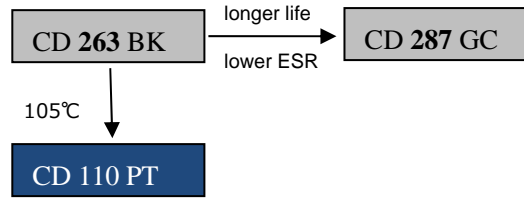


## 2000h at 85°C

- Standard 85°C
- Load life of 2000 hours at 85°C
- High and stable quality
- Small size and low cost
- For general consumer electronic products application

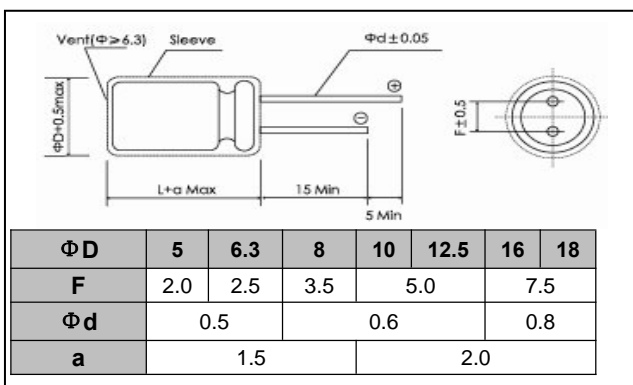


Items	Characteristics	
Operating Temperature Range(°C)	-40 ~ +85	-25 ~ +85
Voltage Range (V)	6.3~ 250	315 ~ 500
Capacitance Range(μF)	0.1 ~ 22000	
Capacitance Tolerance (20°C,120Hz)	±20%	
Leakage Current (μA)	<b>6.3~100V</b>	<b>160~500V</b>
	After 1 minute at 20°C application of rated voltage, leakage current is not more than 0.01CV or 3, whichever is greater.	After 2 minutes at 20°C application of rated voltage, leakage current is not more than 0.03CV+10
C:Nominal Capacitance(μF) V:Rated Voltage(V)		
Dissipation Factor (20°C, 120Hz)	<b>Rated Voltage(V)</b>	<b>6.3 10 16 25 35 50 63 100 160 200 250~350 400 450 500</b>
	<b>Tan δ(max)</b>	0.22 0.19 0.16 0.14 0.12 0.10 0.09 0.08 0.12 0.15 0.20 0.23
When nominal capacitance is over 1000μF tan δ shall be added 0.02 to the listed value with increase of every 1000μF		
Stability at Low Temperature (Impedance Ratio at 120Hz)	<b>Rated Voltage(V)</b>	<b>6.3 10 16 25 35 50 63 100 160 200 250 315~500</b>
	<b>Z<sub>-25°C</sub>/Z<sub>+20°C</sub></b>	4 3 2 3 6
	<b>Z<sub>-40°C</sub>/Z<sub>+20°C</sub></b>	8 6 4 3 -

	Useful Life		Load Life	Endurance Test	Shelf Life
<b>Lifetime</b>	$\phi \leq 8:3000h$ $\phi \geq 10:4000h$	$\phi \leq 8:35000h$ $\phi \geq 10:50000h$	2000h	2000h	1000h
<b>Leakage Current</b>	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
<b>Capacitance Change</b>	Within ±50% of initial value		Within ±20% of initial value	Within ±20% of initial value	Within ±20% of initial value
<b>Dissipation Factor</b>	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 150% of specified value	Not more than 200% of specified value
<b>Condition: Applied Voltage Applied Current Applied Temperature</b>	$U_R$ $I_R$ 85°C	$U_R$ $1.4 \times I_R$ 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 30min>24h before measurement

## Dimensions

mm



## Frequency Coefficient

Rated Voltage(V)	Frequency CV(μFV)	50-60 Hz	120 Hz	1kHz	10k Hz	100k Hz
		6.3~16	ALL CV value	0.80	1.00	1.10
25~35	≤1000	0.80	1.00	1.50	1.70	1.70
	>1000	0.80	1.00	1.20	1.30	1.30
50~100	≤1000	0.80	1.00	1.60	1.90	1.90
	>1000	0.80	1.00	1.20	1.30	1.30
160~500	ALL CV value	0.80	1.00	1.30	1.50	1.60

## Temperature Coefficient

Temperature(°C)	+70	+85
Coefficient	1.35	1



# CD 110 PT Series

## Ratings for CD 110 PT Series

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD×L	P/N	U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD×L	P/N
(v)	(μF)	(Ω)	(mA <sub>rms</sub> )	(mm)	-	(v)	(μF)	(Ω)	(mA <sub>rms</sub> )	(mm)	-
6.3 (7.2) 0J	220	1.33	200	5×11.5	ECR0JPT221M□□050011	35 (44) 1V	4.7	33.9	40	5×11.5	ECR1VPT4R7M□□050011
	330	0.88	270	6.3×11.5	ECR0JPT331M□□063011		10	15.9	59	5×11.5	ECR1VPT100M□□050011
	470	0.62	322	6.3×11.5	ECR0JPT471M□□063011		22	7.24	87	5×11.5	ECR1VPT220M□□050011
	1000	0.29	546	8×11.5	ECR0JPT102M□□080011		33	4.83	107	5×11.5	ECR1VPT330M□□050011
	2200	0.14	1010	10×20	ECR0JPT222M□□100020		47	3.39	130	5×11.5	ECR1VPT470M□□050011
	3300	0.10	1230	10×20	ECR0JPT332M□□100020		100	1.59	214	6.3×11.5	ECR1VPT101M□□063011
	4700	0.08	1710	12.5×20	ECR0JPT472M□□125020		220	0.72	443	8×11.5	ECR1VPT221M□□080011
	6800	0.06	1930	12.5×25	ECR0JPT682M□□125025		330	0.48	542	10×12.5	ECR1VPT331M□□100012
	10000	0.05	2450	16×25	ECR0JPT103M□□160025		470	0.34	664	10×16	ECR1VPT471M□□100016
	15000	0.04	2860	16×35.5	ECR0JPT153M□□160035		1000	0.16	1210	12.5×20	ECR1VPT102M□□125020
	22000	0.04	3340	18×40	ECR0JPT223M□□180040		2200	0.08	1950	16×25	ECR1VPT222M□□160025
10 (13) 1A	47	5.36	99	5×11.5	ECR1APT470M□□050011	3300	0.06	2510	16×35.5	ECR1VPT332M□□160035	
	100	2.52	146	5×11.5	ECR1APT101M□□050011	4700	0.05	2990	18×35.5	ECR1VPT472M□□180035	
	220	1.15	240	6.3×11.5	ECR1APT221M□□063011	0.1	1327	3	5×11.5	ECR1HPT0R1M□□050011	
	330	0.76	290	6.3×11.5	ECR1APT331M□□063011	0.22	603	6	5×11.5	ECR1HPTR22M□□050011	
	470	0.54	417	8×11.5	ECR1APT471M□□080011	0.33	402	9	5×11.5	ECR1HPTR33M□□050011	
	1000	0.25	650	10×12.5	ECR1APT102M□□100012	0.47	282	13	5×11.5	ECR1HPTR47M□□050011	
	2200	0.13	1080	10×20	ECR1APT222M□□100020	1	133	21	5×11.5	ECR1HPT010M□□050011	
	3300	0.09	1430	12.5×20	ECR1APT332M□□125020	2.2	60.3	31	5×11.5	ECR1HPT2R2M□□050011	
	4700	0.07	1780	12.5×25	ECR1APT472M□□125025	3.3	40.2	38	5×11.5	ECR1HPT3R3M□□050011	
	6800	0.06	2220	16×25	ECR1APT682M□□160025	4.7	28.2	45	5×11.5	ECR1HPT4R7M□□050011	
	10000	0.05	2700	16×35.5	ECR1APT103M□□160035	10	13.3	66	5×11.5	ECR1HPT100M□□050011	
15000	0.04	3100	18×35.5	ECR1APT153M□□180035	22	6.03	98	5×11.5	ECR1HPT220M□□050011		
16 (20) 1C	10	21.2	50	5×11.5	ECR1CPT100M□□050011	33	4.02	126	5×11.5	ECR1HPT330M□□050011	
	22	9.65	75	5×11.5	ECR1CPT220M□□050011	47	2.82	155	6.3×11.5	ECR1HPT470M□□063011	
	33	6.43	92	5×11.5	ECR1CPT330M□□050011	100	1.33	260	8×11.5	ECR1HPT101M□□080011	
	47	4.52	110	5×11.5	ECR1CPT470M□□050011	220	0.60	443	10×12.5	ECR1HPT221M□□100012	
	100	2.12	160	5×11.5	ECR1CPT101M□□050011	330	0.40	595	10×16	ECR1HPT331M□□100016	
	220	0.97	264	6.3×11.5	ECR1CPT221M□□063011	470	0.28	887	12.5×20	ECR1HPT471M□□125020	
	330	0.64	383	8×11.5	ECR1CPT331M□□080011	1000	0.13	1400	16×25	ECR1HPT102M□□160025	
	470	0.45	457	8×11.5	ECR1CPT471M□□080011	2200	0.07	2340	16×35.5	ECR1HPT222M□□160035	
	1000	0.21	791	10×16	ECR1CPT102M□□100016	3300	0.06	2810	18×35.5	ECR1HPT332M□□180035	
	2200	0.11	1350	12.5×20	ECR1CPT222M□□125020	4.7	25.4	45	5×11.5	ECR1HPT4R7M□□050011	
	3300	0.08	1690	12.5×25	ECR1CPT332M□□125025	10	11.9	66	5×11.5	ECR1HPT100M□□050011	
25 (32) 1E	4700	0.06	2100	16×25	ECR1CPT472M□□160025	22	5.43	100	5×11.5	ECR1HPT220M□□050011	
	6800	0.05	2580	16×35.5	ECR1CPT682M□□160035	33	3.62	140	6.3×11.5	ECR1HPT330M□□063011	
	10000	0.05	3130	18×35.5	ECR1CPT103M□□180035	47	2.54	170	6.3×11.5	ECR1HPT470M□□063011	
	4.7	39.5	38	5×11.5	ECR1EPT4R7M□□050011	100	1.19	300	10×12.5	ECR1HPT101M□□100012	
	10	18.6	55	5×11.5	ECR1EPT100M□□050011	220	0.54	470	10×16	ECR1HPT221M□□100016	
	22	8.44	82	5×11.5	ECR1EPT220M□□050011	330	0.36	710	10×20	ECR1HPT331M□□100020	
	33	5.63	100	5×11.5	ECR1EPT330M□□050011	470	0.25	900	12.5×20	ECR1HPT471M□□125020	
	47	3.95	118	5×11.5	ECR1EPT470M□□050011	1000	0.12	1300	16×25	ECR1HPT102M□□160025	
	100	1.86	199	6.3×11.5	ECR1EPT101M□□063011	0.1	1062	2.1	5×11.5	ECR2APT0R1M□□050011	
	220	0.84	349	8×11.5	ECR1EPT221M□□080011	0.22	483	4.7	5×11.5	ECR2APTR22M□□050011	
	330	0.56	510	10×12.5	ECR1EPT331M□□100012	0.33	322	7	5×11.5	ECR2APTR33M□□050011	
470	0.40	545	10×12.5	ECR1EPT471M□□100012	0.47	226	10	5×11.5	ECR2APTR47M□□050011		
1000	0.19	996	10×20	ECR1EPT102M□□100020	1	106.2	21	5×11.5	ECR2APT010M□□050011		
2200	0.10	1660	12.5×25	ECR1EPT222M□□125025	2.2	48.3	30	5×11.5	ECR2APT2R2M□□050011		
3300	0.07	2030	16×25	ECR1EPT332M□□160025	3.3	32.2	40	5×11.5	ECR2APT3R3M□□050011		
4700	0.06	2650	16×31.5	ECR1EPT472M□□160031	4.7	22.6	45	5×11.5	ECR2APT4R7M□□050011		
6800	0.05	3290	18×35.5	ECR1EPT682M□□180035	10	10.6	75	6.3×11.5	ECR2APT100M□□063011		

# CD 110 PT Series

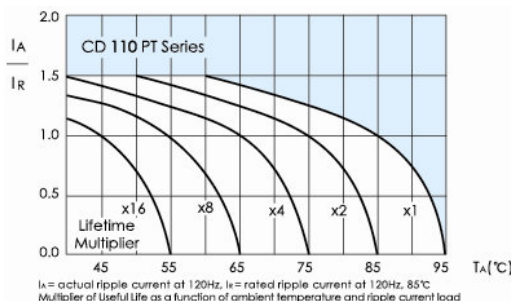


## Ratings for CD 110 PT Series

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size Φ D X L (mm)	P/N	
(v)	(μF)	(Ω)	(mA <sub>RMS</sub> )	(mm)	-	
100 (125) 2A	22	4.83	130	6.3×11.5	ECR2APT220M□□063011	
	33	3.22	180	8×11.5	ECR2APT330M□□080011	
	47	2.26	230	10×12.5	ECR2APT470M□□100012	
	100	1.06	370	10×20	ECR2APT101M□□100020	
	220	0.48	620	12.5×25	ECR2APT221M□□125025	
	330	0.32	760	16×25	ECR2APT331M□□160025	
	470	0.23	1000	16×25	ECR2APT471M□□160025	
	1000	0.11	1380	18×40	ECR2APT102M□□180040	
160 (200) 2C	0.47	339	15	6.3×11.5	ECR2CPT47M□□063011	
	1	159	22	6.3×11.5	ECR2CPT010M□□063011	
	2.2	72.4	32	6.3×11.5	ECR2CPT2R2M□□063011	
	3.3	48.3	40	6.3×11.5	ECR2CPT3R3M□□063011	
	4.7	33.9	48	6.3×11.5	ECR2CPT4R7M□□063011	
	10	15.9	81	8×11.5	ECR2CPT100M□□080011	
	22	7.24	151	10×16	ECR2CPT220M□□100016	
	33	4.83	202	10×20	ECR2CPT330M□□100020	
	47	3.39	266	12.5×20	ECR2CPT470M□□125020	
	100	1.59	422	12.5×25	ECR2CPT101M□□125025	
	220	0.72	783	16×31.5	ECR2CPT221M□□160031	
	330	0.48	1080	18×31.5	ECR2CPT331M□□180031	
200 (250) 2D	0.47	339	15	6.3×11.5	ECR2DPT47M□□063011	
	1	159	22	6.3×11.5	ECR2DPT010M□□063011	
	2.2	72.4	32	6.3×11.5	ECR2DPT2R2M□□063011	
	3.3	48.3	40	6.3×11.5	ECR2DPT3R3M□□063011	
	4.7	33.9	56	8×11.5	ECR2DPT4R7M□□080011	
	10	15.9	94	8×11.5	ECR2DPT100M□□080011	
	22	7.24	170	10×20	ECR2DPT220M□□100020	
	33	4.83	223	12.5×20	ECR2DPT330M□□125020	
	47	3.39	265	12.5×20	ECR2DPT470M□□125020	
	100	1.59	483	16×25.5	ECR2DPT101M□□160025	
	220	0.72	882	18×36	ECR2DPT221M□□180036	
	250 (300) 2E	0.47	423	15	6.3×11.5	ECR2EPT47M□□063011
1		199	22	6.3×11.5	ECR2EPT010M□□063011	
2.2		90.5	32	6.3×11.5	ECR2EPT2R2M□□063011	
3.3		60.3	48	8×11.5	ECR2EPT3R3M□□080011	
4.7		42.3	56	8×11.5	ECR2EPT4R7M□□080011	
10		19.9	101	10×12.5	ECR2EPT100M□□100012	
22		9.05	182	10×20	ECR2EPT220M□□100020	
33		6.03	243	12.5×20	ECR2EPT330M□□125020	
47		4.23	295	12.5×25	ECR2EPT470M□□125025	
100		1.99	528	16×31.5	ECR2EPT101M□□160031	
315 (350) 2F		0.47	423	15	6.3×11.5	ECR2FPT47M□□063011
		1	199	22	6.3×11.5	ECR2FPT010M□□063011
	2.2	90.5	38	8×11.5	ECR2FPT2R2M□□080011	
	3.3	60.3	53	10×12.5	ECR2FPT3R3M□□100012	

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size Φ D X L (mm)	P/N	
(v)	(μF)	(Ω)	(mA <sub>RMS</sub> )	(mm)	-	
315 (350) 2F	4.7	42.3	65	10×12.5	ECR2FPT47M□□100012	
	10	19.9	115	10×16	ECR2FPT100M□□100016	
	22	9.05	182	12.5×20	ECR2FPT220M□□125020	
	33	6.03	277	16×25.5	ECR2FPT330M□□160025	
	47	4.23	330	16×25.5	ECR2FPT470M□□160025	
	100	1.99	567	18×31.5	ECR2FPT101M□□180031	
	350 (400) 2V	0.47	423.5	15	6.3×11.5	ECR2VPT47M□□063011
		1	199	22	6.3×11.5	ECR2VPT010M□□063011
2.2		90.5	38	6.3×11.5	ECR2VPT2R2M□□063011	
3.3		60.3	53	8×11.5	ECR2VPT3R3M□□080011	
4.7		42.3	65	10×12.5	ECR2VPT47M□□100012	
10		19.9	115	10×20	ECR2VPT100M□□100020	
22		9.05	197	12.5×20	ECR2VPT220M□□125020	
33		6.03	277	12.5×25	ECR2VPT330M□□125025	
47		4.23	330	16×25.5	ECR2VPT470M□□160025	
100		1.99	507	18×31.5	ECR2VPT101M□□180031	
400 (450) 2G		0.47	565	15	6.3×11.5	ECR2GPT47M□□063011
		1	265	22	6.3×11.5	ECR2GPT010M□□063011
	2.2	121	38	8×11.5	ECR2GPT2R2M□□080011	
	3.3	80.4	54	10×12.5	ECR2GPT3R3M□□100012	
	4.7	56.5	71	10×12.5	ECR2GPT47M□□100012	
	10	26.5	123	10×20	ECR2GPT100M□□100020	
	22	12.1	197	12.5×25	ECR2GPT220M□□125025	
	33	8.04	277	16×25.5	ECR2GPT330M□□160025	
	47	5.65	361	16×25.5	ECR2GPT470M□□160025	
	68	3.9	423	18×25.5	ECR2GPT680M□□180025	
	82	3.2	509	18×31.5	ECR2GPT820M□□180031	
	100	2.7	595	18×36	ECR2GPT101M□□180036	
450 (500) 2W	0.47	649	18	6.3×11.5	ECR2WPT47M□□063011	
	1	305	25	6.3×11.5	ECR2WPT010M□□063011	
	2.2	139	43	8×11.5	ECR2WPT2R2M□□080011	
	3.3	92.5	59	10×12.5	ECR2WPT3R3M□□100012	
	4.7	64.9	76	10×16	ECR2WPT47M□□100016	
	10	30.5	123	10×20	ECR2WPT100M□□100020	
	22	13.9	226	12.5×25	ECR2WPT220M□□125025	
	33	9.2	304	16×25.5	ECR2WPT330M□□160025	
	47	6.5	380	16×31.5	ECR2WPT470M□□160031	
	68	4.5	436	18×25.5	ECR2WPT680M□□180025	
	82	3.7	530	18×31.5	ECR2WPT820M□□180031	
	100	2.6	610	18×36	ECR2WPT101M□□180036	
500 (550) 2H	1	305	35	10×12.5	ECR2HPT010M□□100012	
	2.2	139	45	10×16	ECR2HPT2R2M□□100016	
	3.3	92.5	75	10×20	ECR2HPT3R3M□□100020	
	4.7	64.9	100	12.5×20	ECR2HPT47M□□125020	
10	30.5	165	12.5×25	ECR2HPT100M□□125025		

## Lifetime Diagram



Customer products are available on request.