

ZD SERIES

High reliability 高可靠性
Load life 105°C 5000hours
RoHS compliance RoHS 符合

SPECIFICATIONS 性能要求

| Item 项目 | Performance Characteristics 使用特性 | | | | | | | | | | |
|--|--|---|------|------|--------|--------------|---------|-------------------|------|--------------------------|---------|
| Operating Temperature Range 工作温度范围 | -40 ~ +105°C | | | | | -25 ~ +105°C | | | | | |
| Rated Voltage Range 额定电压范围 | 6.3 ~ 100V | | | | | 160 ~ 500V | | | | | |
| Capacitance Tolerance 容量偏差 | ±20% (120Hz/20°C) | | | | | | | | | | |
| DC Leakage Current 漏电流 | 6.3V ~ 100V | | | | | 160V ~ 450V | | | | | |
| | I ≤ 0.03CV or 4uA, whichever is greater (After 5 minutes) 取大者 (5 分钟后) | | | | | CV ≤ 1000 | | I ≤ 0.02CV + 10uA | | After 5 minutes 5 分钟后 | |
| | | | | | | CV > 1000 | | I ≤ 0.01CV + 10uA | | | |
| Where C: Nominal capacitance in μF. V: Rated voltage in V 此处: C: 标称容量单位为 μF. V: 额定电压单位为 V | | | | | | | | | | | |
| Dissipation Factor 损耗 (120Hz/20°C) | R.V. (V) 额定电压 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~500 |
| | tan δ 损耗 | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.20 | 0.24 |
| Stability at low Temperature 低温稳定性 | R.V. (V) 额定电压 | 6.3 | 10 | 16 | 25~100 | 160~250 | 350~400 | 450~500 | | | |
| | Z-25°C/Z+20°C 阻抗-25°C/阻抗+20°C | 4 | 3 | 2 | 2 | 3 | 6 | 10 | | | |
| | Z-40°C/Z+20°C 阻抗-40°C/阻抗+20°C | 8 | 6 | 4 | 3 | - | - | - | | | |
| Load Life (105°C 5000h) 负荷寿命 | After applying rated voltage with rated ripple current for specified life time at 105°C, the capacitor shall meet the following requirements. 在 105°C 条件下施加额定电压并叠加纹波电流达到规定寿命后, 电容器应满足如下要求 | | | | | | | | | | |
| | Capacitance change 容量变化 | ≤ ±20% of initial measured value. 在初始测量值的 ±20% 以内 | | | | | | | | | |
| | tan δ 损耗 | ≤ 200% of initial specified value. ≤ 200% 初始规定值 | | | | | | | | | |
| Shelf Life (+105°C 1000h) 贮存寿命 | After 1000h at 105°C without voltage applied, the capacitor shall meet the specifications as load life values. 在 105°C 条件下不施加额定电压 1000h 后, 电容器各项参数应要求同负荷寿命 | | | | | | | | | | |
| | DC leakage current 漏电流 | ≤ Initial specified value. ≤ 初始规定值 | | | | | | | | | |

Frequency multipliers for ripple current 纹波电流频率因子

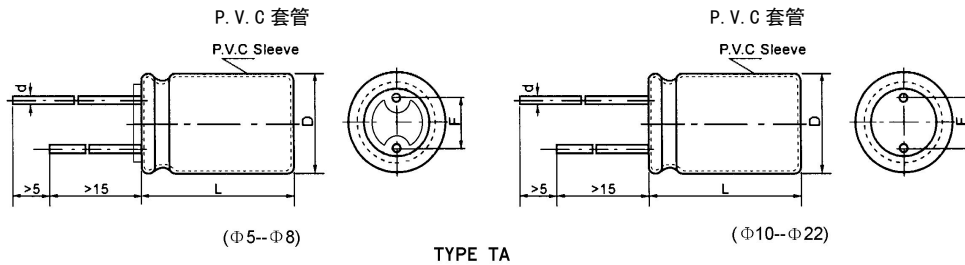
| Rated Voltage (V) | Freq. (Hz) | | | | | |
|-------------------|------------|------|------|------|------|---------|
| | Cap. (μF) | 50 | 120 | 300 | 1K | 10~100K |
| 6.3 ~ 100 | ~15 | | 0.5 | 0.6 | 0.8 | 1.00 |
| | 22~1500 | | 0.7 | 0.8 | 0.9 | 1.00 |
| | ≥1800 | | 0.90 | 0.95 | 1.00 | 1.00 |
| 160 ~ 500 | | 0.80 | 1.00 | 1.25 | 1.40 | 1.60 |

ALUMINUM ELECTROLYTIC CAPACITORS



ZD SERIES

Dimensions (mm)



TYPE TA

| D | ±0.5 | | | ±1.0 | | | | | | | | | | | | | | | | |
|-------|------|-----|------|------|----|----|------|----|-----|----|-----|----|----|----|----|----|--------|----|----|----|
| | 5 | 6.3 | 8 | 10 | | | 12.5 | | 13 | | 16 | | | 18 | | | 20 | | 22 | |
| L±2 | 11 | 11 | 11.5 | 12 | 16 | 20 | 20 | 25 | 20 | 25 | 25 | 30 | 35 | 25 | 30 | 35 | 30 | 35 | 30 | 35 |
| F±0.5 | 2.0 | 2.5 | 3.5 | 5 | | | 5 | | 5 | | 7.5 | | | | | | 7.5/10 | | 10 | |
| d±0.1 | 0.5 | 0.5 | 0.5 | 0.6 | | | 0.6 | | 0.8 | | 0.8 | | | | | | | | | |

Standard size 标准尺寸

| R. V. (V) | | 6.3 | | | | 10 | | | | | 16 | | | | |
|------------------|---------|---|-------|------|------------------|---------|---|-------|------|------------------|---------|---|-------|------|--|
| Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | |
| | | 20°C | -10°C | | | | 20°C | -10°C | | | | 20°C | -10°C | | |
| 100 | 5X11 | 0.90 | 2.7 | 140 | 100 | 5X11 | 0.60 | 1.8 | 180 | 47 | 5X11 | 0.9 | 2.7 | 150 | |
| 220 | 6.3X11 | 0.35 | 1.0 | 230 | 220 | 6.3X11 | 0.25 | 0.75 | 250 | 100 | 6.3X11 | 0.35 | 1.0 | 280 | |
| 330 | 6.3X11 | 0.22 | 0.65 | 300 | 330 | 8X11.5 | 0.18 | 0.54 | 350 | 220 | 8X11.5 | 0.20 | 0.60 | 400 | |
| 470 | 8X11.5 | 0.15 | 0.43 | 400 | 470 | 8X11.5 | 0.13 | 0.39 | 500 | 330 | 8X11.5 | 0.13 | 0.39 | 600 | |
| 1000 | 10X12 | 0.085 | 0.24 | 600 | 1000 | 10X16 | 0.06 | 0.18 | 1000 | 470 | 10X12 | 0.08 | 0.24 | 800 | |
| 1500 | 10X20 | 0.05 | 0.15 | 1000 | 2200 | 10X25 | 0.042 | 0.13 | 1500 | 1000 | 10X20 | 0.46 | 0.13 | 1400 | |
| 2200 | 10X25 | 0.045 | 0.13 | 1500 | 3300 | 12.5X20 | 0.035 | 0.10 | 1800 | 2200 | 12.5X25 | 0.03 | 0.085 | 2000 | |
| 3300 | 12.5X20 | 0.035 | 0.10 | 1700 | 4700 | 12.5X25 | 0.034 | 0.095 | 2100 | 3300 | 16X25 | 0.023 | 0.065 | 2300 | |
| 4700 | 16X25 | 0.028 | 0.08 | 2100 | 6800 | 16X30 | 0.03 | 0.078 | 2300 | 4700 | 16X30 | 0.021 | 0.055 | 2500 | |
| 10000 | 16X35 | 0.02 | 0.05 | 2900 | 10000 | 18X35 | 0.019 | 0.048 | 2700 | 6800 | 18X30 | 0.018 | 0.05 | 2700 | |
| 15000 | 18X35 | 0.019 | 0.042 | 3200 | | | | | | | | | | | |

| R. V. (V) | | 25 | | | | 35 | | | | | 50 | | | | |
|------------------|---------|---|-------|------|------------------|---------|---|-------|------|------------------|---------|---|-------|------|--|
| Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | |
| | | 20°C | -10°C | | | | 20°C | -10°C | | | | 20°C | -10°C | | |
| 33 | 5X11 | 0.80 | 2.4 | 150 | 22 | 5X11 | 0.75 | 2.3 | 150 | 10 | 5X11 | 1.4 | 4.2 | 100 | |
| 47 | 6.3X11 | 0.55 | 1.65 | 200 | 33 | 5X11 | 0.50 | 1.5 | 200 | 22 | 6.3X11 | 0.70 | 2.1 | 180 | |
| 100 | 6.3X11 | 0.24 | 0.72 | 350 | 47 | 6.3X11 | 0.35 | 1.0 | 280 | 33 | 6.3X11 | 0.45 | 1.35 | 230 | |
| 220 | 8X11.5 | 0.13 | 0.39 | 600 | 100 | 8X11.5 | 0.16 | 0.47 | 400 | 47 | 8X11.5 | 0.30 | 0.85 | 340 | |
| 330 | 10X12 | 0.085 | 0.24 | 800 | 220 | 10X12 | 0.09 | 0.26 | 700 | 100 | 10X12 | 0.16 | 0.46 | 580 | |
| 470 | 10X16 | 0.065 | 0.19 | 1100 | 330 | 10X16 | 0.06 | 0.16 | 1100 | 220 | 10X20 | 0.08 | 0.23 | 1000 | |
| 1000 | 12.5X20 | 0.035 | 0.10 | 1800 | 470 | 10X20 | 0.046 | 0.14 | 1400 | 330 | 12.5X20 | 0.055 | 0.15 | 1300 | |
| 2200 | 16X25 | 0.024 | 0.067 | 2400 | 1000 | 12.5X25 | 0.03 | 0.085 | 2000 | 470 | 12.5X25 | 0.045 | 0.11 | 1500 | |
| 3300 | 16X30 | 0.02 | 0.052 | 2700 | 2200 | 16X30 | 0.02 | 0.054 | 2700 | 1000 | 16X25 | 0.03 | 0.082 | 2100 | |
| 4700 | 18X35 | 0.018 | 0.042 | 3000 | 3300 | 18X35 | 0.017 | 0.043 | 3200 | 2200 | 18X35 | 0.024 | 0.058 | 2700 | |

Ripple current (mArms) at 105°C, 100KHz

ZD SERIES

Standard size 标准尺寸

| R. V. (V) | | 63 | | | | 100 | | | | |
|------------------|---------|---|-------|------|------------------|--------|---|-------|------|--|
| Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | Item Cap (uF) | DXL | Impedance (Ω MAX100KH ₂) | | I~ | |
| | | 20°C | -10°C | | | | 20°C | -10°C | | |
| 10 | 5X11 | 1.1 | 3.3 | 120 | 4.7 | 5X11 | 2.8 | 8.4 | 60 | |
| 22 | 6.3X11 | 0.53 | 1.6 | 200 | 10 | 6.3X11 | 1.2 | 3.6 | 100 | |
| 33 | 6.3X11 | 0.40 | 1.2 | 280 | 22 | 8X11.5 | 0.6 | 1.8 | 250 | |
| 47 | 8X11.5 | 0.30 | 0.85 | 350 | 33 | 10X12 | 0.42 | 1.2 | 350 | |
| 100 | 10X12 | 0.15 | 0.42 | 600 | 47 | 10X16 | 0.30 | 0.84 | 450 | |
| 220 | 10X20 | 0.07 | 0.18 | 900 | 100 | 10X25 | 0.16 | 0.44 | 900 | |
| 330 | 12.5X20 | 0.052 | 0.14 | 1300 | 220 | 16X25 | 0.09 | 0.24 | 1300 | |
| 470 | 16X25 | 0.042 | 0.11 | 1600 | 330 | 16X30 | 0.065 | 0.18 | 1700 | |
| 1000 | 16X35 | 0.03 | 0.075 | 2200 | 470 | 18X30 | 0.048 | 0.13 | 2000 | |

Ripple current (mArms) at 105°C, 100KHz

Standard size 标准尺寸

| R. V (V) | 160 | | 200 | | 250 | | 400 | | 450 | | 500 | |
|-----------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|-------|-----|
| Item Cap(uF) | DXL | I~ | DXL | I~ | DXL | I~ | DXL | I~ | DXL | I~ | DXL | I~ |
| 4.7 | | | | | | | 10X12 | 50 | 10X12 | 50 | | |
| 10 | | | | | 10X12 | 100 | 10X20 | 100 | 10X20 | 100 | | |
| 22 | 10X12 | 100 | 10X16 | 140 | 10X20 | 150 | 12.5X20 | 150 | 12.5X25 | 140 | 16X25 | 100 |
| 33 | 10X16 | 150 | 10X20 | 180 | 12.5X20 | 180 | 16X25 | 250 | 16X25 | 210 | 16X25 | 150 |
| 47 | 10X20 | 180 | 10X20 | 210 | 12.5X20 | 230 | 16X25 | 270 | 16X25 | 260 | 16X30 | 190 |
| 56 | 10X20 | 210 | 12.5X20 | 240 | 12.5X25 | 260 | 16X30 | 290 | 16X30 | 290 | 16X35 | 220 |
| 68 | 12.5X20 | 240 | 12.5X20 | 270 | 16X20 | 280 | 16X30 | 340 | 16X35 | 340 | 18X30 | 260 |
| 82 | 12.5X20 | 280 | 12.5X25 | 300 | 16X25 | 320 | 18X30 | 410 | 18X30 | 420 | 18X35 | 310 |
| 100 | 12.5X25 | 350 | 16X20 | 350 | 16X25 | 350 | 18X35 | 500 | 18X35 | 510 | | |
| 120 | 16X20 | 380 | 16X25 | 400 | 16X30 | 380 | 18X35 | 570 | 18X40 | 580 | | |
| 150 | 16X25 | 420 | 16X25 | 450 | 16X35 | 400 | 18X45 | 630 | | | | |
| 180 | 16X25 | 450 | 16X30 | 500 | 18X30 | 450 | | | | | | |
| 220 | 16X30 | 500 | 16X35 | 600 | 18X35 | 500 | | | | | | |

Ripple current (mArms) at 105°C, 100KHz