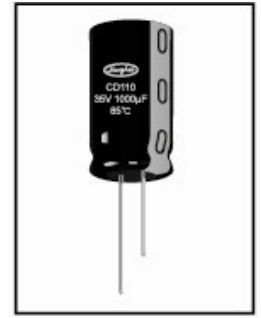
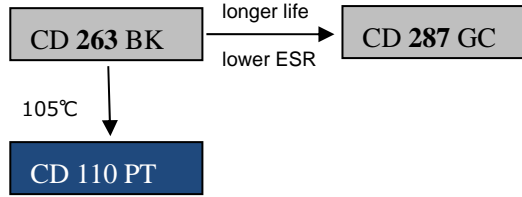


## 2000h at 85°C

- 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

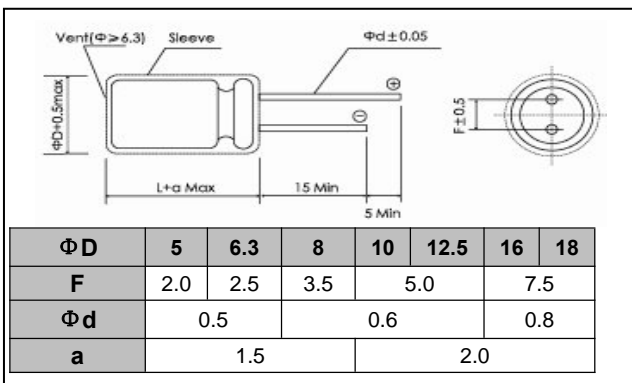


| Items   | Characteristics   |  |      |      |      |      |      |      |      |      |      |         |         |     |                  |     |    |    |    |    |    |    |     |     |     |         |         |     |     |  |      |      |      |      |      |      |      |      |      |      |      |      |  |  |  |   |   |   |   |  |  |   |  |  |   |  |  |
|---|---|--|------|------|------|------|------|------|------|------|------|---------|---------|-----|------------------|-----|----|----|----|----|----|----|-----|-----|-----|---------|---------|-----|-----|--|------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|---|---|---|---|--|--|---|--|--|---|--|--|
| 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<br>φ ≥ 10:4000h              | φ ≤ 8:35000h<br>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:<br>Applied Voltage<br>Applied Current<br>Applied Temperature | U <sub>R</sub><br>I <sub>R</sub><br>85°C | U <sub>R</sub><br>1.4 x I <sub>R</sub><br>40°C | U <sub>R</sub><br>I <sub>R</sub><br>85°C | U <sub>R</sub><br>I <sub>R</sub> = 0<br>85°C | U <sub>R</sub> = 0<br>I <sub>R</sub> = 0<br>85°C<br><br>After test:<br>U <sub>R</sub> to be applied for<br>30min>24h before<br>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><br>(Surge Voltage)<br>Code | Rated Capacitance | Max ESR<br>20°C,<br>120Hz | Rated Ripple Current<br>85°C,<br>120Hz | Size<br>ΦD×L        | P/N                 | U <sub>R</sub><br>(Surge Voltage)<br>Code | Rated Capacitance | Max ESR<br>20°C,<br>120Hz | Rated Ripple Current<br>85°C,<br>120Hz | Size<br>ΦD×L        | P/N                 |
|---|-------------------|---------------------------|--|---------------------|---------------------|---|-------------------|---------------------------|--|---------------------|---------------------|
| (v)                                       | (μF)              | (Ω)                       | (mA <sub>rms</sub> )                   | (mm)                | -                   | (v)                                       | (μF)              | (Ω)                       | (mA <sub>rms</sub> )                   | (mm)                | -                   |
| 6.3<br>(7.2)<br>0J                        | 220               | 1.33                      | 200                                    | 5×11.5              | ECR0JPT221M□□050011 | 35<br>(44)<br>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<br>(13)<br>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<br>(20)<br>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<br>(32)<br>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

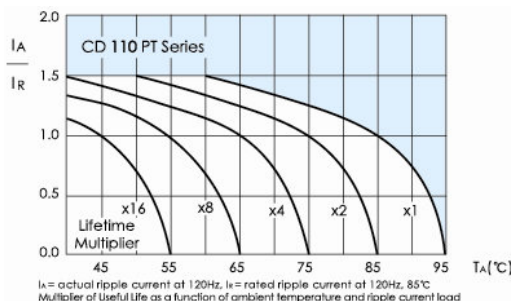


## Ratings for CD 110 PT Series

| U <sub>R</sub><br>(Surge Voltage)<br>Code | Rated Capacitance  | Max ESR<br>20°C, 120Hz | Rated Ripple Current<br>85°C, 120Hz | Size<br>Φ D X L | P/N                 |                     |
|---|--------------------|------------------------|-------------------------------------|-----------------|---------------------|---------------------|
| (v)                                       | (μF)               | (Ω)                    | (mA <sub>RMS</sub> )                | (mm)            | -                   |                     |
| 100<br>(125)<br>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<br>(200)<br>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<br>(250)<br>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<br>(300)<br>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<br>(350)<br>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><br>(Surge Voltage)<br>Code | Rated Capacitance  | Max ESR<br>20°C, 120Hz | Rated Ripple Current<br>85°C, 120Hz | Size<br>Φ D X L     | P/N                 |
|---|--------------------|------------------------|-------------------------------------|---------------------|---------------------|
| (v)                                       | (μF)               | (Ω)                    | (mA <sub>RMS</sub> )                | (mm)                | -                   |
| 315<br>(350)<br>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<br>(400)<br>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<br>(450)<br>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<br>(500)<br>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<br>(550)<br>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.