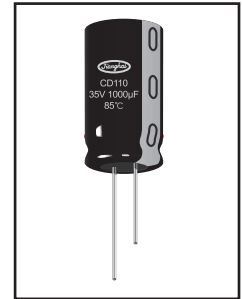
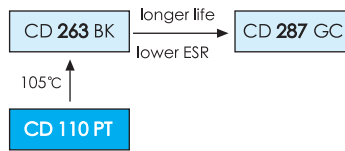


CD 110 PT SERIES



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

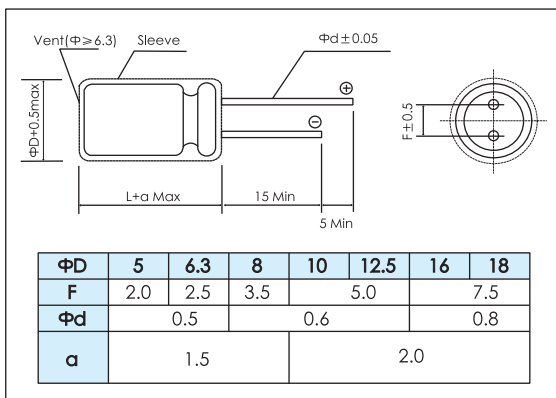


Items	Characteristics																																																						
Operating Temperature Range (°C)	-40 ~ +85	-25 ~ +85																																																					
Voltage Range (V)	6.3 ~ 250	315 ~ 500																																																					
Capacitance Range (µF)	0.1 ~ 22000																																																						
Capacitance Tolerance (20°C, 120Hz)	± 20%																																																						
Leakage Current (µA)	6.3 ~ 100V	160 ~ 500V																																																					
	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_{-25°C} / Z_{+20°C}</td> <td>4</td> <td>3</td> <td></td> <td colspan="4">2</td> <td></td> <td>3</td> <td colspan="3">6</td> </tr> <tr> <td>Z_{-40°C} / Z_{+20°C}</td> <td>8</td> <td>6</td> <td>4</td> <td colspan="4">3</td> <td></td> <td>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 _{-25°C} / Z _{+20°C}	4	3		2					3	6			Z _{-40°C} / Z _{+20°C}	8	6	4	3					8	-		
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315~500																																										
	Z _{-25°C} / Z _{+20°C}	4	3		2					3	6																																												
Z _{-40°C} / Z _{+20°C}	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 _R I _R 85°C	U _R 1.4 × 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)	Frequency				
		50/60Hz	120Hz	1kHz	10kHz	100kHz
6.3 ~ 16	ALL CV value	0.80	1.00	1.10	1.20	1.20
	≤ 1000	0.80	1.00	1.50	1.70	1.70
25 ~ 35	> 1000	0.80	1.00	1.20	1.30	1.30
	≤ 1000	0.80	1.00	1.60	1.90	1.90
50 ~ 100	> 1000	0.80	1.00	1.20	1.30	1.30
	ALL CV value	0.80	1.00	1.30	1.50	1.60

Temperature Coefficient

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

Ratings for CD 110 PT Series

U _r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mA _{rms})	(mm)	-
6.3 (7.2) 0J	220	1.33	200	5×11.5	ECR0JPT221M□□050011
	330	0.88	270	6.3×11.5	ECR0JPT331M□□063011
	470	0.62	322	6.3×11.5	ECR0JPT471M□□063011
	1000	0.29	546	8×11.5	ECR0JPT102M□□080011
	2200	0.14	1010	10×20	ECR0JPT222M□□100020
	3300	0.10	1230	10×20	ECR0JPT332M□□100020
	4700	0.08	1710	12.5×20	ECR0JPT472M□□125020
	6800	0.06	1930	12.5×25	ECR0JPT682M□□125025
	10000	0.05	2450	16×25	ECR0JPT103M□□160025
	15000	0.04	2860	16×35.5	ECR0JPT153M□□160035
22000	0.04	3340	18×40	ECR0JPT223M□□180040	
10 (13) 1A	47	5.36	99	5×11.5	ECR1APT470M□□050011
	100	2.52	146	5×11.5	ECR1APT101M□□050011
	220	1.15	240	6.3×11.5	ECR1APT221M□□063011
	330	0.76	290	6.3×11.5	ECR1APT331M□□063011
	470	0.54	417	8×11.5	ECR1APT471M□□080011
	1000	0.25	650	10×12.5	ECR1APT102M□□100012
	2200	0.13	1080	10×20	ECR1APT222M□□100020
	3300	0.09	1430	12.5×20	ECR1APT332M□□125020
	4700	0.07	1780	12.5×25	ECR1APT472M□□125025
	6800	0.06	2220	16×25	ECR1APT682M□□160025
10000	0.05	2700	16×35.5	ECR1APT103M□□160035	
15000	0.04	3100	18×35.5	ECR1APT153M□□180035	
16 (20) 1C	10	21.2	50	5×11.5	ECR1CPT100M□□050011
	22	9.65	75	5×11.5	ECR1CPT220M□□050011
	33	6.43	92	5×11.5	ECR1CPT330M□□050011
	47	4.52	110	5×11.5	ECR1CPT470M□□050011
	100	2.12	160	5×11.5	ECR1CPT101M□□050011
	220	0.97	264	6.3×11.5	ECR1CPT221M□□063011
	330	0.64	383	8×11.5	ECR1CPT331M□□080011
	470	0.45	457	8×11.5	ECR1CPT471M□□080011
	1000	0.21	791	10×16	ECR1CPT102M□□100016
	2200	0.11	1350	12.5×20	ECR1CPT222M□□125020
3300	0.08	1690	12.5×25	ECR1CPT332M□□125025	
4700	0.06	2100	16×25	ECR1CPT472M□□160025	
6800	0.05	2580	16×35.5	ECR1CPT682M□□160035	
10000	0.05	3130	18×35.5	ECR1CPT103M□□180035	
25 (32) 1E	4.7	39.5	38	5×11.5	ECR1EPT4R7M□□050011
	10	18.6	55	5×11.5	ECR1EPT100M□□050011
	22	8.44	82	5×11.5	ECR1EPT220M□□050011
	33	5.63	100	5×11.5	ECR1EPT330M□□050011
	47	3.95	118	5×11.5	ECR1EPT470M□□050011
	100	1.86	199	6.3×11.5	ECR1EPT101M□□063011
	220	0.84	349	8×11.5	ECR1EPT221M□□080011
	330	0.56	510	10×12.5	ECR1EPT331M□□100012
	470	0.40	545	10×12.5	ECR1EPT471M□□100012
	1000	0.19	996	10×20	ECR1EPT102M□□100020
2200	0.10	1660	12.5×25	ECR1EPT222M□□125025	
3300	0.07	2030	16×25	ECR1EPT332M□□160025	
4700	0.06	2650	16×31.5	ECR1EPT472M□□160031	
6800	0.05	3290	18×35.5	ECR1EPT682M□□180035	
35 (44) 1V	4.7	33.9	40	5×11.5	ECR1VPT4R7M□□050011
	10	15.9	59	5×11.5	ECR1VPT100M□□050011
	22	7.24	87	5×11.5	ECR1VPT220M□□050011
	33	4.83	107	5×11.5	ECR1VPT330M□□050011
	47	3.39	130	5×11.5	ECR1VPT470M□□050011
	100	1.59	214	6.3×11.5	ECR1VPT101M□□063011
	220	0.72	443	8×11.5	ECR1VPT221M□□080011
	330	0.48	542	10×12.5	ECR1VPT331M□□100012
	470	0.34	664	10×16	ECR1VPT471M□□100016
	1000	0.16	1210	12.5×20	ECR1VPT102M□□125020
2200	0.08	1950	16×25	ECR1VPT222M□□160025	
3300	0.06	2510	16×35.5	ECR1VPT332M□□160035	
4700	0.05	2990	18×35.5	ECR1VPT472M□□180035	

U _r (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mA _{rms})	(mm)	-
50 (63) 1H	0.1	1327	3	5×11.5	ECR1HPT0R1M□□050011
	0.22	603	6	5×11.5	ECR1HPTR22M□□050011
	0.33	402	9	5×11.5	ECR1HPTR33M□□050011
	0.47	282	13	5×11.5	ECR1HPT47M□□050011
	1	133	21	5×11.5	ECR1HPT010M□□050011
	2.2	60.3	31	5×11.5	ECR1HPT2R2M□□050011
	3.3	40.2	38	5×11.5	ECR1HPT3R3M□□050011
	4.7	28.2	45	5×11.5	ECR1HPT4R7M□□050011
	10	13.3	66	5×11.5	ECR1HPT100M□□050011
	22	6.03	98	5×11.5	ECR1HPT220M□□050011
	33	4.02	126	5×11.5	ECR1HPT330M□□050011
	47	2.82	155	6.3×11.5	ECR1HPT470M□□063011
	100	1.33	260	8×11.5	ECR1HPT101M□□080011
	220	0.60	443	10×12.5	ECR1HPT221M□□100012
	330	0.40	595	10×16	ECR1HPT331M□□100016
470	0.28	887	12.5×20	ECR1HPT471M□□125020	
1000	0.13	1400	16×25	ECR1HPT102M□□160025	
2200	0.07	2340	16×35.5	ECR1HPT222M□□160035	
3300	0.06	2810	18×35.5	ECR1HPT332M□□180035	
4.7	25.4	45	5×11.5	ECR1JPT4R7M□□050011	
10	11.9	66	5×11.5	ECR1JPT100M□□050011	
22	5.43	100	5×11.5	ECR1JPT220M□□050011	
33	3.62	140	6.3×11.5	ECR1JPT330M□□063011	
47	2.54	170	6.3×11.5	ECR1JPT470M□□063011	
100	1.19	300	10×12.5	ECR1JPT101M□□100012	
220	0.54	470	10×16	ECR1JPT221M□□100016	
330	0.36	710	10×20	ECR1JPT331M□□100020	
470	0.25	900	12.5×20	ECR1JPT471M□□125020	
1000	0.12	1300	16×25	ECR1JPT102M□□160025	
63 (79) 1J	0.1	1062	2.1	5×11.5	ECR2APT0R1M□□050011
	0.22	483	4.7	5×11.5	ECR2APTR22M□□050011
	0.33	322	7	5×11.5	ECR2APTR33M□□050011
	0.47	226	10	5×11.5	ECR2APTR47M□□050011
	1	106.2	21	5×11.5	ECR2APT010M□□050011
	2.2	48.3	30	5×11.5	ECR2APT2R2M□□050011
	3.3	32.2	40	5×11.5	ECR2APT3R3M□□050011
	4.7	22.6	45	5×11.5	ECR2APT4R7M□□050011
	10	10.6	75	6.3×11.5	ECR2APT100M□□063011
	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	
100 (125) 2A	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

MINIATURE

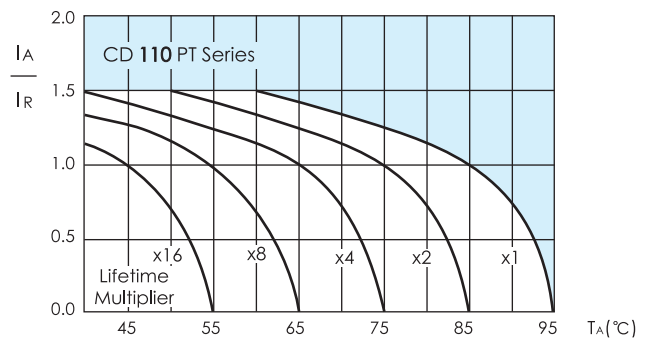
Ratings for CD 110 PT Series

U_R (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size $\Phi D \times L$	P/N
(V)	(μF)	(Ω)	(mA _{rms})	(mm)	-
200 (250) 2D	0.47	339	15	6.3×11.5	ECR2DPTR47M□□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
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	ECR2FPTR47M□□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
	4.7	42.3	65	10×12.5	ECR2FPT4R7M□□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	ECR2VPTR47M□□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	ECR2VPT4R7M□□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	

U_R (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 85°C, 120Hz	Size $\Phi D \times L$	P/N
(V)	(μF)	(Ω)	(mA _{rms})	(mm)	-
400 (450) 2G	0.47	565	15	6.3×11.5	ECR2GPTR47M□□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	ECR2GPT4R7M□□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	ECR2WPTR47M□□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	ECR2WPT4R7M□□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
500 (550) 2H	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	ECR2HPT4R7M□□125020
	10	30.5	165	12.5×25	ECR2HPT100M□□125025

Customer products are available on request.

Lifetime Diagram



I_A = actual ripple current at 120Hz, I_R = rated ripple current at 120Hz, 85°C
Multiplier of Useful Life as a function of ambient temperature and ripple current load