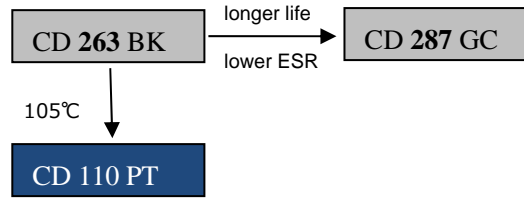


2000h at 85°C

- 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

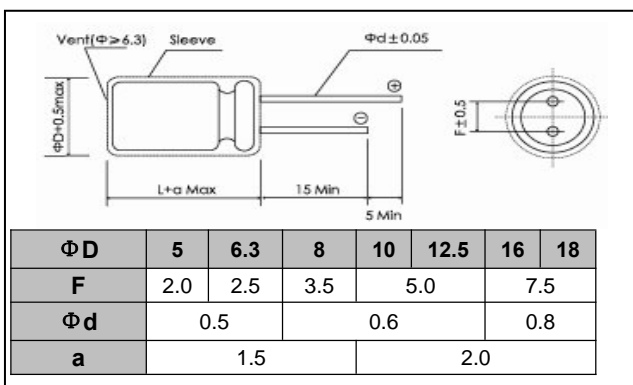


| Items | Characteristics | |
|---|--|--|
| Operating Temperature Range(°C) | -40 ~ +85 | -25 ~ +85 |
| Voltage Range (V) | 6.3~ 250 | 315 ~ 500 |
| Capacitance Range(μF) | 0.1 ~ 22000 | |
| Capacitance Tolerance (20°C,120Hz) | ±20% | |
| Leakage Current (μA) | 6.3~100V | 160~500V |
| | After 1 minute 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) | 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) | 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 - |

| | 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 x 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 | | | |
| 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 _R (Surge Voltage) Code | Rated Capacitance | Max ESR 20°C, 120Hz | Rated Ripple Current 85°C, 120Hz | Size ΦD×L | P/N | U _R (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 _{rms}) | (mm) | - | (v) | (μF) | (Ω) | (mA _{rms}) | (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

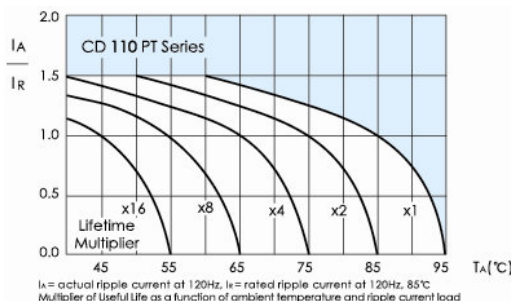


Ratings for CD 110 PT Series

| U _R (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 _{RMS}) | (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 _R (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 _{RMS}) | (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.