178	ECOS2TB561EA
<b>400 VDC Working, 450 VDC Surge</b>						
82	22 x 30	0.64	0.90	2.022	0.708	ECOS2GB820BA
100	22 x 30	0.69	0.97	1.658	0.580	ECOS2GB101BA
	25 x 25	0.69	0.97	1.658	0.580	ECOS2GB101CA
120	22 x 35	0.75	1.05	1.382	0.484	ECOS2GB121BA
	25 x 30	0.75	1.05	1.382	0.484	ECOS2GB121CA
150	22 x 40	0.82	1.15	1.105	0.387	ECOS2GB151BA
	25 x 30	0.82	1.15	1.105	0.387	ECOS2GB151CA
	30 x 25	0.82	1.15	1.105	0.387	ECOS2GB151DA
180	22 x 45	0.95	1.33	0.921	0.322	ECOS2GB181BA
	25 x 35	0.95	1.33	0.921	0.322	ECOS2GB181CA
	30 x 30	0.95	1.33	0.921	0.322	ECOS2GB181DA
220	25 x 45	1.10	1.54	0.754	0.264	ECOS2GB221CA
	30 x 30	1.10	1.54	0.754	0.264	ECOS2GB221DA
	35 x 25	1.10	1.54	0.754	0.264	ECOS2GB221EA
270	25 x 50	1.20	1.68	0.614	0.215	ECOS2GB271CA
	30 x 35	1.20	1.68	0.614	0.215	ECOS2GB271DA
	35 x 30	1.20	1.68	0.614	0.215	ECOS2GB271EA
330	30 x 45	1.35	1.89	0.502	0.201	ECOS2GB331DA
	35 x 35	1.35	1.89	0.502	0.201	ECOS2GB331EA
390	30 x 50	1.55	2.17	0.425	0.170	ECOS2GB391DA
	35 x 40	1.55	2.17	0.425	0.170	ECOS2GB391EA
470	35 x 45	1.75	2.45	0.353	0.141	ECOS2GB471EA
560	35 x 50	1.80	2.52	0.296	0.118	ECOS2GB561EA
<b>420 VDC Working, 470 VDC Surge</b>						
100	22 x 30	0.64	0.90	1.824	0.821	ECOS2SB101BA
	25 x 25	0.64	0.90	1.824	0.821	ECOS2SB101CA
120	22 x 35	0.72	1.01	1.520	0.684	ECOS2SB121BA
	25 x 30	0.72	1.01	1.520	0.684	ECOS2SB121CA
150	22 x 40	0.79	1.11	1.216	0.547	ECOS2SB151BA
	25 x 30	0.79	1.11	1.216	0.547	ECOS2SB151CA
	30 x 25	0.79	1.11	1.216	0.547	ECOS2SB151DA
180	22 x 45	0.87	1.22	1.013	0.456	ECOS2SB181BA
	25 x 40	0.87	1.22	1.013	0.456	ECOS2SB181CA
	30 x 30	0.87	1.22	1.013	0.456	ECOS2SB181DA
220	25 x 45	1.00	1.40	0.829	0.373	ECOS2SB221CA
	30 x 30	1.00	1.40	0.829	0.373	ECOS2SB221DA
	35 x 25	1.00	1.40	0.829	0.373	ECOS2SB221EA
270	25 x 50	1.19	1.67	0.675	0.304	ECOS2SB271CA
	30 x 40	1.19	1.67	0.675	0.304	ECOS2SB271DA
	35 x 30	1.19	1.67	0.675	0.304	ECOS2SB271EA
330	30 x 45	1.38	1.93	0.553	0.249	ECOS2SB331DA
	35 x 35	1.38	1.93	0.553	0.249	ECOS2SB331EA
390	30 x 50	1.55	2.17	0.468	0.210	ECOS2SB391DA
	35 x 40	1.55	2.17	0.468	0.210	ECOS2SB391EA
470	35 x 45	1.74	2.44	0.388	0.175	ECOS2SB471EA
560	35 x 50	1.90	2.66	0.326	0.147	ECOS2SB561EA