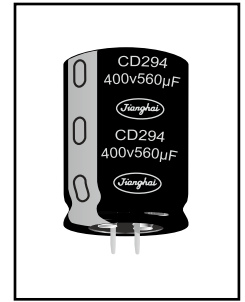
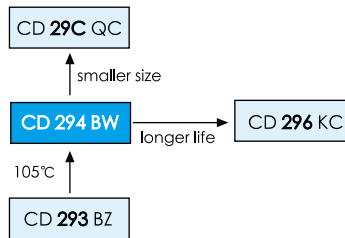


# CD 294 BW SERIES



2000h at 105°C

- Standard 105°C
- General Industry

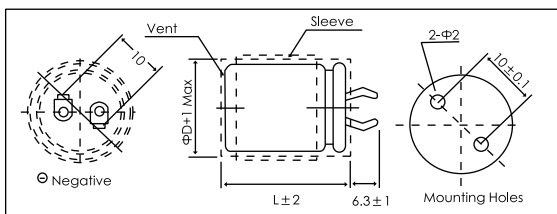


Items	Characteristics	
Operating Temperature Range (°C)	-40 ~ +105	-25 ~ +105
Voltage Range (V)	16 ~ 100	160 ~ 550
Capacitance Range (µF)	39 ~ 47000	
Capacitance Tolerance (20°C, 120Hz)	± 20%	
Leakage Current (µA)	After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V)	
Dissipation Factor (20°C, 120Hz)	Rated Voltage (V)	16    25    35    50    63~100    160~400    420~550
	Tan δ (max)	0.50    0.40    0.35    0.30    0.20    0.15    0.20
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	16~100    160~200    250~550
	$Z_{-25°C} / Z_{+20°C}$	4
	$Z_{-40°C} / Z_{+20°C}$	15    -

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	4000h	>180000h	2000h	3000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 200% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	$U_R$ $I_R$ 105°C	$U_R$ $1.4 \times I_R$ 40°C	$U_R$ $I_R$ 105°C	$U_R$ $I_R = 0$ 105°C	$U_R = 0$ $I_R = 0$ 105°C After test: $U_R$ to be applied for 30min >24h before measurement

## Dimensions

mm



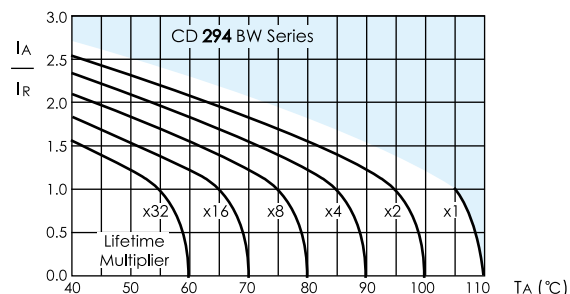
## Temperature Coefficient

Temperature(°C)	+40	+55	+70	+85	+105
Coefficient	2.7	2.5	2.1	1.7	1.00

## Frequency Coefficient

Frequency	50/60Hz	120Hz	300Hz	1kHz	10kHz	>50kHz
Voltage (V) ≤ 100	0.95	1.00	1.07	1.13	1.19	1.20
160 ~ 250	0.87	1.00	1.17	1.32	1.45	1.50
> 315	0.80	1.00	1.16	1.30	1.41	1.43

## Lifetime Diagram



$I_A$  = actual ripple current at 120Hz,  $I_R$  = rated ripple current at 120Hz, 105°C  
Multiplier of Useful Life as a function of ambient temperature and ripple current load

## Ratings for CD 294 BW Series

U <sub>r</sub> (Surge Voltage) Code	Rated Capa- citan- ce	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
16 (20) 1C	6800	98	68	1.6	22 x 25	ECS1CBW682M□□220025
	10000	66	46	1.99	22 x 30	ECS1CBW103M□□220030
		66	46	1.99	25 x 25	ECS1CBW103M□□250025
	12000	55	39	2.28	22 x 35	ECS1CBW123M□□220035
		55	39	2.3	25 x 30	ECS1CBW123M□□250030
		55	39	2.38	30 x 25	ECS1CBW123M□□300025
	15000	44	31	2.64	22 x 40	ECS1CBW153M□□220040
		44	31	2.68	25 x 35	ECS1CBW153M□□250035
	18000	37	26	2.98	22 x 45	ECS1CBW183M□□220045
		37	26	3.04	25 x 40	ECS1CBW183M□□250040
		37	26	3	30 x 30	ECS1CBW183M□□300030
		37	26	3.1	35 x 25	ECS1CBW183M□□350025
	22000	30	21	3.4	25 x 45	ECS1CBW223M□□250045
		30	21	3.39	30 x 35	ECS1CBW223M□□300035
	27000	25	17	3.81	25 x 50	ECS1CBW273M□□250050
		25	17	3.83	30 x 40	ECS1CBW273M□□300040
		25	17	3.74	35 x 30	ECS1CBW273M□□350030
	33000	20	14	4.3	30 x 45	ECS1CBW333M□□300045
		20	14	4.24	35 x 35	ECS1CBW333M□□350035
	39000	17	12	4.74	30 x 50	ECS1CBW393M□□300050
17		12	4.72	35 x 40	ECS1CBW393M□□350040	
47000	14	10	5.27	35 x 45	ECS1CBW473M□□350045	
25 (32) 1E	4700	113	79	1.55	22 x 25	ECS1EBW472M□□220025
	6800	78	55	1.91	22 x 30	ECS1EBW682M□□220030
		78	55	1.91	25 x 25	ECS1EBW682M□□250025
	8200	65	45	2.14	22 x 35	ECS1EBW822M□□220035
		65	45	2.16	25 x 30	ECS1EBW822M□□250030
		65	45	2.25	30 x 25	ECS1EBW822M□□300025
	10000	53	37	2.4	22 x 40	ECS1EBW103M□□220040
		53	37	2.44	25 x 35	ECS1EBW103M□□250035
	12000	44	31	2.69	22 x 45	ECS1EBW123M□□220045
		44	31	2.74	25 x 40	ECS1EBW123M□□250040
		44	31	2.7	30 x 30	ECS1EBW123M□□300030
		44	31	2.8	35 x 25	ECS1EBW123M□□350025
	15000	35	25	3.15	25 x 45	ECS1EBW153M□□250045
		35	25	3.13	30 x 35	ECS1EBW153M□□300035
		35	25	3.22	35 x 30	ECS1EBW153M□□350030
	18000	30	21	3.54	25 x 50	ECS1EBW183M□□250050
		30	21	3.54	30 x 40	ECS1EBW183M□□300040
	22000	24	17	4.24	30 x 45	ECS1EBW223M□□300045
		24	17	3.96	35 x 35	ECS1EBW223M□□350035
	27000	20	14	4.75	35 x 45	ECS1EBW273M□□350045
33000	16	11	5.39	35 x 50	ECS1EBW333M□□350050	
35 (44) 1V	3300	141	99	1.43	22 x 25	ECS1VBW332M□□220025
	3900	119	83	1.65	22 x 30	ECS1VBW392M□□220030
	4700	99	69	1.78	25 x 25	ECS1VBW472M□□250025
	5600	83	58	2.02	22 x 35	ECS1VBW562M□□220035
		83	58	2.04	25 x 30	ECS1VBW562M□□250030
		83	58	2.12	30 x 25	ECS1VBW562M□□300025
	6800	68	48	2.28	22 x 40	ECS1VBW682M□□220040
		68	48	2.31	25 x 35	ECS1VBW682M□□250035
	8200	57	40	2.67	22 x 50	ECS1VBW822M□□220050
		57	40	2.6	25 x 40	ECS1VBW822M□□250040
		57	40	2.56	30 x 30	ECS1VBW822M□□300030
		57	40	2.78	35 x 25	ECS1VBW822M□□350025
	10000	46	33	2.92	25 x 45	ECS1VBW103M□□250045
		46	33	2.92	30 x 35	ECS1VBW103M□□300035
		39	27	3.26	25 x 50	ECS1VBW123M□□250050
	12000	39	27	3.28	30 x 40	ECS1VBW123M□□300040
		39	27	3.2	35 x 30	ECS1VBW123M□□350030
	15000	31	22	3.74	30 x 45	ECS1VBW153M□□300045
		31	22	3.69	35 x 35	ECS1VBW153M□□350035
	18000	26	18	4.16	35 x 40	ECS1VBW183M□□350040
22000	21	15	4.92	35 x 50	ECS1VBW223M□□350050	
50 (63) 1H	1800	221	155	1.31	22 x 25	ECS1HBW182M□□220025
	2200	181	127	1.45	22 x 30	ECS1HBW222M□□220030
	2700	147	103	1.7	22 x 30	ECS1HBW272M□□220030
		147	103	1.7	25 x 25	ECS1HBW272M□□250025
	3300	121	84	1.98	22 x 35	ECS1HBW332M□□220035
		121	84	2	25 x 30	ECS1HBW332M□□250030
	3900	102	72	2.25	22 x 40	ECS1HBW392M□□220040
		102	72	2.28	25 x 35	ECS1HBW392M□□250035
		102	72	2.22	30 x 25	ECS1HBW392M□□300025
	4700	85	59	2.56	22 x 45	ECS1HBW472M□□220045
		85	59	2.58	30 x 30	ECS1HBW472M□□300030
	5600	85	59	2.67	35 x 25	ECS1HBW472M□□350025
		71	50	2.89	22 x 50	ECS1HBW562M□□220050
		71	50	2.81	25 x 40	ECS1HBW562M□□250040
	6800	71	50	2.95	30 x 35	ECS1HBW562M□□300035
		59	41	3.37	25 x 50	ECS1HBW682M□□250050
		59	41	3.39	30 x 40	ECS1HBW682M□□300040
		59	41	3.31	35 x 30	ECS1HBW682M□□350030

U <sub>r</sub> (Surge Voltage) Code	Rated Capa- citan- ce	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N	
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-	
50 (63) 1H	8200	49	34	3.71	30 x 45	ECS1HBW822M□□300045	
		49	34	3.66	35 x 35	ECS1HBW822M□□350035	
	10000	40	28	4.09	30 x 50	ECS1HBW103M□□300050	
		40	28	4.07	35 x 40	ECS1HBW103M□□350040	
	12000	33	23	4.5	35 x 45	ECS1HBW123M□□350045	
	1800	1200	221	155	1.25	22 x 25	ECS1JBW122M□□220025
		147	103	1.52	22 x 30	ECS1JBW182M□□220030	
	2200	147	103	1.52	25 x 25	ECS1JBW182M□□250025	
		121	84	1.73	22 x 35	ECS1JBW222M□□220035	
		121	84	1.75	25 x 30	ECS1JBW222M□□250030	
98		69	1.97	22 x 40	ECS1JBW272M□□220040		
2700	98	69	1.99	25 x 35	ECS1JBW272M□□250035		
	98	69	1.93	30 x 25	ECS1JBW272M□□300025		
3300	80	56	2.32	22 x 50	ECS1JBW332M□□220050		
	80	56	2.27	25 x 40	ECS1JBW332M□□250040		
	80	56	2.24	30 x 30	ECS1JBW332M□□300030		
	80	56	2.41	35 x 25	ECS1JBW332M□□350025		
3900	68	48	2.54	25 x 45	ECS1JBW392M□□250045		
	68	48	2.55	30 x 35	ECS1JBW392M□□300035		
4700	57	40	2.88	25 x 50	ECS1JBW472M□□250050		
	57	40	2.9	30 x 40	ECS1JBW472M□□300040		
	57	40	2.83	35 x 30	ECS1JBW472M□□350030		
5600	47	33	3.28	30 x 45	ECS1JBW562M□□300045		
	47	33	3.24	35 x 35	ECS1JBW562M□□350035		
6800	39	27	3.73	30 x 50	ECS1JBW682M□□300050		
	39	27	3.71	35 x 40	ECS1JBW682M□□350040		
8200	32	23	4.16	35 x 45	ECS1JBW822M□□350045		
	10000	27	19	4.69	35 x 50	ECS1JBW103M□□350050	
80 (100) 1K	820	324	227	1.11	22 x 25	ECS1KBW821M□□220025	
	1000	266	186	1.25	22 x 25	ECS1KBW102M□□220025	
	1200	221	155	1.39	22 x 30	ECS1KBW122M□□220030	
		221	155	1.39	25 x 25	ECS1KBW122M□□250025	
	1500	177	124	1.61	22 x 35	ECS1KBW152M□□220035	
		177	124	1.62	25 x 30	ECS1KBW152M□□250030	
	1800	147	103	1.83	22 x 40	ECS1KBW182M□□220040	
		147	103	1.81	30 x 25	ECS1KBW182M□□300025	
	2200	121	84	2.09	22 x 45	ECS1KBW222M□□220045	
		121	84	2.01	25 x 35	ECS1KBW222M□□250035	
		121	84	2.1	30 x 30	ECS1KBW222M□□300030	
		121	84	2.17	35 x 25	ECS1KBW222M□□350025	
	2700	98	69	2.43	25 x 45	ECS1KBW272M□□250045	
		98	69	2.43	30 x 35	ECS1KBW272M□□300035	
	3300	80	56	2.76	25 x 50	ECS1KBW332M□□250050	
		80	56	2.78	30 x 40	ECS1KBW332M□□300040	
	3900	80	56	2.71	35 x 30	ECS1KBW332M□□350030	
		68	48	3.12	30 x 45	ECS1KBW392M□□300045	
	4700	68	48	3.07	35 x 35	ECS1KBW392M□□350035	
		57	40	3.56	30 x 50	ECS1KBW472M□□300050	
5600	57	40	3.5	35 x 40	ECS1KBW472M□□350040		
	47	33	3.87	35 x 45	ECS1KBW562M□□350045		
6800	39	27	4.19	35 x 50	ECS1KBW682M□□350050		
	560	474	332	1.07	22 x 25	ECS2ABW561M□□220025	
820	324	227	1.35	22 x 30	ECS2ABW821M□□220030		
	324	227	1.35	25 x 25	ECS2ABW821M□□250025		
1000	265	186	1.54	22 x 35	ECS2ABW102M□□220035		
	265	186	1.56	25 x 30	ECS2ABW102M□□250030		
1200	221	155	1.74	22 x 40	ECS2ABW122M□□220040		
	221	155	1.76	25 x 35	ECS2ABW122M□□250035		
1500	221	155	1.71	30 x 25	ECS2ABW122M□□300025		
	177	124	1.99	22 x 45	ECS2ABW152M□□220045		
	177	124	2.03	25 x 40	ECS2ABW152M□□250040		
1800	177	124	2	30 x 30	ECS2ABW152M□□300030		
	177	124	2.07	35 x 25	ECS2ABW152M□□350025		
2200	147	103	2.28	25 x 45	ECS2ABW182M□□250045		
	147	103	2.27	30 x 35	ECS2ABW182M□□300035		
2700	121	84	2.57	25 x 50	ECS2ABW222M□□250050		
	121	84	2.59	30 x 40	ECS2ABW222M□□300040		
	121	84	2.52	35 x 30	ECS2ABW222M□□350030		
	98	69	2.94	30 x 45	ECS2ABW272M□□300045		
3300	98	69	2.9	35 x 35	ECS2ABW272M□□350035		
	80	56	3.32	30 x 50	ECS2ABW332M□□300050		
3900	80	56	3.31	35 x 40	ECS2ABW332M□□350040		
	68	48	3.69	35 x 45	ECS2ABW392M□□350045		
4700	57	40	4.14	35 x 50	ECS2ABW472M□□350050		
	330	603	422	1.16	22 x 25	ECS2CBW331M□□250025	
160 (200) 2C	390	510	357	1.43	22 x 30	ECS2CB	



## Ratings for CD 294 BW Series

$U_r$ (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
450 (500) 2W	56	4739	2370	0.47	22 x 25	ECS2WBW560M□□220025
	68	3903	1951	0.56	22 x 30	ECS2WBW680M□□220030
		3903	1951	0.56	25 x 25	ECS2WBW680M□□250025
	82	3237	1618	0.65	22 x 35	ECS2WBW820M□□220035
	100	2654	1327	0.7	22 x 40	ECS2WBW101M□□220040
		2654	1327	0.7	25 x 30	ECS2WBW101M□□250030
	120	2212	1106	0.73	22 x 45	ECS2WBW121M□□220045
		2212	1106	0.73	25 x 35	ECS2WBW121M□□250035
	150	1769	885	0.78	22 x 50	ECS2WBW151M□□220050
		1769	885	0.82	25 x 40	ECS2WBW151M□□250040
		1769	885	0.83	30 x 30	ECS2WBW151M□□300030
	180	1474	737	0.87	25 x 45	ECS2WBW181M□□250045
		1474	737	0.86	30 x 35	ECS2WBW181M□□300035
	220	1206	603	0.94	25 x 50	ECS2WBW221M□□250050
		1206	603	0.95	30 x 40	ECS2WBW221M□□300040
		1206	603	0.91	35 x 30	ECS2WBW221M□□350030
	270	983	492	1.11	30 x 45	ECS2WBW271M□□300045
		983	492	1.13	35 x 35	ECS2WBW271M□□350035
	330	804	402	1.15	30 x 50	ECS2WBW331M□□300050
		804	402	1.26	35 x 40	ECS2WBW331M□□350040
	390	681	340	1.31	35 x 45	ECS2WBW391M□□350045
	470	565	282	1.5	35 x 50	ECS2WBW471M□□350050
	560	473	237	1.7	35 x 55	ECS2WBW561M□□350055
680	391	196	2	35 x 60	ECS2WBW681M□□350060	
	391	196	2	40 x 50	ECS2WBW681M□□400050	
820	324	162	2.2	35 x 65	ECS2WBW821M□□350065	
	324	162	2.3	40 x 60	ECS2WBW821M□□400060	
1000	265	139	2.6	35 x 70	ECS2WBW102M□□350070	
500 (550) 2H	39	6805	3403	0.35	22 x 25	ECS2HBW390M□□220025
	47	5647	2823	0.41	22 x 30	ECS2HBW470M□□220030
	56	4739	2370	0.47	22 x 35	ECS2HBW560M□□220035
	68	3903	1951	0.54	22 x 40	ECS2HBW680M□□220040
	82	3237	1618	0.62	25 x 30	ECS2HBW820M□□250030
	100	2654	1327	0.67	25 x 35	ECS2HBW101M□□250035
		2212	1106	0.77	25 x 40	ECS2HBW121M□□250040
	120	2212	1106	0.72	30 x 30	ECS2HBW121M□□300030
		1769	885	0.85	30 x 40	ECS2HBW151M□□300040
	180	1474	737	1.01	30 x 45	ECS2HBW181M□□300045
	220	1206	603	1.12	35 x 35	ECS2HBW221M□□350035
	270	983	492	1.29	35 x 40	ECS2HBW271M□□350040
	330	804	402	1.4	35 x 45	ECS2HBW331M□□350045
	390	681	340	1.6	35 x 50	ECS2HBW391M□□350050
	470	565	282	1.8	35 x 60	ECS2HBW471M□□350060
	560	473	237	1.9	35 x 65	ECS2HBW561M□□350065
680	391	196	2.2	35 x 70	ECS2HBW681M□□350070	
550 (600) 2Y	180	1474	737	1.06	30 x 50	ECS2YBW181M□□300050
		1474	737	1.06	35 x 35	ECS2YBW181M□□350035
	220	1206	603	1.18	30 x 55	ECS2YBW221M□□300055
		1206	603	1.18	35 x 40	ECS2YBW221M□□350040
	270	983	492	1.31	35 x 45	ECS2YBW271M□□350045
	330	804	402	1.5	35 x 50	ECS2YBW331M□□350050
	390	681	340	1.67	35 x 60	ECS2YBW391M□□350060
	470	565	282	1.95	35 x 70	ECS2YBW471M□□350070
	560	473	237	2.1	35 x 80	ECS2YBW561M□□350080
		473	237	2.1	40 x 70	ECS2YBW561M□□400070

Customer products are available on request.