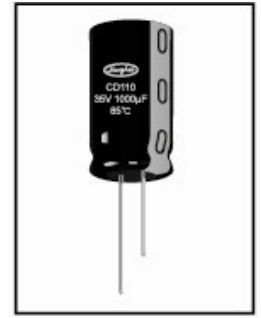
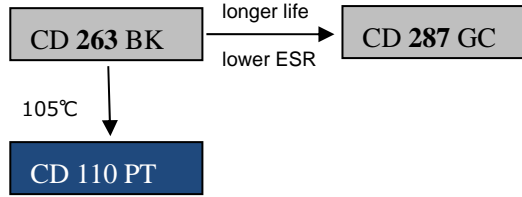


## 2000h at 85°C

- 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

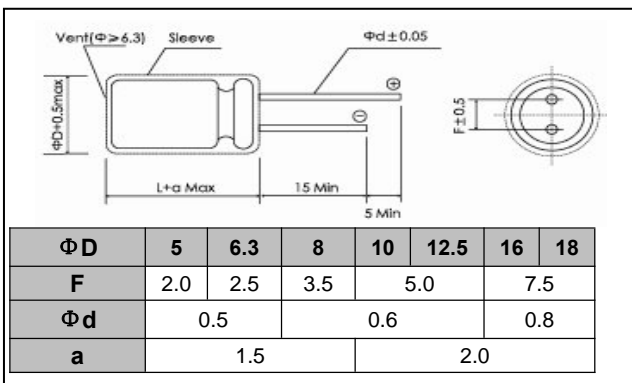


Items	Characteristics																																																								
Operating Temperature Range(°C)	-40 ~ +85	-25 ~ +85																																																							
Voltage Range (V)	6.3~ 250	315 ~ 500																																																							
Capacitance Range(μF)	0.1 ~ 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)	<table border="1"> <thead> <tr> <th>Rated Voltage(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250~350</th> <th>400</th> <th>450</th> <th>500</th> </tr> </thead> <tbody> <tr> <td>Tan δ(max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.12</td> <td>0.15</td> <td>0.20</td> <td>0.23</td> <td></td> <td></td> </tr> </tbody> </table>														Rated Voltage(V)	6.3	10	16	25	35	50	63	100	160	200	250~350	400	450	500	Tan δ(max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.12	0.15	0.20	0.23															
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	160	200	250~350	400	450	500																																										
Tan δ(max)	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)	<table border="1"> <thead> <tr> <th>Rated Voltage(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th colspan="3">315~500</th> </tr> </thead> <tbody> <tr> <td>Z<sub>-25°C</sub>/Z<sub>+20°C</sub></td> <td>4</td> <td>3</td> <td colspan="3">2</td> <td colspan="3">3</td> <td colspan="3">6</td> <td colspan="3"></td> </tr> <tr> <td>Z<sub>-40°C</sub>/Z<sub>+20°C</sub></td> <td>8</td> <td>6</td> <td>4</td> <td colspan="3">3</td> <td colspan="3">8</td> <td colspan="3">-</td> </tr> </tbody> </table>														Rated Voltage(V)	6.3	10	16	25	35	50	63	100	160	200	250	315~500			Z <sub>-25°C</sub> /Z <sub>+20°C</sub>	4	3	2			3			6						Z <sub>-40°C</sub> /Z <sub>+20°C</sub>	8	6	4	3			8			-		
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	160	200	250	315~500																																												
	Z <sub>-25°C</sub> /Z <sub>+20°C</sub>	4	3	2			3			6																																															
Z <sub>-40°C</sub> /Z <sub>+20°C</sub>	8	6	4	3			8			-																																															

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	φ ≤ 8:3000h φ ≥ 10:4000h	φ ≤ 8:35000h φ ≥ 10:50000h	2000h	2000h	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 ±50% 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 150% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U <sub>R</sub> I <sub>R</sub> 85°C	U <sub>R</sub> 1.4 x I <sub>R</sub> 40°C	U <sub>R</sub> I <sub>R</sub> 85°C	U <sub>R</sub> I <sub>R</sub> = 0 85°C	U <sub>R</sub> = 0 I <sub>R</sub> = 0 85°C  After test: U <sub>R</sub> 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

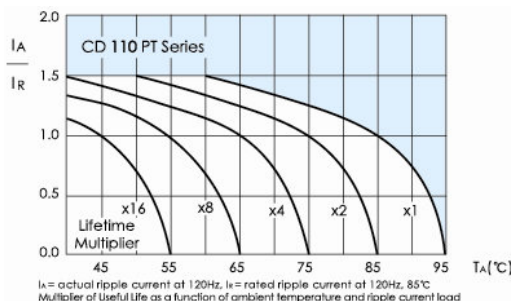


## Ratings for CD 110 PT Series

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	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	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
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
450 (500) 2W	82	3.2	509	18×31.5	ECR2GPT820M□□180031
	100	2.7	595	18×36	ECR2GPT101M□□180036
	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
500 (550) 2H	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
	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.