

Part Numbering System



① Category code

| Type | Code |
|------------------------|------|
| | 1 |
| Electrolytic Capacitor | E |
| Conductive Polymer | S |

② Series code

| Series name | Code | |
|-------------|------|---|
| | 2 | 3 |
| WH | W | H |
| CD11GE | G | E |
| CD11GES | G | X |
| CD11GAS | G | W |
| CD11GHS | G | S |
| NR | N | R |
| PZ | P | Z |

③ Voltage code

| WV (V _{dc}) | Code | |
|-----------------------|------|---|
| | 4 | 5 |
| 2.5 | 0 | E |
| 3 | 0 | D |
| 4 | 0 | G |
| 6.3 | 0 | J |
| 6.8 | 0 | C |
| 7 | 0 | Q |
| 7.5 | 0 | A |
| 10 | 1 | A |
| 12 | 1 | T |
| 16 | 1 | C |
| 25 | 1 | E |
| 35 | 1 | V |
| 40 | 1 | G |
| 50 | 1 | H |
| 63 | 1 | J |
| 80 | 1 | B |
| 100 | 1 | K |
| 120 | 2 | B |
| 160 | 2 | C |
| 180 | 2 | L |
| 200 | 2 | D |
| 220 | 2 | N |
| 250 | 2 | E |
| 315 | 2 | F |
| 350 | 2 | V |
| 380 | 2 | P |
| 400 | 2 | G |
| 420 | 2 | T |
| 450 | 2 | W |
| 500 | 2 | H |
| 550 | 2 | J |
| 600 | 2 | K |

④ Capacitance tolerance code

| Tol. (%) | Code |
|----------|------|
| | 6 |
| -10~+10 | K |
| -20~+20 | M |
| -10~+30 | Q |
| -10~+20 | V |
| 0~+20 | A |
| -5~+20 | C |
| -10~-20 | B |
| -5~+5 | D |
| 0~+10 | E |
| -5~-20 | F |
| -15~+5 | N |

⑤ Capacitance code

| Cap (μF) | Code | | |
|----------|------|---|---|
| | 7 | 8 | 9 |
| 0.10 | R | 1 | 0 |
| 0.22 | R | 2 | 2 |
| 0.33 | R | 3 | 3 |
| 0.47 | R | 4 | 7 |
| 0.68 | R | 6 | 8 |
| 1 | 0 | 1 | 0 |
| 2.2 | 2 | R | 2 |
| 3.3 | 3 | R | 3 |
| 4.7 | 4 | R | 7 |
| 6.8 | 6 | R | 8 |
| 10 | 1 | 0 | 0 |
| 22 | 2 | 2 | 0 |
| 33 | 3 | 3 | 0 |
| 47 | 4 | 7 | 0 |
| 68 | 6 | 8 | 0 |
| 100 | 1 | 0 | 1 |
| 220 | 2 | 2 | 1 |
| 330 | 3 | 3 | 1 |
| 470 | 4 | 7 | 1 |
| 680 | 6 | 8 | 1 |
| 1000 | 1 | 0 | 2 |
| 2200 | 2 | 2 | 2 |
| 3300 | 3 | 3 | 2 |
| 4700 | 4 | 7 | 2 |
| 6800 | 6 | 8 | 2 |
| 10000 | 1 | 0 | 3 |
| 22000 | 2 | 2 | 3 |
| 33000 | 3 | 3 | 3 |
| 68000 | 6 | 8 | 3 |

⑥ Size code

| ΦD (mm) | Code |
|---------|------|
| 10 | |
| 4 | C |
| 5 | D |
| 6.3 | E |
| 8 | F |
| 10 | G |
| 11 | H |
| 12 | J |
| 12.5 | W |
| 13 | K |
| 14 | X |
| 16 | L |
| 18 | M |
| 19 | Z |
| 20 | N |
| 22 | O |
| 25 | P |
| 30 | Q |
| 35 | R |
| 40 | Y |
| 51.6 | S |
| 64.3 | T |
| 76.9 | U |
| 91 | V |
| 100 | A |

| L (mm) | Code | |
|--------|------|----|
| | 11 | 12 |
| 5 | 0 | 5 |
| 7 | 0 | 7 |
| 11 | 1 | 1 |
| 12 | 1 | 2 |
| 16 | 1 | 6 |
| 20 | 2 | 0 |
| 25 | 2 | 5 |
| 30 | 3 | 0 |
| 35 | 3 | 5 |
| 40 | 4 | 0 |
| 46 | 4 | 6 |
| 50 | 5 | 0 |
| 60 | 6 | 0 |
| 80 | 8 | 0 |
| 100 | A | 0 |
| 115 | B | 5 |
| 120 | C | 0 |
| 130 | D | 0 |
| 140 | E | 0 |
| 160 | G | 0 |
| 200 | K | 0 |
| 220 | M | 0 |
| 236 | N | 6 |
| 250 | P | 0 |

⑦ Terminal code

| Specification | Code | Size | |
|---------------------------------------|------|------|----|
| | 13 | 14 | 15 |
| Bulk packing | O | - | - |
| Taping (SMD Type) | D | 0 | 0 |
| Φ4~8 Taping F=5.0mm | P | 5 | 0 |
| Φ10~12.5 Taping F=5.0mm | B | 5 | 0 |
| Lead Cut L=3.5mm | C | 3 | 5 |
| Lead Cut L=11.0mm | C | B | 0 |
| Lead Forming & Cut L=4.5mm | F | - | - |
| Kink & Cut L=4.5mm | J | - | - |
| Snap-in type Terminal 4.0mm in length | K | - | - |
| Three Terminals | T | - | - |
| Ring clip mounting standard design | A | 0 | 0 |
| Ring clip mounting special design | S | - | - |

⑧ Sleeve/Marking code

| Sleeve/Marking | Code |
|----------------|------|
| | 16 |
| PVC | C |
| PET | T |
| Dark blue | B |
| Bright red | R |
| Sky-blue | S |
| Light blue | T |
| Pink | Z |
| Black | H |
| Purple-blue | V |
| Red | O |

Lead Forming
Taping Specifications

Fig.1 code: X



Fig.2 code: B



Fig.3 code: B



Fig.4 code: P



Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

| Items | Symbol | Case size | | | | | | | | | | Tolerance | | |
|---|--------|------------|-----|------------|------|------|------|-------|----------------|------------------|-----------------------------------|-----------|--------------|--|
| | | 4*5 4*7 | | 5*5 5*7 | | 5*11 | | 6.3*5 | 6.3*7 6.3*9 | 6.3*11 6.3*12 | 8*5/7 8*9/11 8*11.5 8*12 | | 8*16 8*20 | 10*9/12 10*12.5 10*13/16 10*20/25 |
| Pin Code | | X | B | X | B | X | B | B | B | B | B | B | B | |
| Lead wire diameter | Φd | 0.45 | | 0.45 | | 0.5 | | 0.45 | 0.5 | 0.5 | 0.45/0.5 | 0.6 | 0.6 | ±0.05 |
| Pitch of body | P | 12.7 | | 12.7 | | 12.7 | | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±1.0 |
| Feed hole pitch | P0 | 12.7 | | 12.7 | | 12.7 | | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±0.2 |
| Distance from hole center to lead | P1 | 5.1 | 5.6 | 5.1 | 5.35 | 5.1 | 5.35 | 5.1 | 5.1 | 5.1 | 4.6 | 4.6 | 3.85 | ±0.7 |
| Distance from feed hole center to body center | P2 | 6.35 | | 6.35 | | 6.35 | | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | ±1.0 |
| Lead-to-lead distance | F | 2.5 | 1.5 | 2.5 | 2.0 | 2.5 | 2.0 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | 5.0 | ±0.5 |
| Height of body from tape center | H | 18.5 | | 18.5 | | 18.5 | | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | ±0.75 |
| Base tape width | W | 18.0 | | 18.0 | | 18.0 | | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | ±0.5 |
| Adhesive tape width | W0 | 6.0 | | 6.0 | | 6.0 | | 6.0 | 6.0 | 8.0 | 8.0 | 8.0 | 11.0 | min |
| Hole position | W1 | 9.0 | | 9.0 | | 9.0 | | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | +0.75 -0.5 |
| Hole down tape position | W2 | 3.0 | | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | max |

Specification Fig.4

| Items | Symbol | Case size | | | | | | | | | Tolerance |
|---|--------|------------|------|------|------|-------|----------------|------------------|------------------------------|--------------|---------------|
| | | 4*5 4*7 | 5*5 | 5*7 | 5*11 | 6.3*5 | 6.3*7 6.3*9 | 6.3*11 6.3*12 | 8*5/7 8*9/11 8*11.5/12 | 8*16 8*20 | |
| Pin Code | | P | P | P | P | P | P | P | P | P | |
| Lead wire diameter | Φd | 0.45 | 0.45 | 0.45 | 0.5 | 0.45 | 0.5 | 0.5 | 0.45/0.5 | 0.6 | ±0.05 |
| Pitch of body | P | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±1.0 |
| Feed hole pitch | P0 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±0.2 |
| Distance from hole center to lead | P1 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | ±0.7 |
| Distance from feed hole center to body center | P2 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | ±1.0 |
| Lead-to-lead distance | F | 1.5 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | ±0.5 |
| Lead to lead distance | F1 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | +0.8 -0.2 |
| Height of body from tape center | H | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | ±0.75 |
| Lead wire clinch height | H0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | ±0.5 |
| Base tape width | W | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | ±0.5 |
| Adhesive tape width | W0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 8.0 | 8.0 | 8.0 | min |
| Hole position | W1 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | +0.75 -0.5 |
| Hole down tape position | W2 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | max |

Lead Forming

Lead Forming & Cut

Code:C
RANGE: $\Phi 4\sim\Phi 18$



Code:F
RANGE: $\Phi 4\sim\Phi 8$



| ΦD | F | L | ΦD | F | L |
|----------|-----|----------|----------|-----|--------------------|
| 4 | 1.5 | 3.0~12.0 | 4 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 5 | 2.0 | 3.0~12.0 | 5 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 6.3 | 2.5 | 3.0~12.0 | 6.3 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 8 | 3.5 | 3.0~12.0 | 8 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 10 | 5.0 | 3.0~12.0 | - | - | - |
| 12.5 | 5.0 | 3.0~12.0 | - | - | - |
| 16 | 7.5 | 3.0~12.0 | - | - | - |
| 18 | 7.5 | 3.0~12.0 | - | - | - |

Code:J
RANGE: $\Phi 10\sim\Phi 18$



| ΦD | F | L |
|----------|-----|---------------|
| 10 | 5.0 | 4.0, 4.5, 5.0 |
| 12.5 | 5.0 | 4.0, 4.5, 5.0 |
| 16 | 7.5 | 4.0, 4.5, 5.0 |
| 18 | 7.5 | 4.0, 4.5, 5.0 |

Solering Recommendation

■ Flow Soldering(Radial Lead Type)



■ Reflow Soldering

- (For Polymer SMD Type)

Recommended Reflow Profile



| Item | Preheating | T1(°C) | T2(°C) | T3(°C) | t1(sec.) | t2(sec.) | t3(sec.) | Reflow cycle |
|-------------|---------------------------------|--------|--------|--------|----------|----------|----------|--------------|
| Condition 1 | 150°C to 180°C Within 90sec. | ≤260 | 230 | 200 | ≤10 | ≤40 | ≤60 | 1 |
| Condition 2 | | ≤250 | 230 | 200 | ≤10 | ≤40 | ≤60 | 2 |

● (For Liquid SMD Type)

Case size: $\Phi 6.3$ – $\Phi 10$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 200°C and for Maximum 180 seconds.



| Case size (mm) | $T(^{\circ}\text{C})$ ① | $T_1(^{\circ}\text{C})$ | $t(\text{sec.})$ ② | $t_1(\text{sec.})$ ③ | Reflow cycle |
|----------------|-------------------------|-------------------------|--------------------|----------------------|--------------|
| $\Phi 6.3$ | 250 | 230 | 90 | 40 | 1 |
| $\Phi 8$ | 240 | 230 | 90 | 30 | 1 |
| $\Phi 10$ | 235 | 230 | 60 | 30 | 1 |

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Case size: $\Phi 12.5$ – $\Phi 18$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 180°C and for Maximum 150 seconds.

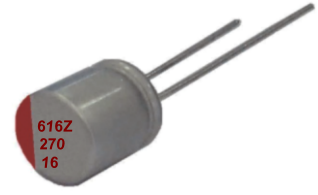


| Case size (mm) | $T(^{\circ}\text{C})$ ① | $T_1(^{\circ}\text{C})$ | $t(\text{sec.})$ ② | $t_1(\text{sec.})$ ③ | Reflow cycle |
|-------------------------|-------------------------|-------------------------|--------------------|----------------------|--------------|
| $\Phi 12.5$ – $\Phi 18$ | 240 | 230 | 60 | 30 | 1 |

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

PZ series

- Endurance: +105°C 2,000 hours
- Low ESR
- Recommended Applications: System Board, Display Card, Small Charger and intelligent TV
- RoHS Compliant and lead-free



SPECIFICATIONS

| Items | Characteristics | |
|--|--|---------------------------------------|
| Category Temperature Range | -55~+105°C | |
| Rated Working Voltage Range | 6.3~100 V _{dc} | |
| Nominal Capacitance Range | 4.7~5600μF | |
| Capacitance Tolerance | ±20%(M) (at 20°C, 120Hz) | |
| DC Leakage Current | I ≤ 0.2CV or 500μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes) | |
| Dissipation Factor (tanδ) | Rated Voltage(V _{dc}) | 6.3 6.8 7.5 10 16 25 35 50 63 100 |
| | tanδ (max.) | 0.08 0.12 0.15 (at 20°C, 120Hz) |
| ESR(100k~300kHz, 20°C) | Value in characteristics table | |
| Temperature Characteristic (Impedance Ratio at 100kHz) | Z(+105°C)/Z(+20°C) ≤ 1.25 Z(-55°C)/Z(+20°C) ≤ 1.25 | |
| Endurance | After applying rated voltage for 2,000 hours at 105°C, the capacitors shall meet the following requirements. | |
| | Appearance | No significant damage |
| | Capacitance Change | ≤ ±20% of the initial value |
| | D.F. (tanδ) | ≤ 150% of the initial specified value |
| | ESR | ≤ 150% of the initial specified value |
| Humidity Test | After subjecting to 90%~95% RH for 2,000 hours at 60°C without voltage applied, the capacitors shall meet the specified values for the Endurance characteristics listed above. | |
| | After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements. | |
| Surge Test | After subjecting to 1,000 cycles each consisting of charge with the surge voltage specified at normal temperature for 30 seconds through a protective resistor and discharge for 5 minutes 30 seconds, the capacitors shall meet the following requirements. | |
| | Appearance | No significant damage |
| | Capacitance Change | ≤ ±20% of the initial value |
| | D.F. (tanδ) | ≤ 150% of the initial specified value |
| | ESR | ≤ 150% of the initial specified value |
| Leakage Current | ≤ The initial specified value | |

Conductive Polymer Radial Type

DIMENSIONS [mm]



| | | | | | | | |
|-----|------------|-----|-----|-----|-----|----------|----------|
| ØD | 5 | 5.5 | 6.3 | 6.8 | 8 | 10 | 13 |
| Ød | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 |
| F | 2.0 | 2.5 | 2.5 | 2.5 | 3.5 | 5.0 | 5.0 |
| ØD' | ØD+0.5max. | | | | | | |
| L' | L+1.0max. | | | | | L-0.5~+1 | L-0.5~+2 |

PART NUMBERING SYSTEM





PZ series

■ STANDARD RATINGS

| VDC (SV) | Cap (μF) | Size ΦDxL(mm) | ESR (mΩ,20°C,100kHz)(max.) | Rated ripple current (mArms/105°C,100kHz) | Leakage Current (μA)(max.) |
|-----------|----------|---------------|----------------------------|---|----------------------------|
| 6.3 (7.2) | 47 | 6.3*5 | 40 | 1100 | 500 |
| | 82 | 6.3*5 | 40 | 1100 | 500 |
| | | 4*7 | 30 | 1500 | 500 |
| | 100 | 5*7 | 30 | 1800 | 500 |
| | | 6.3*6 | 40 | 1900 | 500 |
| | 150 | 4*7 | 2100 | 500 | 500 |
| | | 180 | 5*7 | 30 | 2600 |
| | 220 | 5*7 | 20 | 3500 | 500 |
| | | 6.3*7 | 20 | 3550 | 500 |
| | 270 | 6.3*8 | 15 | 3600 | 500 |
| | | 5*7 | 20 | 3800 | 500 |
| | 330 | 5*6 | 20 | 3200 | 500 |
| | | 5*8 | 20 | 4000 | 500 |
| | 390 | 6.3*5 | 25 | 3160 | 500 |
| | | 6.3*8 | 15 | 4000 | 500 |
| | 470 | 5*9 | 20 | 4100 | 500 |
| | | 5*10 | 20 | 4300 | 592 |
| | 500 | 5.5*9 | 20 | 4100 | 592 |
| | | 6.3*7 | 20 | 3900 | 592 |
| | 560 | 6.3*8 | 15 | 4400 | 592 |
| | | 5*9 | 20 | 4100 | 630 |
| | 680 | 6.3*7 | 20 | 4200 | 706 |
| | | 6.3*8 | 20 | 4800 | 706 |
| | 820 | 5.5*9 | 20 | 4300 | 706 |
| | | 6.3*9 | 20 | 5080 | 857 |
| | 1000 | 5.5*9 | 20 | 4800 | 857 |
| | | 8*9 | 20 | 4600 | 857 |
| | 1200 | 5.5*10 | 20 | 4800 | 1033 |
| | | 6.3*9 | 20 | 5080 | 1033 |
| | 1500 | 8*9 | 15 | 4700 | 1033 |
| | | 6.3*10 | 10 | 5150 | 1260 |
| 1800 | 8*9 | 12 | 4800 | 1260 | |
| | 8*11 | 10 | 5200 | 1260 | |
| 2200 | 6.3*11 | 10 | 5200 | 1512 | |
| | 8*11 | 10 | 5300 | 1512 | |
| 3300 | 8*11 | 10 | 5400 | 1890 | |
| | 10*12 | 10 | 5500 | 1890 | |
| 4700 | 10*10 | 10 | 5560 | 2268 | |
| | 8*14 | 10 | 5700 | 2772 | |
| 5600 | 10*12 | 10 | 5800 | 2772 | |
| | 10*14 | 10 | 5900 | 4158 | |
| 6.8 (7.8) | 220 | 5*7 | 20 | 3300 | 500 |
| | 270 | 5*7 | 20 | 3600 | 500 |
| 330 | 6.3*8 | 20 | 3900 | 500 | |
| | 5*8 | 20 | 3800 | 500 | |
| 390 | 6.3*5 | 25 | 3100 | 500 | |
| | 6.3*7 | 20 | 3400 | 500 | |
| 470 | 5*9 | 20 | 3900 | 530 | |
| | 5*9 | 20 | 4100 | 639 | |
| 560 | 6.3*7 | 20 | 3700 | 639 | |
| | 6.3*8 | 20 | 4500 | 762 | |
| 680 | 6.3*9 | 20 | 4800 | 925 | |
| | 6.3*9 | 20 | 4900 | 1115 | |
| 1000 | 6.3*9 | 12 | 5100 | 1360 | |
| | 6.3*11 | 10 | 5150 | 1360 | |
| 7 (8) | 150 | 5*6 | 30 | 1500 | 500 |
| | 220 | 5*7 | 20 | 3200 | 500 |
| 270 | 5*8 | 20 | 3400 | 500 | |
| | 330 | 5*9 | 20 | 3600 | 500 |
| 470 | 6.3*8 | 20 | 3800 | 658 | |
| | 5.5*9 | 20 | 3600 | 658 | |
| 560 | 6.3*8 | 20 | 4000 | 784 | |
| | 6.3*9 | 12 | 4200 | 952 | |
| 820 | 6.3*10 | 12 | 4500 | 1148 | |
| | 8*9 | 12 | 4600 | 1148 | |
| 7.5 (8.6) | 220 | 5*7 | 20 | 3100 | 500 |
| | 270 | 5*8 | 20 | 3300 | 500 |
| 330 | 5*9 | 20 | 3500 | 500 | |
| | 390 | 5*9 | 20 | 3500 | 585 |
| 470 | 6.3*7 | 25 | 3200 | 705 | |
| | 5.5*9 | 20 | 3550 | 705 | |
| 500 | 5*9 | 20 | 3550 | 705 | |
| | 5.5*8 | 25 | 3100 | 705 | |
| 560 | 5.5*9 | 20 | 3600 | 750 | |
| | 6.3*8 | 20 | 3900 | 840 | |
| 680 | 6.3*9 | 12 | 4100 | 1020 | |
| | 6.8*8 | 20 | 4000 | 1020 | |
| 820 | 6.3*10 | 12 | 4400 | 1230 | |
| | 8*9 | 12 | 4550 | 1230 | |
| 1000 | 8*11 | 12 | 4700 | 1500 | |
| | 6.3*11 | 12 | 4500 | 1500 | |
| 1200 | 8*11 | 12 | 4800 | 1800 | |
| | 6.8*11 | 12 | 4600 | 1800 | |

PZ series

■ STANDARD RATINGS

| VDC (SV) | Cap (μF) | Size ΦDxL(mm) | ESR (mΩ,20°C,100kHz)(max.) | Rated ripple current (mArms/105°C,100kHz) | Leakage Current (μA)(max.) | |
|-----------|-----------|---------------|----------------------------|---|----------------------------|-----|
| 7.5 (8.6) | 1500 | 8*11 | 12 | 4900 | 2250 | |
| | | 7*13 | 12 | 4800 | 2250 | |
| | | 8*14 | 12 | 5100 | 2700 | |
| | | 10*12 | 12 | 5700 | 3300 | |
| | 10 (11.5) | 47 | 5*7 | 35 | 2200 | 500 |
| | | | 5*7 | 35 | 2250 | 500 |
| | | | 5*7 | 35 | 2300 | 500 |
| | | | 5*7 | 35 | 2350 | 500 |
| | | 100 | 5*7 | 35 | 2400 | 500 |
| | | | 6.3*5 | 30 | 2300 | 500 |
| | | 120 | 5*5 | 30 | 2000 | 500 |
| | | | 5*7 | 20 | 2450 | 500 |
| 150 | | 5*7 | 20 | 2500 | 500 | |
| | | 6.3*7 | 20 | 2800 | 500 | |
| 180 | | 5*8 | 20 | 2700 | 500 | |
| | | 5*9 | 20 | 2820 | 500 | |
| 220 | 6.3*5 | 25 | 2800 | 500 | | |
| | 6.3*8 | 15 | 3160 | 500 | | |
| 270 | 6.3*8 | 20 | 3100 | 540 | | |
| | 6.3*8 | 20 | 3300 | 660 | | |
| 330 | 8*9 | 15 | 3400 | 660 | | |
| | 6.3*10 | 12 | 3500 | 660 | | |
| 390 | 6.3*8 | 20 | 3400 | 780 | | |
| | 5.5*9 | 20 | 3400 | 940 | | |
| 470 | 6.3*8 | 20 | 3500 | 940 | | |
| | 8*9 | 15 | 3550 | 940 | | |
| 560 | 8*11 | 12 | 5650 | 940 | | |
| | 6.3*10 | 13 | 3600 | 1120 | | |
| 680 | 8*9 | 15 | 3600 | 1120 | | |
| | 6.3*11 | 15 | 3800 | 1360 | | |
| 820 | 8*11 | 12 | 3900 | 1360 | | |
| | 8*8 | 20 | 3300 | 1360 | | |
| 1000 | 8*11 | 12 | 4000 | 1640 | | |
| | 8*11 | 12 | 4200 | 2000 | | |
| 1200 | 10*12 | 10 | 5300 | 2000 | | |
| | 8*12 | 10 | 4500 | 2400 | | |
| 1500 | 10*12 | 10 | 5450 | 2400 | | |
| | 10*12 | 10 | 5500 | 3000 | | |
| 1800 | 8*14 | 10 | 4800 | 3000 | | |
| | 10*13 | 10 | 5800 | 3600 | | |
| 2200 | 10*15 | 10 | 6100 | 4400 | | |
| | 10*18 | 10 | 6200 | 5000 | | |
| 3300 | 4*10 | 15 | 2100 | 528 | | |
| | 5.5*9 | 20 | 3100 | 792 | | |
| 4700 | 6.3*8 | 20 | 3100 | 792 | | |
| | 5*10 | 20 | 3100 | 792 | | |
| 5600 | 5.5*9 | 20 | 3200 | 1128 | | |
| | 6.3*9 | 20 | 3450 | 1128 | | |
| 6.8 (7.8) | 330 | 6.3*10 | 15 | 3400 | 1344 | |
| | | 6.3*11 | 15 | 3600 | 1632 | |
| 820 | 8*10 | 15 | 3700 | 1632 | | |
| | 8*11 | 12 | 3800 | 1968 | | |
| 1000 | 6.8*11 | 13 | 3200 | 1968 | | |
| | 8*12 | 12 | 4000 | 2400 | | |
| 1200 | 8*14 | 12 | 4400 | 2880 | | |
| | 8*16 | 12 | 4800 | 3600 | | |
| 16 (18.4) | 22 | 5*9 | 80 | 1600 | 500 | |
| | | 5*7 | 20 | 2050 | 500 | |
| 47 | 5*7 | 20 | 2100 | 500 | | |
| | 5*7 | 20 | 2150 | 500 | | |
| 56 | 5*7 | 20 | 2200 | 500 | | |
| | 5*8 | 20 | 2250 | 500 | | |
| 68 | 5*7 | 20 | 2250 | 500 | | |
| | 5*7 | 20 | 2250 | 500 | | |
| 82 | 5*8 | 20 | 2100 | 500 | | |
| | 6.3*5 | 25 | 2800 | 500 | | |
| 100 | 6.3*8 | 20 | 2350 | 500 | | |
| | 5*8 | 20 | 2400 | 500 | | |
| 120 | 5*8 | 20 | 2450 | 576 | | |
| | 5*8 | 20 | 2500 | 576 | | |
| 150 | 6.3*7 | 16 | 2600 | 704 | | |
| | 5*10 | 20 | 2700 | 704 | | |
| 220 | 6.3*8 | 20 | 2900 | 704 | | |
| | 6.3*10 | 15 | 2750 | 864 | | |
| 270 | 5.5*9 | 20 | 2800 | 864 | | |
| | 6.3*8 | 20 | 2900 | 864 | | |
| 330 | 8*9 | 20 | 2900 | 1056 | | |
| | 5.5*9 | 20 | 2900 | 1056 | | |
| 390 | 6.3*9 | 20 | 2900 | 1056 | | |
| | 6.3*10 | 15 | 3100 | 1504 | | |
| 470 | 5.5*10 | 20 | 3000 | 1504 | | |
| | 6.3*11 | 15 | 3100 | 1504 | | |
| 560 | 8*11 | 11 | 4600 | 1504 | | |
| | 8*9 | 13 | 4100 | 1504 | | |
| 680 | 8*11 | 11 | 3200 | 1792 | | |
| | 8*13 | 11 | 3300 | 1792 | | |
| 820 | 10*12 | 11 | 3500 | 1792 | | |
| | 8*11 | 11 | 3400 | 2176 | | |
| 1000 | 10*12 | 11 | 3600 | 2176 | | |
| | 6.8*11 | 11 | 3200 | 2176 | | |
| 1200 | 8*13 | 11 | 3500 | 2624 | | |
| | 10*12 | 11 | 3800 | 2624 | | |
| 1500 | 10*12 | 11 | 4000 | 3200 | | |
| | 8*14 | 11 | 3600 | 3200 | | |

Conductive Polymer Radial Type

PZ series

■ STANDARD RATINGS

| VDC (SV) | Cap (μF) | Size ΦDxL(mm) | ESR (mΩ,20°C,100kHz)(max.) | Rated ripple current (mArms/105°C,100kHz) | Leakage Current (μA)(max.) |
|-----------|-----------|---------------|----------------------------|---|----------------------------|
| 7.5 (8.6) | 1500 | 8*11 | 12 | 4900 | 2250 |
| | 1800 | 7*13 | 12 | 4800 | 2250 |
| | 2200 | 8*14 | 12 | 5100 | 2700 |
| | 2200 | 10*12 | 12 | 5700 | 3300 |
| 10 (11.5) | 47 | 5*7 | 35 | 2200 | 500 |
| | 56 | 5*7 | 35 | 2250 | 500 |
| | 68 | 5*7 | 35 | 2300 | 500 |
| | 82 | 5*7 | 35 | 2350 | 500 |
| | | 5*7 | 35 | 2400 | 500 |
| | 100 | 6.3*5 | 30 | 2300 | 500 |
| | | 5*5 | 30 | 2000 | 500 |
| | 120 | 5*7 | 20 | 2450 | 500 |
| | 150 | 5*7 | 20 | 2500 | 500 |
| | 180 | 6.3*7 | 20 | 2800 | 500 |
| | | 5*8 | 20 | 2700 | 500 |
| | | 5*9 | 20 | 2820 | 500 |
| | 220 | 6.3*5 | 25 | 2800 | 500 |
| | | 6.3*8 | 15 | 3160 | 500 |
| | 270 | 6.3*8 | 20 | 3100 | 540 |
| | | 6.3*8 | 20 | 3300 | 660 |
| | 330 | 8*9 | 15 | 3400 | 660 |
| | | 6.3*10 | 12 | 3500 | 660 |
| | 390 | 6.3*8 | 20 | 3400 | 780 |
| | | 5.5*9 | 20 | 3400 | 940 |
| | 470 | 6.3*8 | 20 | 3500 | 940 |
| | | 8*9 | 15 | 3550 | 940 |
| | | 8*11 | 12 | 5650 | 940 |
| | 560 | 6.3*10 | 13 | 3600 | 1120 |
| | | 8*9 | 15 | 3600 | 1120 |
| | | 6.3*11 | 15 | 3800 | 1360 |
| | 680 | 8*11 | 12 | 3900 | 1360 |
| | | 8*8 | 20 | 3300 | 1360 |
| | 820 | 8*11 | 12 | 4000 | 1640 |
| | 1000 | 8*11 | 12 | 4200 | 2000 |
| | | 10*12 | 10 | 5300 | 2000 |
| | 1200 | 8*12 | 10 | 4500 | 2400 |
| | 10*12 | 10 | 5450 | 2400 | |
| 1500 | 10*12 | 10 | 5500 | 3000 | |
| | 8*14 | 10 | 4800 | 3000 | |
| 1800 | 10*13 | 10 | 5800 | 3600 | |
| 2200 | 10*15 | 10 | 6100 | 4400 | |
| 3300 | 10*18 | 10 | 6200 | 5000 | |
| 220 | 4*10 | 15 | 2100 | 528 | |
| 12 (13.8) | 330 | 5.5*9 | 20 | 3100 | 792 |
| | | 6.3*8 | 20 | 3100 | 792 |
| | 470 | 5*10 | 20 | 3100 | 792 |
| | | 5.5*9 | 20 | 3200 | 1128 |
| | 560 | 6.3*9 | 20 | 3450 | 1128 |
| | | 6.3*10 | 15 | 3400 | 1344 |
| | 680 | 6.3*11 | 15 | 3600 | 1632 |
| | | 8*10 | 15 | 3700 | 1632 |
| | 820 | 8*11 | 12 | 3800 | 1968 |
| | | 6.8*11 | 13 | 3200 | 1968 |
| | 1000 | 8*12 | 12 | 4000 | 2400 |
| | 1200 | 8*14 | 12 | 4400 | 2880 |
| | 1500 | 8*16 | 12 | 4800 | 3600 |
| | 16 (18.4) | 22 | 5*9 | 80 | 1600 |
| 47 | | 5*7 | 20 | 2050 | 500 |
| 56 | | 5*7 | 20 | 2100 | 500 |
| 68 | | 5*7 | 20 | 2150 | 500 |
| 82 | | 5*8 | 20 | 2200 | 500 |
| | | 5*7 | 20 | 2250 | 500 |
| 100 | | 6.3*5 | 25 | 2100 | 500 |
| | | 6.3*8 | 20 | 2800 | 500 |
| 120 | | 5*8 | 20 | 2350 | 500 |
| 150 | | 5*8 | 20 | 2400 | 500 |
| 180 | | 5*8 | 20 | 2450 | 576 |
| | | 6.3*7 | 16 | 2500 | 576 |
| | | 5*10 | 20 | 2600 | 704 |
| 220 | | 6.3*8 | 20 | 2700 | 704 |
| | | 6.3*10 | 15 | 2900 | 704 |
| | | 5.5*9 | 20 | 2750 | 864 |
| 270 | | 6.3*8 | 20 | 2800 | 864 |
| | | 8*9 | 20 | 2900 | 864 |
| | | 5.5*9 | 20 | 2900 | 1056 |
| 330 | | 6.3*9 | 20 | 2900 | 1056 |
| | | 6.3*10 | 15 | 3100 | 1056 |
| | | 5.5*10 | 20 | 3000 | 1504 |
| 470 | | 6.3*11 | 15 | 3100 | 1504 |
| | | 8*11 | 11 | 4600 | 1504 |
| | | 8*9 | 13 | 4100 | 1504 |
| | | 8*11 | 11 | 3200 | 1792 |
| 560 | | 8*13 | 11 | 3300 | 1792 |
| | | 10*12 | 11 | 3500 | 1792 |
| | | 8*11 | 11 | 3400 | 2176 |
| 680 | | 10*12 | 11 | 3600 | 2176 |
| | | 6.8*11 | 11 | 3200 | 2176 |
| | | 8*13 | 11 | 3500 | 2624 |
| 820 | | 10*12 | 11 | 3800 | 2624 |
| | | 10*12 | 11 | 4000 | 3200 |
| 1000 | | 8*14 | 11 | 3600 | 3200 |

Conductive Polymer Radial Type

PZ series

■ STANDARD RATINGS

| VDC (SV) | Cap (μF) | Size ΦDxL (mm) | ESR (mΩ, 20°C, 100kHz)(max.) | Rated ripple current (mArms/105°C, 100kHz) | Leakage Current (μA)(max.) | |
|-----------|----------|----------------|------------------------------|--|----------------------------|------|
| 16 (18.4) | 1200 | 10*15 | 11 | 4300 | 3840 | |
| | | 10*12 | 11 | 4200 | 3840 | |
| | 1500 | 10*12 | 11 | 4800 | 4800 | |
| | | 10*18 | 11 | 5500 | 4800 | |
| | 1800 | 10*14 | 11 | 5400 | 5000 | |
| | | 10*17 | 11 | 5800 | 5000 | |
| | 2200 | 10*15 | 11 | 5500 | 5000 | |
| | 3300 | 13*18 | 11 | 6100 | 5000 | |
| 20 (23) | 33 | 5*8 | 40 | 1900 | 500 | |
| | 39 | 5*8 | 40 | 1950 | 500 | |
| | 47 | 5*8 | 40 | 2200 | 500 | |
| | 56 | 5*9 | 40 | 2100 | 500 | |
| | 68 | 6.3*8 | 30 | 2100 | 500 | |
| | 82 | 6.3*8 | 30 | 2150 | 500 | |
| | 100 | 6.3*8 | 30 | 2200 | 500 | |
| | 120 | 6.3*8 | 30 | 2300 | 500 | |
| | 150 | 6.3*10 | 20 | 2350 | 600 | |
| | 180 | 8*9 | 30 | 2450 | 720 | |
| | 220 | 8*11 | 20 | 2550 | 880 | |
| | 270 | 8*11 | 20 | 2700 | 1080 | |
| | | 330 | 8*11 | 20 | 2800 | 1320 |
| | | | 6.3*11 | 20 | 2100 | 1320 |
| | | | 10*12 | 20 | 2900 | 1880 |
| | | 470 | 8*16 | 20 | 3000 | 1880 |
| | | | 8*11 | 20 | 2400 | 1880 |
| | | | 10*12 | 20 | 3100 | 2240 |
| | | 560 | 8*16 | 20 | 3200 | 2240 |
| | | 680 | 10*15 | 20 | 3300 | 2720 |
| | | 8*14 | 20 | 2700 | 2720 | |
| | 820 | 10*18 | 20 | 3400 | 3280 | |
| | 1000 | 10*18 | 20 | 3900 | 4000 | |
| 25 (29) | 6.8 | 6.3*6 | 100 | 1100 | 500 | |
| | 10 | 5*8 | 70 | 1800 | 500 | |
| | 22 | 5*9 | 60 | 1810 | 500 | |
| | 33 | 5*9 | 50 | 1850 | 500 | |
| | 39 | 5*8 | 40 | 1900 | 500 | |
| | 47 | 5*9 | 40 | 1950 | 500 | |
| | 56 | 5*9 | 40 | 2050 | 500 | |
| | 68 | 6.3*7 | 30 | 2100 | 500 | |
| | 82 | 6.3*7 | 30 | 2150 | 500 | |
| | | | 6.3*8 | 30 | 2200 | 500 |
| | 100 | 6.3*10 | 20 | 2300 | 500 | |
| | | | 8*11 | 20 | 2450 | 500 |
| | 120 | 6.3*8 | 30 | 2300 | 600 | |
| | 150 | 6.3*10 | 20 | 2350 | 750 | |
| | 180 | 6.3*10 | 20 | 2350 | 900 | |
| | | | 8*9 | 30 | 2450 | 900 |
| | | | 8*11 | 20 | 2550 | 1100 |
| | 220 | 10*12 | 20 | 2900 | 1100 | |
| | | | 5.5*10 | 20 | 1900 | 1100 |
| | 270 | 8*11 | 20 | 2700 | 1350 | |
| | | | 8*11 | 20 | 2800 | 1650 |
| | 330 | 10*12 | 20 | 3100 | 1650 | |
| | | | 10*10 | 25 | 2800 | 1650 |
| | | | 10*12 | 20 | 2800 | 2350 |
| | 470 | 8*16 | 20 | 2700 | 2350 | |
| | | 8*11 | 20 | 2300 | 2350 | |
| | | 10*10 | 25 | 2300 | 2350 | |
| 560 | 10*12 | 20 | 3000 | 2800 | | |
| | | 8*11 | 20 | 2400 | 2800 | |
| 680 | 10*15 | 20 | 3200 | 3400 | | |
| | | 10*12 | 20 | 2800 | 3400 | |
| | | 8*14 | 20 | 2500 | 3400 | |
| 820 | 10*18 | 20 | 3300 | 4100 | | |
| | | 10*12 | 20 | 2600 | 4100 | |
| | | 8*16 | 20 | 2600 | 4100 | |
| 1000 | 10*18 | 20 | 3800 | 5000 | | |
| 1500 | 13*16 | 20 | 4000 | 5000 | | |
| 35 (41) | 4.7 | 5*8 | 60 | 1700 | 500 | |
| | 10 | 5*8 | 60 | 1800 | 500 | |
| | 15 | 5*8 | 60 | 1850 | 500 | |
| | 22 | 5*9 | 100 | 1950 | 500 | |
| | 33 | 5*9 | 50 | 2000 | 500 | |
| | 39 | 5*9 | 50 | 2050 | 500 | |
| | 47 | 6.3*7 | 50 | 2100 | 500 | |
| | 56 | 6.3*7 | 50 | 2150 | 500 | |
| | 68 | 6.3*7 | 50 | 2200 | 500 | |
| | 82 | 6.3*7 | 50 | 2250 | 574 | |
| | | | 6.3*8 | 50 | 2350 | 700 |
| | 100 | 6.3*10 | 40 | 2400 | 700 | |
| | | | 8*11 | 40 | 2600 | 700 |
| | 120 | 6.3*10 | 40 | 2500 | 840 | |
| | 150 | 6.3*10 | 40 | 2550 | 1050 | |
| | 180 | 6.3*11 | 40 | 2600 | 1260 | |
| | | | 8*11 | 40 | 2800 | 1540 |
| | 220 | 10*12 | 30 | 2900 | 1540 | |
| | | | 6.3*11 | 30 | 2700 | 1540 |
| | 270 | 10*12 | 30 | 3000 | 1890 | |
| | 330 | 10*12 | 30 | 3100 | 2310 | |
| | 470 | 10*13 | 20 | 3200 | 3290 | |

PZ series

■ STANDARD RATINGS

| VDC (SV) | Cap (μF) | Size ΦDxL(mm) | ESR (mΩ,20°C,100kHz)(max.) | Rated ripple current (mArms/105°C,100kHz) | Leakage Current (μA)(max.) |
|-----------|----------|---------------|----------------------------|---|----------------------------|
| 35 (41) | 560 | 10*14 | 20 | 3300 | 3920 |
| | 680 | 10*16 | 20 | 3400 | 4760 |
| | 820 | 10*18 | 20 | 3500 | 5000 |
| | 1000 | 10*18 | 20 | 3700 | 5000 |
| 50 (58) | 4.7 | 5*8 | 60 | 1600 | 500 |
| | 10 | 6.3*7 | 35 | 1850 | 500 |
| | 15 | 5*8 | 70 | 1630 | 500 |
| | 22 | 5*8 | 70 | 1660 | 500 |
| | 33 | 6.3*7 | 40 | 1900 | 500 |
| | 47 | 6.3*7 | 40 | 2000 | 500 |
| | 56 | 6.3*8 | 35 | 2100 | 500 |
| | 68 | 6.3*8 | 35 | 2120 | 560 |
| | 100 | 6.3*10 | 30 | 2150 | 680 |
| | 120 | 8*11 | 30 | 2300 | 1000 |
| | 150 | 8*9 | 40 | 2100 | 1000 |
| | 180 | 8*11 | 30 | 2400 | 1200 |
| | 220 | 10*12 | 30 | 2500 | 1500 |
| | 270 | 10*12 | 30 | 2600 | 1800 |
| | 330 | 10*12 | 30 | 2700 | 2200 |
| | 440 | 10*13 | 20 | 2900 | 2700 |
| 470 | 10*15 | 20 | 3000 | 3300 | |
| 680 | 10*18 | 20 | 3100 | 4400 | |
| 1000 | 10*18 | 20 | 3150 | 4700 | |
| 1000 | 13*18 | 20 | 3300 | 5000 | |
| 63 (73) | 4.7 | 6.3*8 | 60 | 1600 | 500 |
| | 6.8 | 6.3*8 | 60 | 1650 | 500 |
| | 10 | 6.3*5 | 60 | 1600 | 500 |
| | 33 | 6.3*8 | 30 | 1700 | 500 |
| | 39 | 6.3*8 | 30 | 1750 | 500 |
| | 47 | 6.3*8 | 30 | 1900 | 592 |
| | 56 | 6.3*9 | 30 | 1900 | 592 |
| | 68 | 8*9 | 30 | 1800 | 706 |
| | 82 | 8*11 | 30 | 2000 | 857 |
| | 100 | 8*11 | 30 | 2100 | 1033 |
| | 150 | 10*12 | 30 | 2200 | 1260 |
| | 180 | 10*12 | 30 | 2500 | 1890 |
| | 220 | 10*13 | 20 | 2600 | 2268 |
| | 270 | 10*15 | 20 | 2650 | 2772 |
| | 330 | 10*17 | 20 | 2850 | 3402 |
| | 470 | 10*18 | 20 | 2950 | 4158 |
| 1000 | 13*18 | 20 | 3100 | 5000 | |
| 1000 | 16*20 | 20 | 3500 | 5000 | |
| 1000 | 18*20 | 20 | 3700 | 5000 | |
| 80 (92) | 4.7 | 6.3*8 | 60 | 1500 | 500 |
| | 6.8 | 6.3*8 | 60 | 1550 | 500 |
| | 22 | 6.3*10 | 60 | 1650 | 500 |
| | 33 | 8*11 | 35 | 1700 | 528 |
| | 47 | 10*12 | 35 | 1850 | 752 |
| | 68 | 10*12 | 35 | 1900 | 1088 |
| | 100 | 10*14 | 35 | 2100 | 1600 |
| | 220 | 13*18 | 35 | 2700 | 4400 |
| 100 (115) | 4.7 | 6.3*8 | 60 | 1400 | 500 |
| | 6.8 | 6.3*8 | 60 | 1450 | 500 |
| | 10 | 6.3*10 | 50 | 1500 | 500 |
| | 15 | 8*11 | 50 | 1550 | 500 |
| | 22 | 8*11 | 50 | 1550 | 500 |
| | 33 | 10*12 | 35 | 1600 | 500 |
| | 47 | 10*14 | 35 | 1650 | 660 |
| 47 | 10*16 | 35 | 1800 | 940 | |

Conductive Polymer Radial Type

※ Specifications subject to change without notice.

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