

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.

RS series

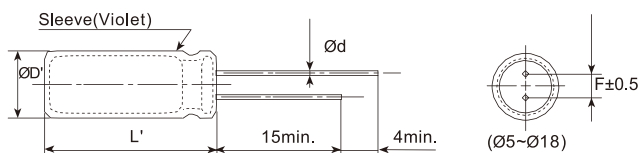
- High performance, high reliability
- Low impedance, high ripple current, long life
- Endurance: +105°C 4,000~10,000 hours
- RoHS Compliant



SPECIFICATIONS

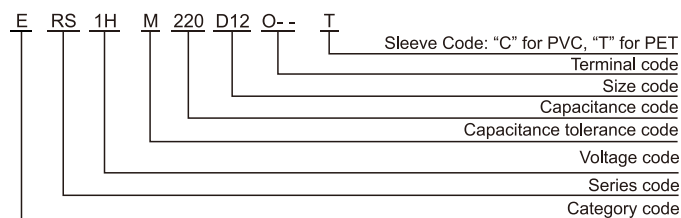
| Items | Characteristics | | | | | | | | | | |
|---|---|--|------|------|------|------|-------------|------|-------------------|---------|------|
| Category Temperature Range | -40~+105°C | | | | | | | | | | |
| Rated Voltage Range | 6.3~120 V _{dc} | | | | | | | | | | |
| Capacitance Tolerance | ±20%(M) (at 20°C, 120Hz) | | | | | | | | | | |
| Leakage Current | I ≤ 0.01CV or 3μA, 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 | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 120 |
| | tanδ (max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.08 | 0.12 |
| When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz) | | | | | | | | | | | |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated Voltage(V _{dc}) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 120 |
| | Z(-25°C)/Z(+20°C) | 4 | 3 | | | | 2 | | | | 3 |
| | Z(-40°C)/Z(+20°C) | 8 | 6 | 4 | | | 3 | | | | 6 |
| (at 120Hz) | | | | | | | | | | | |
| Endurance | The specifications listed below shall be met when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105 °C. | | | | | | | | | | |
| | Capacitance Change | ≤±20% of the initial value (6.3, 10V: ≤±30%) | | | | | Dia. | | Load life (hours) | | |
| | D.F. (tanδ) | ≤200% of the initial specified value | | | | | ØD ≤ 6.3 | | 6.3~10V | 16~120V | |
| | Leakage Current | ≤The initial specified value | | | | | ØD = 8 & 10 | | 4,000 | 5,000 | |
| The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours. | | | | | | | | | | | |
| Shelf Life | Capacitance Change | ≤±20% of the initial value (6.3, 10V: ≤±30%) | | | | | ØD ≥ 12.5 | | 8,000 | 10,000 | |
| | D.F. (tanδ) | ≤200% of the initial specified value | | | | | | | | | |
| | Leakage Current | ≤200% of the initial specified value | | | | | | | | | |

DIMENSIONS [mm]



| ØD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|-----|------------|-----|-----|-----|------|-----|-----|
| Ød | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| ØD' | ØD+0.5max. | | | | | | |
| L' | L+2max. | | | | | | |

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

| Freq.(Hz) | 120 | 1k | 10k | 100k |
|--------------------|------|------|------|------|
| Cap. < 220 | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 ≤ Cap. < 680 | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 ≤ Cap. < 2200 | 0.60 | 0.87 | 0.95 | 1.00 |
| 2200 ≤ Cap. < 4700 | 0.75 | 0.90 | 0.95 | 1.00 |
| Cap. ≥ 4700 | 0.85 | 0.95 | 0.98 | 1.00 |

RS series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|-------|--|---|
| 6.3(0J) | 150 | 5*11 | 0.22 | 0.57 | 200 |
| | | 6.3*9 | 0.22 | 0.74 | 180 |
| | 330 | 6.3*11 | 0.22 | 0.21 | 350 |
| | | 8*9 | 0.22 | 0.27 | 310 |
| | 680 | 8*12 | 0.22 | 0.13 | 660 |
| | | 10*9 | 0.22 | 0.17 | 590 |
| | 820 | 10*12.5 | 0.22 | 0.08 | 870 |
| | 1000 | 8*16 | 0.22 | 0.086 | 850 |
| | 1200 | 8*20 | 0.22 | 0.07 | 1050 |
| | | 10*16 | 0.22 | 0.06 | 1230 |
| | 1500 | 10*20 | 0.22 | 0.046 | 1400 |
| | 1800 | 12.5*16 | 0.22 | 0.049 | 1450 |
| | 2200 | 10*20 | 0.24 | 0.042 | 1650 |
| | | 10*30 | 0.24 | 0.03 | 1920 |
| | 2700 | 16*15 | 0.24 | 0.041 | 1950 |
| | | 12.5*20 | 0.26 | 0.035 | 1910 |
| | 3900 | 12.5*25 | 0.26 | 0.026 | 2230 |
| | | 12.5*30 | 0.28 | 0.024 | 2650 |
| | 4700 | 12.5*35 | 0.30 | 0.02 | 2880 |
| | | 16*20 | 0.30 | 0.027 | 2530 |
| 5600 | 12.5*40 | 0.32 | 0.017 | 3350 | |
| | 16*25 | 0.32 | 0.02 | 2930 | |
| 6800 | 18*20 | 0.32 | 0.026 | 2860 | |
| | 16*30 | 0.36 | 0.017 | 3450 | |
| 8200 | 16*35 | 0.40 | 0.015 | 3610 | |
| | 18*25 | 0.40 | 0.019 | 3140 | |
| 10000 | 16*40 | 0.44 | 0.013 | 4100 | |
| | 18*30 | 0.44 | 0.015 | 4170 | |
| 15000 | 18*35 | 0.50 | 0.014 | 4220 | |
| | 18*40 | 0.56 | 0.012 | 4300 | |
| 10(1A) | 100 | 5*11 | 0.19 | 0.57 | 200 |
| | | 6.3*9 | 0.19 | 0.74 | 180 |
| | 220 | 6.3*11 | 0.19 | 0.21 | 350 |
| | | 8*9 | 0.19 | 0.27 | 310 |
| | 470 | 8*12 | 0.19 | 0.13 | 660 |
| | | 10*9 | 0.19 | 0.17 | 590 |
| | 680 | 8*16 | 0.19 | 0.086 | 850 |
| | | 10*12.5 | 0.19 | 0.08 | 870 |
| | 1000 | 8*20 | 0.19 | 0.069 | 1050 |
| | | 10*16 | 0.19 | 0.06 | 1230 |
| | 1200 | 10*20 | 0.19 | 0.046 | 1400 |
| | | 10*25 | 0.19 | 0.042 | 1650 |
| | 1500 | 12.5*16 | 0.19 | 0.049 | 1450 |
| | | 10*30 | 0.21 | 0.03 | 1920 |
| | 2200 | 12.5*20 | 0.21 | 0.035 | 1910 |
| | | 16*15 | 0.21 | 0.041 | 1950 |
| | 3300 | 12.5*25 | 0.23 | 0.026 | 2230 |
| | | 12.5*30 | 0.23 | 0.024 | 2650 |
| | 3900 | 16*20 | 0.23 | 0.027 | 2530 |
| | | 12.5*35 | 0.25 | 0.02 | 2880 |
| 4700 | 12.5*40 | 0.27 | 0.017 | 3350 | |
| | 16*25 | 0.27 | 0.021 | 2930 | |
| 5600 | 18*20 | 0.27 | 0.026 | 2860 | |
| | 16*30 | 0.29 | 0.017 | 3450 | |
| 6800 | 18*25 | 0.29 | 0.019 | 3140 | |
| | 16*35 | 0.33 | 0.015 | 3610 | |
| 8200 | 18*30 | 0.33 | 0.015 | 4170 | |
| | 16*40 | 0.37 | 0.013 | 4100 | |
| 10000 | 18*35 | 0.37 | 0.014 | 4220 | |
| | 18*40 | 0.41 | 0.012 | 4300 | |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|-------|--|---|
| 16(1C) | 56 | 5*11 | 0.16 | 0.57 | 200 |
| | | 6.3*9 | 0.16 | 0.74 | 180 |
| | 120 | 6.3*11 | 0.16 | 0.21 | 350 |
| | | 8*9 | 0.16 | 0.27 | 310 |
| | 330 | 8*12 | 0.16 | 0.13 | 660 |
| | | 10*9 | 0.16 | 0.17 | 590 |
| | 470 | 8*16 | 0.16 | 0.087 | 850 |
| | 680 | 10*12.5 | 0.16 | 0.08 | 870 |
| | | 8*20 | 0.16 | 0.069 | 1050 |
| | 1000 | 10*16 | 0.16 | 0.06 | 1230 |
| | | 10*20 | 0.16 | 0.046 | 1400 |
| | 1200 | 12.5*16 | 0.16 | 0.049 | 1450 |
| | | 10*25 | 0.16 | 0.042 | 1650 |
| | 1500 | 10*30 | 0.16 | 0.031 | 1920 |
| | | 12.5*20 | 0.16 | 0.035 | 1910 |
| | 2200 | 16*15 | 0.16 | 0.041 | 1950 |
| | | 12.5*25 | 0.18 | 0.027 | 2230 |
| | 2700 | 12.5*30 | 0.18 | 0.024 | 2650 |
| | | 16*20 | 0.18 | 0.027 | 2530 |
| | 3300 | 12.5*35 | 0.20 | 0.02 | 2880 |
| 12.5*40 | | 0.20 | 0.017 | 3350 | |
| 3900 | 16*25 | 0.20 | 0.021 | 2930 | |
| | 18*20 | 0.20 | 0.026 | 2860 | |
| 4700 | 16*30 | 0.22 | 0.017 | 3450 | |
| | 18*25 | 0.22 | 0.019 | 3140 | |
| 5600 | 16*35 | 0.24 | 0.015 | 3610 | |
| | 18*30 | 0.24 | 0.015 | 4170 | |
| 6800 | 16*40 | 0.26 | 0.013 | 4100 | |
| | 18*35 | 0.30 | 0.014 | 4220 | |
| 10000 | 18*40 | 0.34 | 0.012 | 4300 | |
| 25(1E) | 47 | 5*11 | 0.14 | 0.57 | 200 |
| | | 6.3*9 | 0.14 | 0.74 | 180 |
| | 100 | 6.3*11 | 0.14 | 0.21 | 350 |
| | | 8*9 | 0.14 | 0.27 | 310 |
| | 220 | 8*12 | 0.14 | 0.13 | 660 |
| | | 10*9 | 0.14 | 0.17 | 590 |
| | 330 | 8*16 | 0.14 | 0.086 | 850 |
| | | 10*12.5 | 0.14 | 0.08 | 870 |
| | 470 | 8*20 | 0.14 | 0.069 | 1050 |
| | | 10*16 | 0.14 | 0.06 | 1230 |
| | 680 | 10*20 | 0.14 | 0.046 | 1400 |
| | | 12.5*16 | 0.14 | 0.049 | 1450 |
| | 820 | 10*25 | 0.14 | 0.042 | 1650 |
| | | 10*30 | 0.14 | 0.03 | 1920 |
| | 1000 | 12.5*20 | 0.14 | 0.035 | 1910 |
| | | 16*15 | 0.14 | 0.041 | 1950 |
| | 1500 | 12.5*25 | 0.14 | 0.026 | 2230 |
| | | 12.5*30 | 0.14 | 0.024 | 2650 |
| | 1800 | 16*20 | 0.14 | 0.027 | 2530 |
| | | 12.5*35 | 0.16 | 0.02 | 2880 |
| 2200 | 12.5*40 | 0.16 | 0.017 | 3350 | |
| | 18*20 | 0.16 | 0.026 | 2860 | |
| 2700 | 12.5*40 | 0.16 | 0.017 | 3350 | |
| | 16*25 | 0.16 | 0.021 | 2930 | |
| 3300 | 16*30 | 0.18 | 0.017 | 3450 | |
| | 18*25 | 0.18 | 0.019 | 3140 | |
| 3900 | 16*35 | 0.18 | 0.015 | 3610 | |
| | 18*30 | 0.18 | 0.015 | 4170 | |
| 4700 | 16*40 | 0.20 | 0.013 | 4100 | |
| | 18*35 | 0.20 | 0.014 | 4220 | |
| 5600 | 18*40 | 0.22 | 0.012 | 4300 | |

RS series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|-------|--|---|
| 35(1V) | 33 | 5*11 | 0.12 | 0.57 | 200 |
| | | 6.3*9 | 0.12 | 0.74 | 180 |
| | 56 | 6.3*11 | 0.12 | 0.21 | 350 |
| | | 8*9 | 0.12 | 0.27 | 310 |
| | 150 | 8*12 | 0.12 | 0.13 | 660 |
| | | 10*9 | 0.12 | 0.17 | 590 |
| | 220 | 8*16 | 0.12 | 0.086 | 850 |
| | | 10*12.5 | 0.12 | 0.08 | 870 |
| | 270 | 8*20 | 0.12 | 0.069 | 1050 |
| | 330 | 10*16 | 0.12 | 0.06 | 1230 |
| | 470 | 10*20 | 0.12 | 0.046 | 1400 |
| | | 12.5*16 | 0.12 | 0.049 | 1450 |
| | 560 | 10*25 | 0.12 | 0.042 | 1650 |
| | | 10*30 | 0.12 | 0.03 | 1920 |
| | 680 | 12.5*20 | 0.12 | 0.035 | 1910 |
| | | 16*15 | 0.12 | 0.041 | 1950 |
| | 1000 | 12.5*25 | 0.12 | 0.026 | 2230 |
| | | 12.5*30 | 0.12 | 0.024 | 2650 |
| | 1200 | 16*20 | 0.12 | 0.028 | 2247 |
| | | 16*25 | 0.12 | 0.027 | 2530 |
| | 1500 | 12.5*35 | 0.12 | 0.02 | 2880 |
| | | 12.5*40 | 0.12 | 0.017 | 3350 |
| | 1800 | 16*25 | 0.12 | 0.021 | 2930 |
| | | 18*20 | 0.12 | 0.026 | 2860 |
| | 2200 | 16*30 | 0.14 | 0.017 | 3450 |
| | | 18*25 | 0.14 | 0.019 | 3140 |
| | 2700 | 16*35 | 0.14 | 0.015 | 3610 |
| | | 18*30 | 0.14 | 0.015 | 4170 |
| 3300 | 16*40 | 0.16 | 0.012 | 4100 | |
| | 18*35 | 0.16 | 0.014 | 4220 | |
| 3900 | 18*40 | 0.16 | 0.011 | 4300 | |
| 50(1H) | 22 | 5*12 | 0.10 | 0.68 | 190 |
| | | 6.3*9 | 0.10 | 0.89 | 170 |
| | 56 | 6.3*11 | 0.10 | 0.3 | 300 |
| | | 8*9 | 0.10 | 0.39 | 270 |
| | 100 | 8*12 | 0.10 | 0.17 | 560 |
| | | 10*9 | 0.10 | 0.22 | 500 |
| | 120 | 8*16 | 0.10 | 0.12 | 740 |
| | 150 | 10*12.5 | 0.10 | 0.12 | 760 |
| | 180 | 8*20 | 0.10 | 0.09 | 910 |
| | 220 | 10*16 | 0.10 | 0.084 | 1050 |
| | 270 | 10*20 | 0.10 | 0.058 | 1230 |
| | | 12.5*16 | 0.10 | 0.061 | 1260 |
| | 330 | 10*25 | 0.10 | 0.055 | 1440 |
| | | 10*30 | 0.10 | 0.043 | 1700 |
| | 470 | 12.5*20 | 0.10 | 0.045 | 1660 |
| | | 16*15 | 0.10 | 0.055 | 1690 |
| | 560 | 12.5*25 | 0.10 | 0.034 | 1960 |
| | 680 | 12.5*30 | 0.10 | 0.03 | 2310 |
| | 820 | 12.5*35 | 0.10 | 0.025 | 2510 |
| | | 16*20 | 0.10 | 0.034 | 2210 |
| | 1000 | 12.5*40 | 0.10 | 0.021 | 2920 |
| | | 16*25 | 0.10 | 0.025 | 2560 |
| | 1200 | 18*20 | 0.10 | 0.036 | 2490 |
| | | 16*30 | 0.10 | 0.021 | 3010 |
| | 1500 | 18*25 | 0.10 | 0.026 | 2740 |
| | | 16*35 | 0.10 | 0.019 | 3150 |
| | 1800 | 16*40 | 0.10 | 0.016 | 3710 |
| | | 18*30 | 0.10 | 0.021 | 3640 |
| 2200 | 18*35 | 0.12 | 0.017 | 3680 | |
| 2700 | 18*40 | 0.12 | 0.014 | 3800 | |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|-------|--|---|
| 63(1J) | 15 | 5*11 | 0.09 | 0.88 | 165 |
| | | 6.3*9 | 0.09 | 1.15 | 145 |
| | 33 | 6.3*12 | 0.09 | 0.35 | 265 |
| | | 8*9 | 0.09 | 0.46 | 235 |
| | 56 | 8*12 | 0.09 | 0.22 | 500 |
| | | 10*9 | 0.09 | 0.29 | 440 |
| | 82 | 8*16 | 0.09 | 0.16 | 665 |
| | | 10*12.5 | 0.09 | 0.11 | 690 |
| | 120 | 8*20 | 0.09 | 0.12 | 820 |
| | | 10*16 | 0.09 | 0.076 | 950 |
| | 180 | 10*20 | 0.09 | 0.056 | 1150 |
| | | 12.5*16 | 0.09 | 0.072 | 1150 |
| | 220 | 10*25 | 0.09 | 0.046 | 1350 |
| | | 10*30 | 0.09 | 0.041 | 1500 |
| | 330 | 12.5*20 | 0.09 | 0.031 | 1900 |
| | | 12.5*25 | 0.09 | 0.028 | 2300 |
| | 470 | 12.5*30 | 0.09 | 0.028 | 2300 |
| | | 16*20 | 0.09 | 0.032 | 2000 |
| | 560 | 12.5*35 | 0.09 | 0.024 | 2500 |
| | | 12.5*40 | 0.09 | 0.021 | 2800 |
| | 680 | 16*25 | 0.09 | 0.025 | 2600 |
| | | 18*20 | 0.09 | 0.03 | 2500 |
| | 820 | 16*30 | 0.09 | 0.021 | 2850 |
| | | 18*25 | 0.09 | 0.024 | 2800 |
| | 1000 | 16*35 | 0.09 | 0.019 | 2900 |
| | 1200 | 16*40 | 0.09 | 0.018 | 3400 |
| | | 18*30 | 0.09 | 0.02 | 3300 |
| | 1500 | 18*35 | 0.09 | 0.018 | 3400 |
| 18*40 | | 0.09 | 0.017 | 3500 | |
| 80(1B) | 68 | 10*12.5 | 0.08 | 0.17 | 480 |
| | | 10*16 | 0.08 | 0.11 | 600 |
| | 100 | 10*20 | 0.08 | 0.084 | 800 |
| | | 10*25 | 0.08 | 0.069 | 900 |
| | 150 | 12.5*16 | 0.08 | 0.11 | 750 |
| | | 12.5*20 | 0.08 | 0.062 | 1100 |
| | 220 | 12.5*25 | 0.08 | 0.047 | 1250 |
| | | 16*20 | 0.08 | 0.048 | 1350 |
| | 330 | 16*20 | 0.08 | 0.048 | 1350 |
| | | 12.5*30 | 0.08 | 0.042 | 1500 |
| | 470 | 12.5*35 | 0.08 | 0.036 | 1650 |
| | | 16*25 | 0.08 | 0.038 | 1700 |
| | 560 | 18*20 | 0.08 | 0.045 | 1500 |
| | | 12.5*40 | 0.08 | 0.032 | 1800 |
| | 680 | 16*30 | 0.08 | 0.032 | 1850 |
| | | 18*25 | 0.08 | 0.036 | 1750 |
| | 820 | 16*35 | 0.08 | 0.029 | 2000 |
| | | 18*30 | 0.08 | 0.03 | 1900 |
| | 1000 | 16*40 | 0.08 | 0.027 | 2200 |
| | | 18*35 | 0.08 | 0.027 | 2200 |
| | 1200 | 18*40 | 0.08 | 0.026 | 2700 |

Radial Type

RS series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|------|--|---|
| 100(1K) | 6.8 | 5*11 | 0.08 | 1.4 | 125 |
| | | 6.3*9 | 0.08 | 1.9 | 110 |
| | 15 | 6.3*12 | 0.08 | 0.57 | 205 |
| | | 8*9 | 0.08 | 0.75 | 180 |
| | 27 | 8*12 | 0.08 | 0.36 | 355 |
| | | 10*9 | 0.08 | 0.45 | 310 |
| | 39 | 8*16 | 0.08 | 0.25 | 450 |
| | 47 | 10*12.5 | 0.08 | 0.17 | 480 |
| | 56 | 8*20 | 0.08 | 0.19 | 565 |
| | 68 | 10*16 | 0.08 | 0.11 | 600 |
| | 82 | 10*20 | 0.08 | 0.084 | 800 |
| | 100 | 12.5*16 | 0.08 | 0.11 | 750 |
| | 120 | 10*25 | 0.08 | 0.069 | 900 |
| | 150 | 12.5*20 | 0.08 | 0.062 | 1100 |
| | 220 | 12.5*25 | 0.08 | 0.047 | 1250 |
| | | 16*20 | 0.08 | 0.048 | 1350 |
| | 270 | 12.5*30 | 0.08 | 0.042 | 1500 |
| | | 12.5*35 | 0.08 | 0.036 | 1650 |
| | 330 | 16*25 | 0.08 | 0.038 | 1700 |
| | | 18*20 | 0.08 | 0.045 | 1500 |
| | 390 | 12.5*40 | 0.08 | 0.032 | 1800 |
| | | 16*30 | 0.08 | 0.032 | 1850 |
| | 470 | 18*25 | 0.08 | 0.036 | 1750 |
| | | 16*35 | 0.08 | 0.029 | 2000 |
| | 560 | 18*30 | 0.08 | 0.03 | 1900 |
| | | 16*40 | 0.08 | 0.027 | 2200 |
| | 680 | 18*35 | 0.08 | 0.027 | 2200 |
| | | 18*40 | 0.08 | 0.026 | 2700 |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω _{max} /20°C, 100kHz) | Rated ripple current (mA _{rms} /105°C, 100kHz) |
|-----------------------|----------|---------------|------|--|---|
| 120(2B) | 10 | 6.3*11 | 0.12 | 6 | 85 |
| | 15 | 6.3*12 | 0.12 | 5 | 110 |
| | 18 | 8*9 | 0.12 | 4.5 | 125 |
| | 22 | 8*12 | 0.12 | 4 | 140 |
| | 33 | 8*16 | 0.12 | 3.5 | 245 |
| | | 10*12.5 | 0.12 | 3.5 | 245 |
| | 47 | 8*20 | 0.12 | 2.8 | 300 |
| | | 10*16 | 0.12 | 2.8 | 315 |
| | 56 | 10*16 | 0.12 | 2.5 | 315 |
| | 68 | 10*16 | 0.12 | 2.2 | 315 |
| | 82 | 10*20 | 0.12 | 2 | 330 |
| | 100 | 10*25 | 0.12 | 1.7 | 410 |
| | 120 | 12.5*20 | 0.12 | 1.5 | 470 |
| | 150 | 12.5*25 | 0.12 | 1.0 | 620 |
| | 220 | 13*30 | 0.12 | 0.85 | 760 |
| | | 16*20 | 0.12 | 0.85 | 760 |
| | 270 | 16*25 | 0.12 | 0.6 | 860 |
| | | 18*20 | 0.12 | 0.6 | 860 |
| | 330 | 16*30 | 0.12 | 0.46 | 930 |
| | | 18*25 | 0.12 | 0.46 | 930 |
| | 470 | 16*40 | 0.12 | 0.33 | 1035 |
| | | 18*30 | 0.12 | 0.33 | 1035 |

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