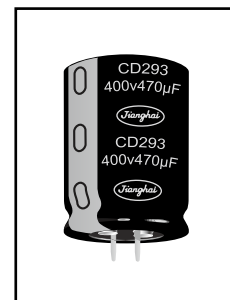
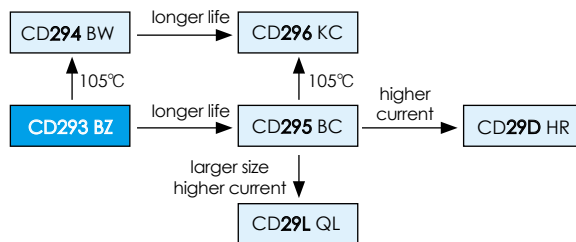


CD293 BZ SERIES



2000h at 85°C

■ Standard 85°C

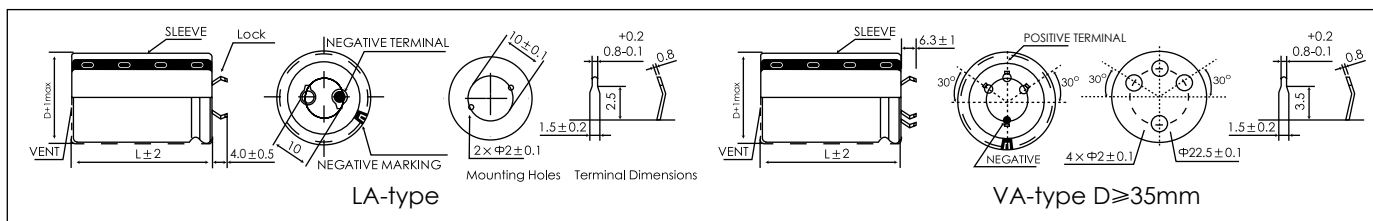


Items	Characteristics								
Operating Temperature Range (℃)	-40 ~ +85				-25 ~ +85				
Voltage range (V)	10 ~ 400				420 ~ 500				
Capacitance Range (μF)	100 ~ 82000								
Capacitance Tolerance (20℃ , 120Hz)	± 20%								
Leakage Current (μA)	After 5 minutes at 20℃ application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, whichever is smaller. C: Nominal Capacitance (μF) V: Rated Voltage (V)								
Dissipation Factor (20℃ , 120Hz)	Rated Voltage (V) Cap (μF)	10~16	25	35~50	63	80~100	Rated Voltage (V) Φ (mm)	160~200	250~500
	≤ 2700	-	-	0.20	0.15	0.15	22 ~ 30	0.10	0.15
	3300 ~ 4700	-	0.35	0.25	0.20	0.15			
	5600 ~ 6800	0.40	0.35	0.30	0.20	0.20	35 ~ 40	0.12	0.15
	≥ 8200	0.40	0.35	0.35	0.25	0.25			
Stability at Low Temperature (Impedance Ratio at 120Hz)	Rated Voltage (V)	10	10~35	50~100	160~200	250~400	420~500		
	Z _{-25℃} / Z _{+20℃}	5	4	3		4			
	Z _{-40℃} / Z _{+20℃}	18	15	10	6	12	-		

	Useful Life		Load Life	Endurance Test	Shelf Life
Life Time	4000h	> 65000h	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 ± 15% of initial value	Within ± 20% of initial value	Within ± 15% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 150% of specified value	Not more than 200% of specified value	Not more than 150% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U_R I_R 85°C	U_R $1.2 \times I_R$ 40°C	U_R I_R 85°C	U_R $I_R = 0$ 85°C	$U_R = 0$ $I_R = 0$ 85°C After test: U_R to be applied for 30 min > 24h before measurement

Dimensions

mm



Ratings for CD293 BZ Series

U _r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
10 (13) 1A	18000	30	24	3.6	25X30	ECS1ABZ183M □□ 250030
	22000	25	20	4	22X40	ECS1ABZ223M □□ 220040
	25000	25	20	4.1	25X35	ECS1ABZ223M □□ 250035
	33000	17	13	4.6	25X40	ECS1ABZ333M □□ 250040
	39000	14	10.9	5.2	30X30	ECS1ABZ333M □□ 300030
	47000	14	10.9	5.3	30X35	ECS1ABZ393M □□ 250045
	56000	12	9.1	6	30X40	ECS1ABZ473M □□ 300040
	68000	12	9.1	6	35X30	ECS1ABZ563M □□ 350030
	82000	9.5	7.6	6.8	35X35	ECS1ABZ683M □□ 350035
	100000	7.9	6.3	7.7	35X40	ECS1ABZ823M □□ 350040
	120000	6.5	5.2	8.7	35X45	ECS1ABZ1023M □□ 350045
	150000	36	29	3.3	22X40	ECS1CBZ153M □□ 220040
16 (20) 1C	18000	36	29	3.3	25X30	ECS1CBZ153M □□ 250030
	22000	30	24	3.8	22X45	ECS1CBZ183M □□ 220045
	25000	30	24	3.7	25X35	ECS1CBZ183M □□ 250035
	33000	25	20	4.2	25X40	ECS1CBZ223M □□ 250040
	39000	20	16	5	30X30	ECS1CBZ223M □□ 300030
	47000	20	16	5	30X35	ECS1CBZ273M □□ 300035
	56000	17	13	5.6	35X30	ECS1CBZ333M □□ 350030
	68000	14	11	6.3	35X35	ECS1CBZ393M □□ 350035
	82000	12	9.1	7.2	35X40	ECS1CBZ473M □□ 350040
	100000	9.5	7.6	8	35X45	ECS1CBZ563M □□ 350045
	120000	47	38	2.9	22X40	ECS1EBZ103M □□ 220040
	150000	47	38	2.8	25X30	ECS1EBZ103M □□ 250030
25 (32) 1E	18000	39	31	3.2	25X35	ECS1EBZ123M □□ 250035
	22000	39	31	3.4	30X30	ECS1EBZ123M □□ 300030
	25000	31	25	3.7	25X40	ECS1EBZ153M □□ 250040
	33000	31	25	3.9	35X25	ECS1EBZ153M □□ 350025
	39000	26	21	4.2	30X35	ECS1EBZ183M □□ 300035
	47000	26	21	4.4	35X30	ECS1EBZ183M □□ 350030
	56000	22	17	5	35X35	ECS1EBZ223M □□ 350035
	68000	15	12	6.5	35X40	ECS1EBZ333M □□ 350040
	82000	12	10	7.5	35X45	ECS1EBZ393M □□ 350045
	100000	10	8	8.8	35X50	ECS1EBZ473M □□ 350050
	120000	72	57	2.3	22X35	ECS1VBZ562M □□ 220035
	150000	72	57	2.3	25X30	ECS1VBZ562M □□ 250030
35 (44) 1V	18000	59	47	2.9	22X40	ECS1VBZ682M □□ 220040
	22000	59	47	2.6	25X35	ECS1VBZ682M □□ 250035
	25000	57	46	2.8	25X40	ECS1VBZ822M □□ 250040
	33000	47	38	3.2	30X30	ECS1VBZ822M □□ 300030
	39000	47	38	2.8	35X20	ECS1VBZ103M □□ 350020
	47000	39	31	3.6	35X30	ECS1VBZ123M □□ 350030
	56000	31	25	4.1	35X35	ECS1VBZ153M □□ 350035
	68000	26	21	4.7	35X40	ECS1VBZ183M □□ 350040
	82000	22	17	5.3	35X45	ECS1VBZ223M □□ 350045
	100000	18	14	7	35X50	ECS1VBZ273M □□ 350050
	120000	120	97	1.7	22X25	ECS1HBZ222M □□ 220025
	150000	86	69	2.1	25X30	ECS1HBZ392M □□ 250030
50 (63) 1H	18000	71	57	2.4	22X40	ECS1HBZ472M □□ 220040
	22000	71	57	2.4	25X35	ECS1HBZ472M □□ 250035
	25000	72	57	2.5	25X40	ECS1HBZ562M □□ 250040
	33000	72	57	2.5	30X30	ECS1HBZ562M □□ 300030
	39000	59	47	2.8	25X45	ECS1HBZ682M □□ 250045
	47000	59	47	2.8	30X35	ECS1HBZ682M □□ 300035
	56000	57	46	3	30X40	ECS1HBZ822M □□ 300040
	68000	57	46	3	35X30	ECS1HBZ822M □□ 350030
	82000	47	38	3.4	35X35	ECS1HBZ103M □□ 350035
	100000	39	31	3.8	35X40	ECS1HBZ123M □□ 350040
	120000	31	25	4.5	35X50	ECS1HBZ153M □□ 350050
	150000	74	59	2.3	25X30	ECS1JBZ272M □□ 250030
63 (79) 1J	18000	81	65	2.3	22X40	ECS1JBZ332M □□ 220040
	22000	81	65	2.3	25X35	ECS1JBZ332M □□ 250035
	25000	69	55	2.6	25X40	ECS1JBZ392M □□ 250040
	33000	69	55	2.6	30X30	ECS1JBZ392M □□ 300030
	39000	56	45	3	25X45	ECS1JBZ472M □□ 250045
	47000	56	45	3	30X30	ECS1JBZ472M □□ 300030
	56000	48	38	3.3	35X30	ECS1JBZ562M □□ 350030
	68000	40	32	3.7	35X35	ECS1JBZ682M □□ 350035
	82000	41	33	3.8	35X40	ECS1JBZ822M □□ 350040
	100000	34	27	4.3	35X45	ECS1JBZ103M □□ 350045
	120000	28	23	4.8	35X50	ECS1JBZ123M □□ 350050
	150000	111	89	1.9	25X30	ECS1KBZ182M □□ 250030
80 (100) 1K	18000	91	73	2.2	25X35	ECS1KBZ222M □□ 250035
	22000	91	73	2.2	30X25	ECS1KBZ222M □□ 300025
	25000	74	59	2.5	25X40	ECS1KBZ272M □□ 250040
	33000	74	59	2.5	30X30	ECS1KBZ272M □□ 300030
	39000	61	49	2.8	25X45	ECS1KBZ332M □□ 250045
	47000	61	49	2.8	30X35	ECS1KBZ332M □□ 300035
	56000	52	41	3.1	25X50	ECS1KBZ392M □□ 250050
	68000	52	41	3.2	35X30	ECS1KBZ392M □□ 350030
	82000	43	34	3.6	35X35	ECS1KBZ472M □□ 350035
	100000	48	38	3.8	35X40	ECS1KBZ562M □□ 350040
	120000	40	32	4.1	35X45	ECS1KBZ682M □□ 350045
	150000	41	33	4.7	35X50	ECS1KBZ822M □□ 350050

U _r (Surge Voltage) Code	Rated Capa- ciance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N	
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-	
100 (125) 2A	1200	166	133	1.6	25X30	ECS2ABZ122M □□ 250030	
	1500	133	107	1.8	22X40	ECS2ABZ152M □□ 220040	
		133	107	1.7	25X35	ECS2ABZ152M □□ 250035	
	1800	111	89	2	25X40	ECS2ABZ182M □□ 250040	
		111	89	2.1	30X30	ECS2ABZ182M □□ 300030	
	2200	91	73	2.3	30X35	ECS2ABZ222M □□ 300035	
		91	73	2.5	35X30	ECS2ABZ222M □□ 350030	
	2700	74	59	2.6	25X50	ECS2ABZ272M □□ 250050	
		74	59	2.7	30X40	ECS2ABZ272M □□ 300040	
	3300	61	49	3.1	35X35	ECS2ABZ332M □□ 350035	
	3900	52	41	3.4	35X40	ECS2ABZ392M □□ 350040	
	4700	43	34	4	35X50	ECS2ABZ472M □□ 350050	
160 (200) 2C	470	283	226	1.6	25X30	ECS2CBZ471M □□ 250030	
	560	237	190	1.9	22X35	ECS2CBZ561M □□ 220035	
		237	190	1.9	25X30	ECS2CBZ561M □□ 250030	
	680	196	157	2.1	22X40	ECS2CBZ681M □□ 220040	
		196	157	2.2	25X35	ECS2CBZ681M □□ 250035	
	820	162	130	2.4	25X40	ECS2CBZ821M □□ 250040	
		162	130	2.5	30X30	ECS2CBZ821M □□ 300030	
	1000	133	107	2.8	30X35	ECS2CBZ102M □□ 300035	
		160	128	2.7	35X30	ECS2CBZ102M □□ 350030	
	1200	133	107	3	35X35	ECS2CBZ122M □□ 350035	
	1500	107	85	3.5	35X40	ECS2CBZ152M □□ 350040	
	1800	89	71	3.9	35X45	ECS2CBZ182M □□ 350045	
2200	73	58	4.5	35X50	ECS2CBZ222M □□ 350050		
180 (225) 2K	680	196	157	2.2	25X40	ECS2KBZ681M □□ 250040	
		196	157	2.3	30X30	ECS2KBZ681M □□ 300030	
	820	162	130	2.6	30X35	ECS2KBZ821M □□ 300035	
		195	156	2.5	35X30	ECS2KBZ821M □□ 350030	
	1000	133	107	2.9	25X50	ECS2KBZ102M □□ 250050	
		133	107	2.9	30X40	ECS2KBZ102M □□ 300040	
	1200	133	107	3.1	35X35	ECS2KBZ122M □□ 350035	
		1500	107	85	3.6	35X45	ECS2KBZ152M □□ 350045
	1800	89	71	4.1	35X50	ECS2KBZ182M □□ 350050	
	200 (250) 2D	390	341	273	1.6	25X30	ECS2DBZ391M □□ 250030
		470	283	226	1.7	22X35	ECS2DBZ471M □□ 220035
			283	226	1.9	30X25	ECS2DBZ471M □□ 300025
560		237	190	2	25X35	ECS2DBZ561M □□ 250035	
		237	190	2.1	30X30	ECS2DBZ561M □□ 300030	
680		196	157	2.3	25X40	ECS2DBZ681M □□ 250040	
		196	157	2.4	30X35	ECS2DBZ681M □□ 300035	
820		162	130	2.7	30X40	ECS2DBZ821M □□ 300040	
		195	156	2.5	35X30	ECS2DBZ821M □□ 350030	
1000		160	128	2.8	35X35	ECS2DBZ102M □□ 350035	
		1200	133	107	3.2	35X40	ECS2DBZ122M □□ 350040
1500		107	85	3.8	35X50	ECS2DBZ152M □□ 350050	
250 (300) 2E	330	603	483	1.4	22X40	ECS2EBZ331M □□ 220040	
		603	483	1.4	25X30	ECS2EBZ331M □□ 250030	
	390	511	409	1.6	22X45	ECS2EBZ391M □□ 220045	
		511	409	1.6	25X35	ECS2EBZ391M □□ 250035	
	470	424	339	1.8	25X40	ECS2EBZ471M □□ 250040	
		424	339	1.8	30X30	ECS2EBZ471M □□ 300030	
	560	356	285	2	25X45	ECS2EBZ561M □□ 250045	
		356	285	2	30X35	ECS2EBZ561M □□ 300035	
	680	293	235	2.3	30X40	ECS2EBZ681M □□ 300040	
		293	235	2.3	35X30	ECS2EBZ681M □□ 350030	
	820	243	195	2.4	25X40	ECS2EBZ821M □□ 250040	
		243	195	2.6	30X45	ECS2EBZ821M □□ 300045	
1000	243	195	2.6	35X35	ECS2EBZ821M □□ 350035		
	199	160	3	35X40	ECS2EBZ102M □□ 350040		
315 (365) 2F	1200	166	133	3.4	35X45	ECS2FBZ122M □□ 350045	
	180	1106	885	0.96	25X30	ECS2FBZ181M □□ 250030	
		905	724	1.1	22X40	ECS2FBZ221M □□ 220040	
	220	905	724	1.1	25X35	ECS2FBZ221M □□ 250035	
		737	590	1.2	22X45	ECS2FBZ271M □□ 220045	
	270	737	590	1.3	25X40	ECS2FBZ271M □□ 250040	
		737	590	1.3	30X30	ECS2FBZ271M □□ 300030	
	330	603	483	1.4	25X45	ECS2FBZ331M □□ 250045	
		603	483	1.4	30X35	ECS2FBZ331M □□ 300035	
	390	511	409	1.6	30X40	ECS2FBZ391M □□ 300040	
		511	409	1.6	35X30	ECS2FBZ391M □□ 350030	
	470	424	339	1.8	30X45	ECS2FBZ471M □□ 300045	
424		339	1.8	35X35	ECS2FBZ471M □□ 350035		
560	356	285	2	30X50	ECS2FBZ561M □□ 300050		
	356	285	2	35X40	ECS2FBZ561M □□ 350040		
680	293	235	2.3	35X45	ECS2FBZ681M □□ 350045		
150	1327	1062	0.94	25X30	ECS2VBZ151M □□ 250030		
350 (400) 2V	180	1106	885	1.1	22X40	ECS2VBZ181M □□ 220040	
		1106	885	1.1	30X25	ECS2VBZ181M □□ 300025	
	220	905	724	1.2	25X35	ECS2VBZ221M □□ 250035	
		905	724	1.2	30X30	ECS2VBZ221M □□ 300030	
	270	737	590	1.4	25X45	ECS2VBZ271M □□ 250045	
		737	590	1.4	30X35	ECS2VBZ271M □□ 300035	
	330	603	483	1.6	25X50	ECS2VBZ331M □□ 250050	
		603	483	1.6	35X30	ECS2VBZ331M □□ 350030	
	390	511	409	1.7	30X40	ECS2VBZ391M □□ 300040	
		511	409	1.8	35X35	ECS2VBZ391M □□ 350035	
	470	424	339	2	30X45	ECS2VBZ471M □□ 300045	
		424	339	2	35X40	ECS2VBZ471M □□ 350040	

Ratings for CD293 BZ Series

U_r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
350 (400) 2V	560	356	285	2.3	35X45	ECS2VBZ561M □□ 350045
	680	293	535	2.6	35X50	ECS2VBZ681M □□ 350050
	820	243	195	2.8	35X60	ECS2VBZ821M □□ 350060
	1000	1327	1062	0.89	25X30	ECS2GBZ151M □□ 250030
400 (450) 2G	180	1106	885	1	22X40	ECS2GBZ181M □□ 220040
	180	1106	885	1	25X30	ECS2GBZ181M □□ 250030
	220	905	724	1.1	22X45	ECS2GBZ221M □□ 220045
	220	905	724	1.2	25X40	ECS2GBZ221M □□ 250040
	270	737	590	1.3	25X45	ECS2GBZ271M □□ 250045
	270	737	590	1.5	30X30	ECS2GBZ271M □□ 300030
	330	603	483	1.6	22X50	ECS2GBZ331M □□ 220050
	330	603	483	1.6	25X45	ECS2GBZ331M □□ 250045
	330	603	483	1.7	30X35	ECS2GBZ331M □□ 300035
	390	511	409	1.8	25X45	ECS2GBZ391M □□ 250045
	390	511	409	1.8	35X30	ECS2GBZ391M □□ 350030
	390	511	409	1.9	30X40	ECS2GBZ391M □□ 300040
	470	424	339	2.1	35X35	ECS2GBZ471M □□ 350035
	560	356	285	2.3	35X40	ECS2GBZ561M □□ 350040
	680	293	235	2.7	35X45	ECS2GBZ681M □□ 350045
	820	242	194	3.1	35X50	ECS2GBZ821M □□ 350050
	1000	133	107	3.7	35X60	ECS2GBZ102M □□ 350060
	1200	166	89	4.2	40X60	ECS2GBZ102M □□ 400060
	1500	133	71	5	40X70	ECS2GBZ102M □□ 400070
	1800	111	59	5.8	40X80	ECS2GBZ102M □□ 400080
420 (470) 2X	120	1658	1327	0.82	25X30	ECS2XBZ121M □□ 250030
	150	1327	1062	0.96	25X30	ECS2XBZ151M □□ 250030
	180	1106	885	1.1	25X35	ECS2XBZ181M □□ 250035
	180	1106	885	1.2	30X30	ECS2XBZ181M □□ 300030
	220	905	724	1.2	25X40	ECS2XBZ221M □□ 250040
	220	905	724	1.3	30X30	ECS2XBZ221M □□ 300030
	270	737	590	1.3	25X45	ECS2XBZ271M □□ 250045
	270	737	590	1.4	30X30	ECS2XBZ271M □□ 300030
	330	603	483	1.7	30X40	ECS2XBZ331M □□ 300040
	390	511	409	1.8	30X45	ECS2XBZ391M □□ 300045
	390	511	409	1.9	35X35	ECS2XBZ391M □□ 350035
	470	424	339	2.0	30X45	ECS2XBZ471M □□ 300045
	470	424	339	2.2	35X40	ECS2XBZ471M □□ 350040

U_r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Typ ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(mΩ)	(mΩ)	(Arms)	(mm)	-
420 (470) 2X	560	356	285	2.4	35X45	ECS2XBZ561M □□ 350045
	680	293	235	2.8	35X50	ECS2XBZ681M □□ 350050
	820	242	194	3.2	35X60	ECS2XBZ821M □□ 350060
	1000	133	107	4	40X60	ECS2XBZ102M □□ 400060
450 (500) 2W	120	1658	1327	0.83	25X30	ECS2WBZ121M □□ 250030
	150	1327	1062	0.95	22X45	ECS2WBZ151M □□ 220045
	150	1327	1062	0.95	25X35	ECS2WBZ151M □□ 250045
	180	1106	885	1.1	25X40	ECS2WBZ181M □□ 250040
	180	1106	885	1.1	30X30	ECS2WBZ181M □□ 300030
	220	905	724	1.2	22X50	ECS2WBZ221M □□ 220050
	220	905	724	1.2	25X40	ECS2WBZ221M □□ 250040
	220	905	724	1.2	30X30	ECS2WBZ221M □□ 300030
	270	737	590	1.4	30X30	ECS2WBZ271M □□ 300030
	330	603	480	1.6	30X40	ECS2WBZ331M □□ 300040
	390	511	409	1.7	30X40	ECS2WBZ391M □□ 300040
	390	511	409	1.8	35X35	ECS2WBZ391M □□ 350035
	470	424	339	2.1	30X45	ECS2WBZ471M □□ 300045
	560	356	285	2.3	35X45	ECS2WBZ561M □□ 350045
	680	293	235	2.7	35X50	ECS2WBZ681M □□ 350050
	820	242	194	3.2	35X60	ECS2WBZ821M □□ 350060
	1000	133	107	4.2	35X70	ECS2WBZ102M □□ 350070
	1200	166	89	4.4	40X70	ECS2WBZ122M □□ 400070
	1500	133	71	5.2	40X80	ECS2WBZ152M □□ 400080
	1800	111	59	6.3	40X100	ECS2WBZ152M □□ 400100
500 (550) 2H	100	1990	1592	0.75	25X30	ECS2HBZ101M □□ 250030
	120	1658	1327	0.83	25X30	ECS2HBZ121M □□ 250030
	150	1327	1062	0.95	30X30	ECS2HBZ151M □□ 300030
	180	1106	885	1.1	25X40	ECS2HBZ181M □□ 250040
	180	1106	885	1.1	30X30	ECS2HBZ181M □□ 300030
	220	905	724	1.3	25X45	ECS2HBZ221M □□ 250045
	220	905	724	1.3	30X35	ECS2HBZ221M □□ 300035
	270	737	590	1.5	30X40	ECS2HBZ271M □□ 300040
	330	603	483	1.6	35X35	ECS2HBZ331M □□ 350035
	390	511	409	1.9	35X40	ECS2HBZ391M □□ 350040
	470	424	339	2.2	35X45	ECS2HBZ471M □□ 350045
	560	356	285	2.4	35X50	ECS2HBZ561M □□ 350050
	680	293	235	2.7	35X50	ECS2HBZ681M □□ 350050

Customer products are available on request.

Frequency Coefficient

Frequency	50/60Hz	120Hz	300Hz	1kHz	10kHz	≥ 50kHz
Voltage (V)						
≤ 50	0.88	1.00	1.07	1.15	1.15	1.15
63 ~ 100	0.80	1.00	1.17	1.32	1.45	1.50
≥ 160	0.80	1.00	1.16	1.30	1.41	1.43

Temperature Coefficient

Temperature(°C)	+40	+55	+70	+85
Rated Voltage (V)				
< 160	2.1	1.8	1.5	1.0
≥ 160	1.7	1.5	1.3	1.0

Life Time Diagram

