Shanghai Yongming Electronics Co., Ltd.

# ALUMINUM ELECTROLYTIC CAPACITORS

# LARGE LIQUID

LARGE LIQUID ALUMINUM ELECTROLYTIC CAPACITOR

Capacitor Solutions, Ask YMIN for your Applications

# Table of contents

## Shanghai Yongming Electronics Co., Ltd.

Shanghai Yongming Electronics Co., Ltd., established in 2001, has always adhered to the service philosophy of "For capacitor applications, if you have any problems, find Yongming." It is a high-tech enterprise specializing in the development of new products, high-precision manufacturing, and application promotion of various capacitors. It is a key new product enterprise in Shanghai, a high-tech enterprise in Shanghai, a brand product enterprise in Shanghai, and an AAA credit-rated enterprise. With a registered capital of 30 million yuan and a land area of 40,000 square meters (60 mu), it has obtained ISO9001, ISO14001, ISO45001, IATF16949 (international standard for the automotive industry), and national military standard quality management system certifications. Its products comply with national grid metrology and testing certifications, RoHS, REACH, and AEC-Q200 (passive component automotive-grade quality certification). Yongming insists on developing innovative products based on customer needs, increasing research investment, and contributing to industry progress.


# Business Unit Introduction

- In 2009, a production line for large-capacity 600V series ultra-high voltage electrolytic capacitors was established to meet the demand. The production line consists of snap-in and bolt-type products.

- We introduce advanced equipment, materials, and technologies from both domestic and international sources to develop and produce various series of large aluminum electrolytic capacitors, including snap-in and bolt-type capacitors.

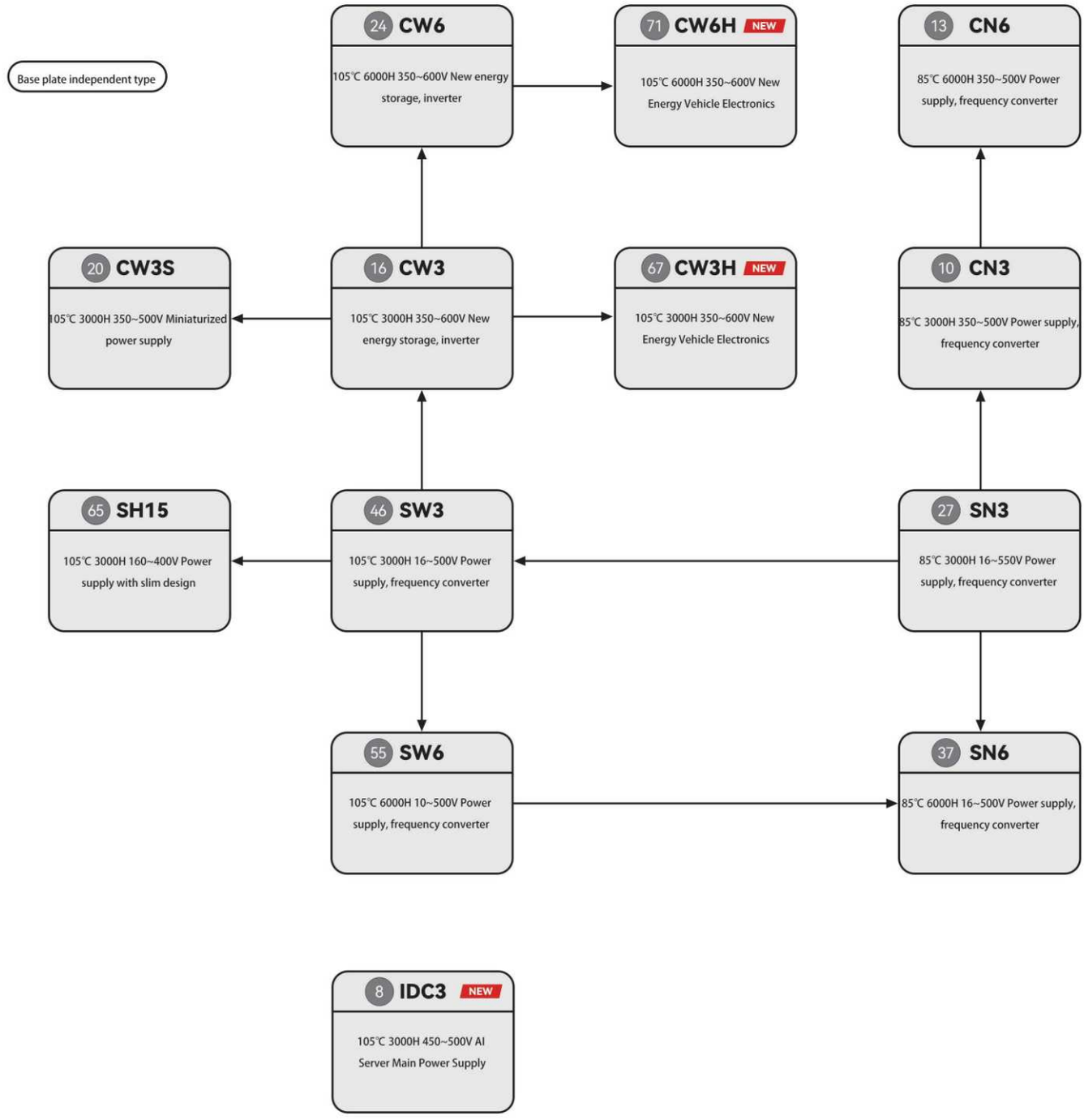

- Currently, we have the R&D and production capabilities for 12 snap-in series and 7 bolt series, and we can also customize large-sized snap-in and bolt products with special requirements for customers.

- To meet the market's demand for high reliability, YMIN has designed its own unique capacitor defect handling technology in the process, which significantly reduces the failure rate of large products.

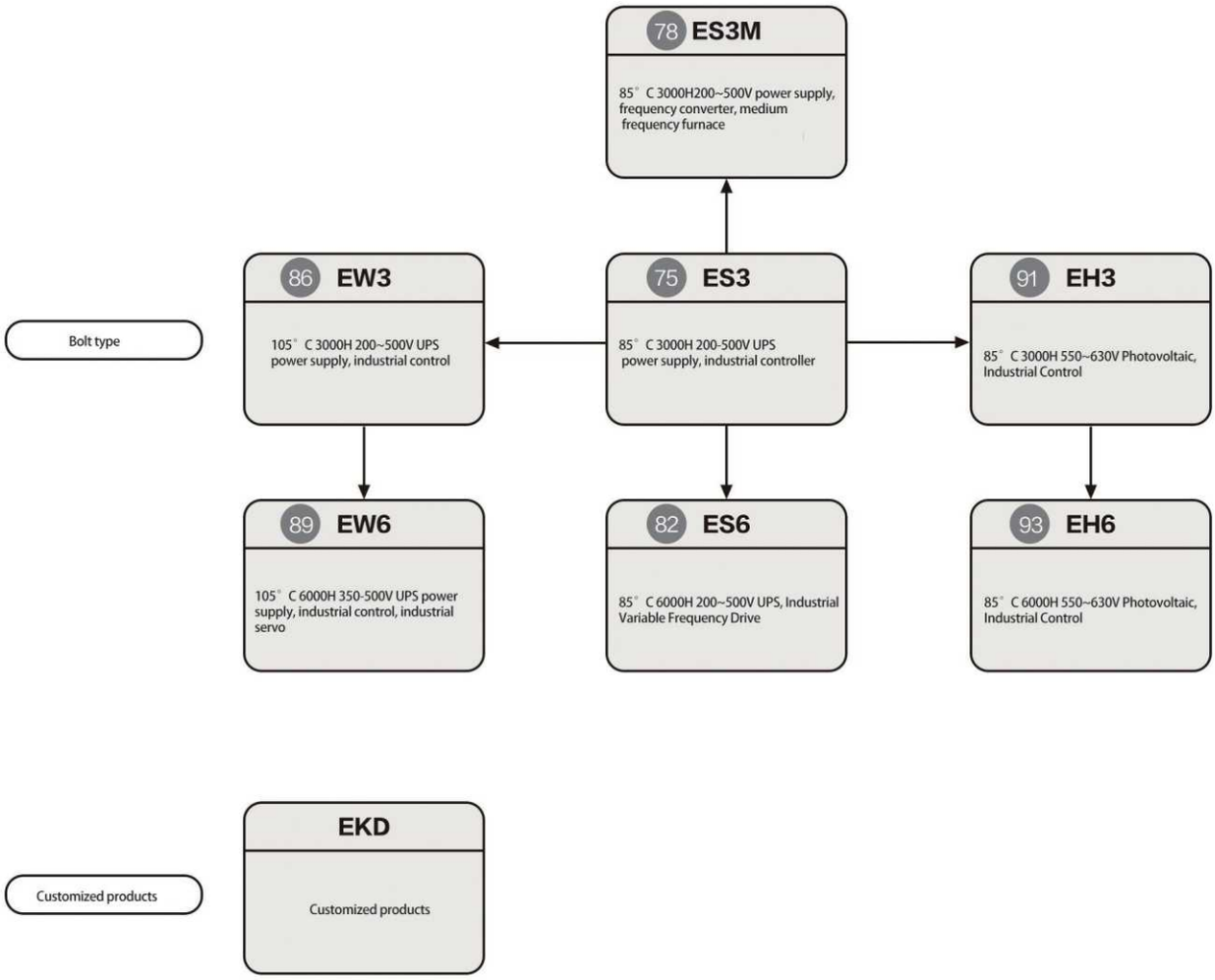
# ■ Large liquid aluminum electrolytic capacitors

| category | series | Features | Standard products | Miniaturized products | High-ripple products | Long-life products | High temperature resistant products | low impedance products | AEC — Q200 | Customized products | Rated Voltage Range (V) | Rated capacitance range (μF) | Operating temperature range (° C) | Lifespan (Hrs) | page number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base plate independent type | IDC3 NEW | Ultra-high capacity and high energy density | | ● | | | | | ● | | 450~500 | 1000~1700 | -40~+105 | 3000 | 8 |
| | CN3 | Ultra-low temperature, high stability, low leakage current | | ● | | | | ● | ● | | 350~500 | 47~1000 | -40~+85 | 3000 | 10 |
| | CN6 | Ultra-low temperature, high stability, low leakage current | | ● | ● | ● | | ● | ● | | 350~500 | 47~1000 | -40~+85 | 6000 | 13 |
| | CW3 | Ultra-low temperature, high stability, low leakage current | | ● | ● | | | ● | ● | | 350~600 | 47~1000 | -40~+105 | 3000 | 16 |
| | CW3S | Ultra-low temperature, high stability, low leakage current | | ● | ● | | | ● | ● | | 350~500 | 47~1000 | -40~+105 | 3000 | 20 |
| | CW6 | Ultra-low temperature, high stability, low leakage current | | ● | ● | ● | | ● | ● | | 350~600 | 82~1000 | -40~+105 | 6000 | 24 |
| | SN3 | High ripple current withstand standard products | ● | | ● | | | ● | | | 16~550 | 100~56000 | -40(-25)~+85 | 3000 | 27 |
| | SN6 | High ripple current withstand, long lifespan | | | ● | ● | | ● | | | 16~500 | 82~22000 | -40(-25)~+85 | 6000 | 37 |
| | SW3 | High ripple current withstand standard products | ● | | ● | | | ● | | | 16~500 | 68~47000 | -40(-25)~+105 | 3000 | 46 |
| | SW6 | High ripple current withstand, long lifespan | | | ● | ● | | ● | | | 10~500 | 47~56000 | -25~+105 | 6000 | 55 |
| | SH15 | Withstands high ripple current 15mml | | | ● | | ● | ● | | | 160~400 | 39~390 | -40(-25)~+105 | 3000 | 65 |
| | CW3H NEW | Ultra-low temperature, high stability, low leakage current | | ● | ● | | | ● | ● | | 350~600 | 120~1000 | -40~+105 | 3000 | 67 |
| | CW6H NEW | Ultra-low temperature, high stability, low leakage current | | ● | ● | | | ● | ● | | 350~600 | 120~1000 | -40~+105 | 6000 | 71 |
| | CKD | Customized products | | | | | | | | ● | Voltage requirements | Capacity requirements | Temperature requirements | Lifespan requirements | / |
| Bolt type | ES3 | High ripple current withstand standard products | ● | | | | | ● | | | 200~500 | 1000~22000 | -40(-25)~+85 | 3000 | 75 |
| | ES3M | High ripple current withstand, small size | | ● | ● | | | ● | | | 200~500 | 1000~39000 | -25~+85 | 3000 | 78 |
| | ES6 | High ripple current withstand, long lifespan | | | ● | ● | | ● | | | 200~500 | 1000~47000 | -25~+85 | 6000 | 82 |
| | EW3 | Wide-temperature standard products | ● | | ● | | | ● | | | 200~500 | 1000~33000 | -25~+105 | 3000 | 86 |
| | EW6 | High ripple current withstand, long lifespan | | | ● | ● | | ● | | | 350~500 | 1000~22000 | -25~+105 | 6000 | 89 |
| | EH3 | Ultra-high pressure response products | ● | | | | | ● | | | 550~630 | 1000~10000 | -25~+85 | 3000 | 91 |
| | EH6 | Ultra-high pressure response products, long lifespan | | | | ● | | ● | | | 550~630 | 1000~10000 | -25~+85 | 6000 | 93 |
| | EKD | Customized products | | | | | | | | ● | Voltage requirements | Capacity requirements | Temperature requirements | Lifespan requirements | / |

## ■ Large liquid aluminum electrolytic capacitors



## ■ Large liquid aluminum electrolytic capacitors



## ■ Substrate Self-Supporting Type

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

| series | code |
|---|---|
| SN3 | SN3 |
| SN6 | SN6 |
| SW3 | SW3 |
| SW6 | SW6 |
| CN3 | CN3 |
| CN6 | CN6 |
| CW3 | CW3 |
| CW3H | CW3H |
| CW6 | CW6 |
| CW6H | CW6H |
| CW3S | CW3S |
| SH15 | SH15 |
| IDC3 | IDC3 |

| Rated voltage (V) | code |
|---|---|
| 16V | 2F |
| 25V | 2N |
| 35V | 1N |
| 40V | 1H |
| 50V | 2Q |
| 63V | 1R |
| 68V | 1C |
| 75V | 2A |
| 80V | 1B |
| 100V | 2R |
| 110V | 2S |
| 120V | 1D |
| 125V | 1X |
| 160V | 2C |
| 180V | 1A |
| 200V | 2D |
| 220V | 1P |
| 250V | 2E |
| 300V | 2K |
| 315V | 2X |
| 330V | 2T |
| 350V | 2V |
| 360V | 2Z |
| 375V | 2F |
| 400V | 2G |
| 410V | 2B |
| 420V | 2I |
| 450V | 2W |
| 475V | 2Y |
| 500V | 2H |
| 525V | 2U |
| 550V | 2L |
| 600V | 2M |
| 630V | 2J |

| Rated capacity (μF) | code |
|---|---|
| 0.1μF | 0R1 |
| 1.0μF | 1R0 |
| 10μF | 100 |
| 100μF | 101 |
| 1000μF | 102 |
| 10000μF | 103 |
| 2200μF | 222 |
| 3300μF | 332 |
| 4700μF | 472 |

| Capacity tolerance | code |
|---|---|
| ±5% | D |
| ±10% | K |
| ±15% | V |
| ±20% | M |
| 0%~+5% | F |
| +10% | T |
| +15% | C |
| +20% | A |

| Tape/Clasp | code |
|---|---|
| Unwoven tape | N |

| Tail column type | code |
|---|---|
| No tail column | N |

| outer diameter | code |
|---|---|
| 22 | Z |
| 25 | Y |
| 28 | P |
| 30 | X |
| 35 | A |
| 40 | B |
| 42 | H |
| 45 | W |

| code | length | Terminal type code |
|---|---|---|
| S00 | 15 | S2 |
| S01 | 20 | S3 |
| S02 | 25 | S4 |
| S03 | 30 | |
| S04 | 35 | |
| S05 | 40 | |
| S06 | 45 | |
| S07 | 50 | |
| S08 | 55 | |
| S09 | 60 | |
| S10 | 65 | |
| G01 | 70 | |
| G02 | 75 | |
| G03 | 80 | |
| G04 | 85 | |
| G05 | 90 | |
| G06 | 95 | |
| G07 | 100 | |
| G08 | 105 | |
| G09 | 110 | |

Code rule: Add the number of zeros to the first two digits.

## ■ Bolt type

1 2 3 4 5 6 7 8 9

| series | code |
|---|---|
| ES3 | ES3 |
| ES3M | ES3M |
| ES6 | ES6 |
| EW3 | EW3 |
| EW6 | EW6 |
| EH3 | EH3 |
| EH6 | EH6 |

| Rated voltage (V) | code |
|---|---|
| 16V | 2F |
| 25V | 2N |
| 35V | 1N |
| 40V | 1H |
| 50V | 2Q |
| 63V | 1R |
| 68V | 1C |
| 75V | 2A |
| 80V | 1B |
| 100V | 2R |
| 110V | 2S |
| 120V | 1D |
| 125V | 1X |
| 160V | 2C |
| 180V | 1A |
| 200V | 2D |
| 220V | 1P |
| 250V | 2E |
| 300V | 2K |
| 315V | 2X |
| 330V | 2T |
| 350V | 2V |
| 360V | 2Z |
| 375V | 2F |
| 400V | 2G |
| 410V | 2B |
| 420V | 2I |
| 450V | 2W |
| 475V | 2Y |
| 500V | 2H |
| 525V | 2U |
| 550V | 2L |
| 600V | 2M |
| 630V | 2J |

| Rated capacity (μF) | code |
|---|---|
| 0.1μF | 0R1 |
| 1.0μF | 1R0 |
| 10μF | 100 |
| 100μF | 101 |
| 1000μF | 102 |
| 10000μF | 103 |
| 2200μF | 222 |
| 3300μF | 332 |
| 4700μF | 472 |
| 5600μF | 562 |
| 6800μF | 682 |
| 8200μF | 822 |
| 27000μF | 273 |
| 33000μF | 333 |

| Capacity tolerance | code |
|---|---|
| ±5% | D |
| ±10% | K |
| ±15% | V |
| ±20% | M |
| 0%~+5% | F |
| +10% | T |
| +15% | C |
| +20% | A |

| Tape/Clasp | code |
|---|---|
| Three-legged braided ribbon | Y |
| Two-legged braided ribbon | I |

| Tail column type | code |
|---|---|
| With tailstock | M |
| Without tailstock | N |

| outer diameter | code |
|---|---|
| 51 | C |
| 64 | D |
| 77 | E |
| 90 | F |
| 101 | G |

| code | length | Terminal type code |
|---|---|---|
| G01 | 70 | M5 |
| G02 | 75 | M6 |
| G03 | 80 | M8 |
| G04 | 85 | |
| G05 | 88 | |
| G06 | 90 | |
| G07 | 96 | |
| G08 | 100 | |
| G09 | 105 | |
| G10 | 110 | |
| G11 | 115 | |
| G12 | 120 | |
| G13 | 125 | |
| G14 | 130 | |
| G15 | 135 | |
| G16 | 140 | |
| G17 | 145 | |
| G18 | 150 | |
| G19 | 155 | |
| G20 | 158 | |
| G21 | 160 | |
| G22 | 165 | |
| G23 | 170 | |
| G24 | 175 | |
| G25 | 180 | |
| G26 | 185 | |
| G26 | 190 | |
| G27 | 195 | |
| G28 | 200 | |
| G29 | 205 | |
| G30 | 210 | |
| G31 | 220 | |
| G32 | 230 | |
| G33 | 235 | |
| G34 | 238 | |
| G35 | 240 | |
| G36 | 250 | |

Code rule: Add the number of zeros to the first two digits.

## Packaging Method and Quantity for Substrate Self-Supporting & Bolt-in Capacitors

| Types | height(mm) | Quantity per carton (pcs) |
|---|---|---|
| Substrate self-supporting type | 15~110 | 43×41×17.5 |
| Bolt type | 75~115 | 51.9×34.1×20 |
| Bolt type | 120~145 | 51.9×34.1×22.1 |
| Bolt type | 150~170 | 51.9×34.1×26.4 |
| Bolt type | 175~190 | 51.9×34.1×30.2 |
| Bolt type | 195~245 | 51.9×34.1×34.4 |

Due to differences in product dimensions, we will use different shims to compensate for the height difference (51.9×34.1×10~20mm) to avoid damage to the product due to shaking during transportation.

## Packing Quantity for Substrate Self-Supporting Products

| height(mm) | Quantity per carton (pcs) | |
|---|---|---|
| | height(mm) | number(pcs) |
| 22 | 20~30 | 810 |
| | 35~60 | 540 |
| 25 | 20~30 | 624 |
| | 35~60 | 416 |
| 30 | 25~30 | 432 |
| | 35~60 | 288 |
| | 65~110 | 144 |
| 35 | 20~30 | 300 |
| | 35~60 | 200 |
| | 65~110 | 100 |
| 40 | 30~60 | 160 |
| | 65~110 | 80 |

## Packing Quantity for Bolt Terminal Type Products

| height(mm) | Quantity per carton (pcs) |
|---|---|
| 35 | 40 |
| 42 | 40 |
| 51 | 40 |
| 64 | 24 |
| 77 | 15 |
| 90 | 12 |
| 101 | 4 |

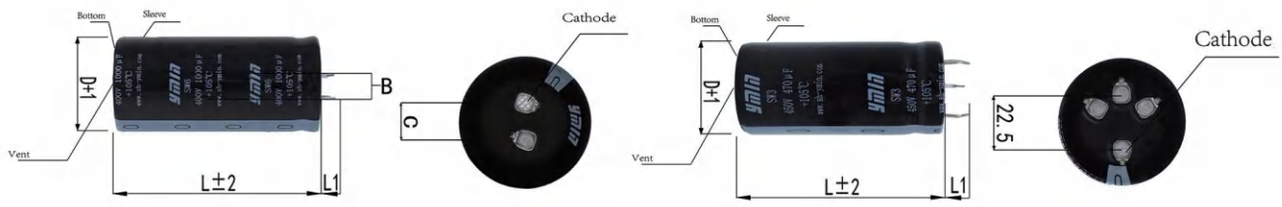
# IDC3

- ◆Ultra-high capacity and high energy density
- ◆105℃, 3000 hours
- ◆Suitable for main power supply of AI servers
- ◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +105℃ |
| Rated Voltage Range | 450 ~ 500V |
| Rated Capacitance Range | 1000 ~ 1700μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦$3\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.20 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(−25℃)/Z(+20℃)≦5 ; Z(−40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ30 |
|---|---|
| B | 11.8 |
| C | 10 |
| $L_1$ | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# IDC3

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 475(525) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 30×60 | 1.96 | 301 | | | |
| 1100 | | | | 30×65 | 2.36 | 273 |
| 1200 | 30×65 | 2.37 | 252 | | | |
| 1400 | 30×70 | 2.75 | 215 | | | |
| 1600 | 30×80 | 3.14 | 188 | | | |

| Operating voltage (V) | 500(550) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1300 | 30×75 | 3.35 | 261 |
| 1500 | 30×85 | 3.75 | 226 |
| 1700 | 30×95 | 4.12 | 199 |

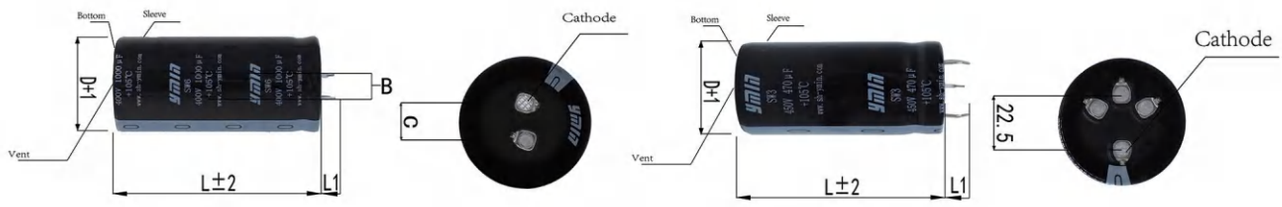
# CN3

- ◆ Compact size, ultra-low temperature operation
- ◆ 85℃, 3000 hours operating time
- ◆ Suitable for frequency converters and industrial drives
- ◆ RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +85℃ |
| Rated Voltage Range | 350 ~ 500V |
| Rated Capacitance Range | 47 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(−25℃)/Z(+20℃)≦5 ; Z(−40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.7 | 1.4 | 1.0 |

# CN3

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 68 | | | | 22×20 | 0.59 | 2536 |
| 82 | 22×20 | 0.70 | 1941 | 22×25 | 0.70 | 2103 |
| 82 | | | | 25×20 | 0.69 | 2103 |
| 100 | | | | 22×25 | 0.77 | 1724 |
| 100 | | | | 25×25 | 0.83 | 1724 |
| 120 | 22×25 | 0.91 | 1326 | 22×30 | 0.90 | 1437 |
| 120 | 25×25 | 0.97 | 1326 | 25×25 | 0.90 | 1437 |
| 120 | | | | 30×20 | 0.92 | 1437 |
| 150 | 22×30 | 1.08 | 1061 | 22×35 | 1.07 | 1149 |
| 150 | 25×25 | 1.07 | 1061 | 25×30 | 1.07 | 1149 |
| 150 | 30×20 | 1.10 | 1061 | 30×25 | 1.11 | 1149 |
| 180 | 22×30 | 1.17 | 884 | 22×40 | 1.23 | 958 |
| 180 | 25×25 | 1.16 | 884 | 25×30 | 1.16 | 958 |
| 180 | 30×20 | 1.19 | 884 | 30×25 | 1.20 | 958 |
| 180 | | | | 35×20 | 1.22 | 958 |
| 220 | 22×35 | 1.36 | 723 | 22×45 | 1.41 | 784 |
| 220 | 25×30 | 1.36 | 723 | 25×35 | 1.35 | 784 |
| 220 | 30×25 | 1.41 | 723 | 30×30 | 1.41 | 784 |
| 220 | 35×20 | 1.42 | 723 | 35×20 | 1.33 | 784 |
| 270 | 22×40 | 1.57 | 589 | 22×50 | 1.61 | 639 |
| 270 | 25×35 | 1.59 | 589 | 25×40 | 1.56 | 639 |
| 270 | 30×25 | 1.54 | 589 | 30×30 | 1.54 | 639 |
| 270 | 35×20 | 1.55 | 589 | 35×25 | 1.57 | 639 |
| 330 | 22×45 | 1.80 | 482 | 25×45 | 1.80 | 522 |
| 330 | 25×40 | 1.83 | 482 | 30×35 | 1.79 | 522 |
| 330 | 30×30 | 1.80 | 482 | 35×30 | 1.84 | 522 |
| 330 | 35×25 | 1.83 | 482 | | | |
| 390 | 25×45 | 2.07 | 408 | 25×50 | 2.03 | 442 |
| 390 | 30×35 | 2.06 | 408 | 30×40 | 2.03 | 442 |
| 390 | 35×30 | 2.11 | 408 | 35×35 | 2.10 | 442 |
| 470 | 25×50 | 2.36 | 339 | 30×45 | 2.33 | 367 |
| 470 | 30×35 | 2.23 | 339 | 35×35 | 2.29 | 367 |
| 470 | 35×30 | 2.30 | 339 | | | |
| 560 | 30×40 | 2.56 | 284 | 30×50 | 2.62 | 308 |
| 560 | 35×35 | 2.65 | 284 | 35×40 | 2.61 | 308 |
| 680 | 30×50 | 3.08 | 234 | 35×50 | 3.12 | 254 |
| 680 | 35×40 | 3.06 | 234 | | | |
| 820 | 35×45 | 3.51 | 194 | 35×55 | 3.49 | 210 |
| 1000 | 35×50 | 4.04 | 159 | 35×60 | 3.93 | 172 |

# CN3

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | 22×20 | 0.45 | 3951 | 22×25 | 0.43 | 4233 |
| 56 | 22×20 | 0.49 | 3316 | 22×25 | 0.47 | 3553 |
| 68 | 22×25 | 0.59 | 2731 | 22×30 | 0.56 | 2926 |
| 68 | 25×20 | 0.59 | 2731 | 25×25 | 0.56 | 2926 |
| 82 | 22×25 | 0.65 | 2264 | 22×30 | 0.61 | 2426 |
| 82 | 25×20 | 0.64 | 2264 | 25×25 | 0.61 | 2426 |
| 82 | 30×20 | 0.71 | 2264 | 30×20 | 0.62 | 2426 |
| 100 | 22×30 | 0.76 | 1857 | 22×35 | 0.71 | 1989 |
| 100 | 25×25 | 0.76 | 1857 | 25×30 | 0.72 | 1989 |
| 100 | 30×20 | 0.78 | 1857 | 30×25 | 0.74 | 1989 |
| 120 | 22×35 | 0.89 | 1547 | 22×40 | 0.82 | 1658 |
| 120 | 25×30 | 0.89 | 1547 | 25×35 | 0.83 | 1658 |
| 120 | 30×25 | 0.92 | 1547 | 30×25 | 0.81 | 1658 |
| 120 | 35×20 | 0.93 | 1547 | 35×20 | 0.82 | 1658 |
| 150 | 22×40 | 1.04 | 1238 | 22×45 | 0.96 | 1326 |
| 150 | 25×30 | 0.98 | 1238 | 25×35 | 0.92 | 1326 |
| 150 | 30×25 | 1.02 | 1238 | 30×30 | 0.96 | 1326 |
| 150 | 35×20 | 1.03 | 1238 | 35×25 | 0.98 | 1326 |
| 180 | 22×45 | 1.18 | 1032 | 22×50 | 1.09 | 1105 |
| 180 | 25×35 | 1.14 | 1032 | 25×40 | 1.06 | 1105 |
| 180 | 30×30 | 1.18 | 1032 | 30×35 | 1.11 | 1105 |
| 180 | 35×25 | 1.21 | 1032 | 35×25 | 1.06 | 1105 |
| 220 | 22×50 | 1.36 | 844 | 22×60 | 1.30 | 904 |
| 220 | 25×40 | 1.32 | 844 | 25×50 | 1.28 | 904 |
| 220 | 30×30 | 1.29 | 844 | 30×35 | 1.21 | 904 |
| 220 | 35×25 | 1.32 | 844 | 35×30 | 1.25 | 904 |
| 270 | 25×45 | 1.52 | 688 | 25×55 | 1.47 | 737 |
| 270 | 30×35 | 1.51 | 688 | 30×40 | 1.41 | 737 |
| 270 | 35×30 | 1.56 | 688 | 35×35 | 1.46 | 737 |
| 330 | 25×50 | 1.75 | 563 | 25×65 | 1.74 | 603 |
| 330 | 30×40 | 1.75 | 563 | 30×50 | 1.71 | 603 |
| 330 | 35×35 | 1.81 | 563 | 35×40 | 1.69 | 603 |
| 390 | 30×45 | 1.99 | 476 | 30×55 | 1.93 | 510 |
| 390 | 35×40 | 2.07 | 476 | 35×45 | 1.93 | 510 |
| 470 | 30×50 | 2.28 | 395 | 35×50 | 2.21 | 423 |
| 470 | 35×45 | 2.37 | 395 | | | |
| 560 | 35×50 | 2.69 | 332 | 35×55 | 2.49 | 355 |
| 680 | 35×55 | 3.00 | 273 | 35×65 | 2.92 | 293 |
| 820 | 35×60 | 3.49 | 226 | 35×65 | 3.37 | 243 |
| 1000 | 35×75 | 4.16 | 186 | 35×75 | 1.88 | 199 |

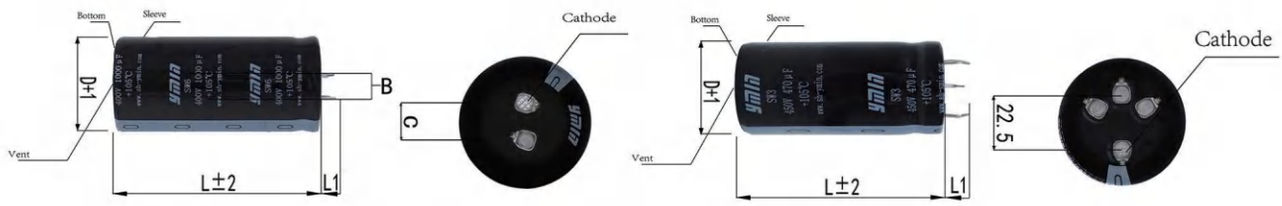
# CN6

- ◆ Compact size, ultra-low temperature operation
- ◆ 85℃, 6000 hours operating time
- ◆ Suitable for frequency converters and industrial drives
- ◆ RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +85℃ |
| Rated Voltage Range | 350 ~ 500V |
| Rated Capacitance Range | 47 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ , 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(−25℃)/Z(+20℃)≦5 ; Z(−40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.7 | 1.4 | 1.0 |

# CN6

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 22×25 | 0.78 | 1592 |
| 120 | 22×25 | 0.92 | 1216 | 22×30 | 0.92 | 1326 |
| 150 | 22×30 | 1.11 | 973 | 22×30 | 1.02 | 1061 |
| 150 | | | | 25×25 | 1.02 | 1061 |
| 180 | 22×30 | 1.20 | 811 | 22×35 | 1.19 | 884 |
| 180 | 25×25 | 1.20 | 811 | 25×30 | 1.19 | 884 |
| 220 | 22×35 | 1.41 | 663 | 22×45 | 1.45 | 723 |
| 220 | 25×30 | 1.41 | 663 | 25×35 | 1.39 | 723 |
| 220 | | | | 30×30 | 1.45 | 723 |
| 270 | 22×40 | 1.63 | 540 | 22×50 | 1.67 | 589 |
| 270 | 25×35 | 1.65 | 540 | 25×40 | 1.62 | 589 |
| 270 | 30×30 | 1.72 | 540 | 30×30 | 1.59 | 589 |
| 270 | | | | 35×25 | 1.62 | 589 |
| 330 | 22×45 | 1.87 | 442 | 25×45 | 1.86 | 482 |
| 330 | 25×40 | 1.90 | 442 | 30×35 | 1.85 | 482 |
| 330 | 30×30 | 1.87 | 442 | 35×30 | 1.90 | 482 |
| 390 | 25×45 | 2.16 | 374 | 25×50 | 2.10 | 408 |
| 390 | 30×35 | 2.14 | 374 | 30×40 | 2.11 | 408 |
| 390 | | | | 35×30 | 2.05 | 408 |
| 470 | 25×50 | 2.45 | 310 | 30×45 | 2.42 | 339 |
| 470 | 30×40 | 2.46 | 310 | 35×35 | 2.37 | 339 |
| 470 | 35×30 | 2.39 | 310 | | | |
| 560 | 30×45 | 2.78 | 261 | 30×50 | 2.72 | 284 |
| 560 | 35×35 | 2.74 | 261 | 35×40 | 2.70 | 284 |
| 680 | 30×50 | 3.16 | 215 | 35×45 | 3.09 | 234 |
| 680 | 35×40 | 3.14 | 215 | | | |
| 820 | 35×45 | 3.56 | 178 | 35×55 | 3.60 | 194 |
| 1000 | 35×55 | 4.06 | 146 | 35×65 | 4.09 | 159 |

# CN6

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 68 | 22×25 | 0.50 | 2536 | 22×30 | 0.46 | 2731 |
| 82 | 22×30 | 0.56 | 2103 | 22×35 | 0.54 | 2264 |
| 100 | 22×30 | 0.64 | 1724 | 22×35 | 0.60 | 1857 |
| 100 | 25×25 | 0.64 | 1724 | 25×30 | 0.60 | 1857 |
| 120 | 22×35 | 0.72 | 1437 | 22×40 | 0.66 | 1547 |
| 120 | 25×30 | 0.72 | 1437 | 25×35 | 0.66 | 1547 |
| 150 | 22×40 | 0.79 | 1149 | 22×45 | 0.74 | 1238 |
| 150 | 25×30 | 0.79 | 1149 | 25×40 | 0.73 | 1238 |
| 150 | 30×25 | 0.79 | 1149 | 30×30 | 0.73 | 1238 |
| 180 | 22×45 | 0.87 | 958 | 25×45 | 0.86 | 1032 |
| 180 | 25×35 | 0.87 | 958 | 30×35 | 0.85 | 1032 |
| 180 | 30×30 | 0.87 | 958 | 35×30 | 0.85 | 1032 |
| 220 | 25×45 | 1.00 | 784 | 25×50 | 0.98 | 844 |
| 220 | 30×30 | 1.00 | 784 | 30×40 | 0.96 | 844 |
| 220 | 35×25 | 1.00 | 784 | 35×30 | 0.96 | 844 |
| 270 | 25×45 | 1.19 | 639 | 25×55 | 1.11 | 688 |
| 270 | 30×40 | 1.19 | 639 | 30×45 | 1.08 | 688 |
| 270 | 35×30 | 1.19 | 639 | 35×35 | 0.08 | 688 |
| 330 | 30×45 | 1.38 | 522 | 30×50 | 1.27 | 563 |
| 330 | 35×35 | 1.38 | 522 | 35×40 | 1.25 | 563 |
| 390 | 30×50 | 1.55 | 442 | 30×55 | 1.30 | 476 |
| 390 | 35×40 | 1.55 | 442 | 35×45 | 1.29 | 476 |
| 470 | 35×45 | 1.74 | 367 | 35×50 | 1.59 | 395 |
| 560 | 35×50 | 1.88 | 308 | 35×55 | 1.75 | 332 |
| 680 | 35×55 | 1.98 | 254 | 35×70 | 1.89 | 273 |
| 820 | 35×65 | 2.08 | 210 | 35×80 | 2.03 | 226 |

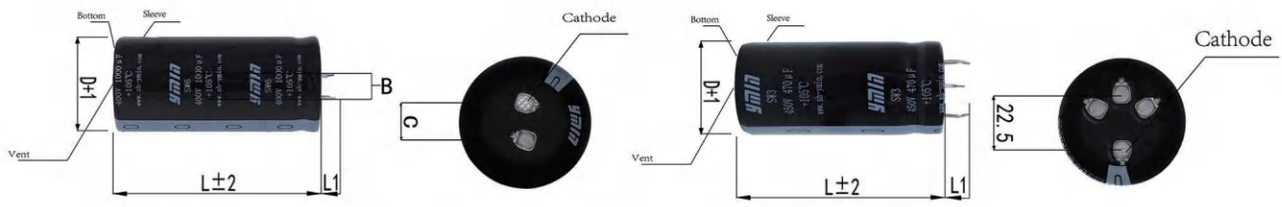
# CW3

- ◆ Compact size, ultra-low temperature operation
- ◆ 105℃, 3000 hours operating time
- ◆ Suitable for home inverter and servo applications
- ◆ RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +105℃ |
| Rated Voltage Range | 350 ~ 600V |
| Rated Capacitance Range | 47 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦$3\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.20 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(−25℃)/Z(+20℃)≦5 ; Z(−40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ＞100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# CW3

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | | | | 22×20 | 0.34 | 3386 |
| 56 | 22×20 | 0.40 | 2605 | 22×20 | 0.37 | 2842 |
| 68 | 25×20 | 0.48 | 2145 | 22×25 | 0.44 | 2341 |
| 68 | | | | 25×20 | 0.43 | 2341 |
| 82 | 22×25 | 0.52 | 1779 | 22×25 | 0.48 | 1941 |
| 82 | 25×20 | 0.52 | 1779 | 25×20 | 0.47 | 1941 |
| 100 | 22×25 | 0.57 | 1459 | 22×30 | 0.57 | 1592 |
| 100 | 30×20 | 0.63 | 1459 | 25×25 | 0.57 | 1592 |
| 100 | | | | 30×20 | 0.58 | 1592 |
| 120 | 22×30 | 0.67 | 1216 | 22×30 | 0.62 | 1326 |
| 120 | 25×25 | 0.67 | 1216 | 25×25 | 0.61 | 1326 |
| 120 | 30×20 | 0.68 | 1216 | 30×20 | 0.63 | 1326 |
| 120 | | | | 35×20 | 0.69 | 1326 |
| 150 | 22×35 | 0.79 | 973 | 22×35 | 0.73 | 1061 |
| 150 | 25×30 | 0.73 | 973 | 25×30 | 0.73 | 1061 |
| 150 | 30×25 | 0.82 | 973 | 30×25 | 0.75 | 1061 |
| 150 | 35×20 | 0.82 | 973 | 35×20 | 0.76 | 1061 |
| 180 | 22×40 | 0.90 | 811 | 22×40 | 0.83 | 884 |
| 180 | 25×30 | 0.85 | 811 | 25×30 | 0.79 | 884 |
| 180 | 30×25 | 0.88 | 811 | 30×25 | 0.82 | 884 |
| 180 | | | | 35×25 | 0.89 | 884 |
| 220 | 22×45 | 1.03 | 663 | 22×45 | 0.96 | 723 |
| 220 | 25×35 | 0.99 | 663 | 25×40 | 0.97 | 723 |
| 220 | 30×25 | 0.96 | 663 | 30×30 | 0.96 | 723 |
| 220 | 35×25 | 1.05 | 663 | 35×25 | 0.98 | 723 |
| 270 | 22×50 | 1.18 | 540 | 25×45 | 1.12 | 589 |
| 270 | 25×40 | 1.14 | 540 | 30×30 | 1.05 | 589 |
| 270 | 30×30 | 1.12 | 540 | 35×25 | 1.07 | 589 |
| 270 | 35×25 | 1.15 | 540 | | | |
| 330 | 25×45 | 1.31 | 442 | 25×50 | 1.28 | 482 |
| 330 | 30×35 | 1.31 | 442 | 30×35 | 1.22 | 482 |
| 330 | 35×30 | 1.34 | 442 | 35×30 | 1.25 | 482 |
| 390 | 25×50 | 1.48 | 374 | 25×55 | 1.44 | 408 |
| 390 | 30×35 | 1.41 | 374 | 30×40 | 1.39 | 408 |
| 390 | 35×30 | 1.44 | 374 | 35×35 | 1.43 | 408 |
| 470 | 25×60 | 1.75 | 310 | 30×45 | 1.59 | 339 |
| 470 | 30×45 | 1.70 | 310 | 35×40 | 1.65 | 339 |
| 470 | 35×35 | 1.67 | 310 | | | |
| 560 | 30×50 | 1.92 | 261 | 30×50 | 1.79 | 284 |

# CW3

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 560 | 35×40 | 1.91 | 261 | 35×45 | 1.87 | 284 |
| 680 | 30×60 | 2.26 | 215 | 35×50 | 2.13 | 234 |
| 680 | 35×45 | 2.18 | 215 | | | |
| 820 | 35×50 | 2.44 | 178 | 35×55 | 2.38 | 194 |
| 1000 | 35×55 | 2.68 | 146 | 35×70 | 2.80 | 159 |

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | | | | 22×25 | 0.30 | 3951 |
| 56 | 22×25 | 0.38 | 3079 | 22×30 | 0.35 | 3316 |
| 68 | 22×30 | 0.45 | 2536 | 22×30 | 0.39 | 2731 |
| 68 | 25×25 | 0.41 | 2536 | 25×25 | 0.38 | 2731 |
| 82 | 22×25 | 0.45 | 2103 | 22×35 | 0.45 | 2264 |
| 82 | 25×20 | 0.44 | 2103 | 25×30 | 0.45 | 2264 |
| 100 | 22×35 | 0.57 | 1724 | 22×45 | 0.55 | 1857 |
| 100 | 25×30 | 0.53 | 1724 | 25×35 | 0.53 | 1857 |
| 100 | 30×25 | 0.59 | 1724 | 30×25 | 0.51 | 1857 |
| 120 | 22×40 | 0.66 | 1437 | 22×50 | 0.63 | 1547 |
| 120 | 25×25 | 0.58 | 1437 | 25×40 | 0.61 | 1547 |
| 120 | 30×25 | 0.64 | 1437 | 30×30 | 0.60 | 1547 |
| 120 | 35×20 | 0.65 | 1437 | 35×25 | 0.61 | 1547 |
| 150 | 22×45 | 0.76 | 1149 | 22×50 | 0.70 | 1238 |
| 150 | 25×30 | 0.69 | 1149 | 25×40 | 0.68 | 1238 |
| 150 | 30×25 | 0.71 | 1149 | 30×30 | 0.67 | 1238 |
| 150 | 35×25 | 0.72 | 1149 | 35×25 | 0.68 | 1238 |
| 180 | | | | 22×60 | 0.82 | 1032 |
| 180 | 22×40 | 0.78 | 958 | 25×50 | 0.81 | 1032 |
| 180 | 25×35 | 0.79 | 958 | 30×35 | 0.77 | 1032 |
| 180 | 30×30 | 0.82 | 958 | 35×30 | 0.79 | 1032 |
| 220 | | | | 22×65 | 0.93 | 844 |
| 220 | 25×40 | 0.92 | 784 | 25×55 | 0.93 | 844 |
| 220 | 30×30 | 0.91 | 784 | 30×40 | 0.89 | 844 |
| 220 | 35×25 | 0.93 | 784 | 35×25 | 0.81 | 844 |
| 270 | 25×45 | 1.07 | 639 | 25×60 | 1.06 | 688 |

# CW3

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 270 | 30×35 | 1.06 | 639 | 30×45 | 1.03 | 688 |
| 270 | 35×30 | 1.09 | 639 | 35×35 | 1.01 | 688 |
| 330 | | | | 25×70 | 1.25 | 563 |
| 330 | 30×40 | 1.23 | 522 | 30×50 | 1.18 | 563 |
| 330 | 35×35 | 1.27 | 522 | 35×40 | 1.17 | 563 |
| 390 | 30×45 | 1.40 | 442 | 30×60 | 1.39 | 476 |
| 390 | 35×35 | 1.38 | 442 | 35×45 | 1.33 | 476 |
| 470 | 30×50 | 1.60 | 367 | 30×65 | 1.57 | 395 |
| 470 | 35×40 | 1.59 | 367 | 35×50 | 1.52 | 395 |
| 560 | 30×60 | 1.88 | 308 | 30×65 | 1.81 | 332 |
| 560 | 35×45 | 1.81 | 308 | 35×50 | 1.79 | 332 |
| 680 | 35×55 | 2.15 | 254 | 35×65 | 2.15 | 273 |
| 820 | 35×60 | 2.40 | 210 | 35×70 | 2.55 | 226 |
| 1000 | 35×70 | 2.72 | 172 | 35×85 | 2.91 | 186 |

# CW3S

◆Ultra-compact size, high reliability, ultra-low temperature capability

◆105℃, 3000 hours

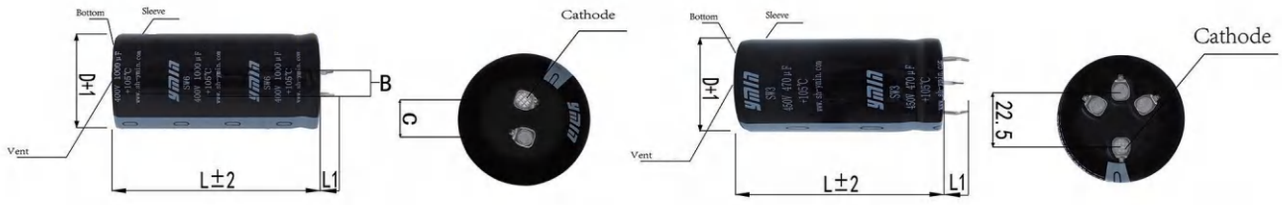
◆Suitable for industrial drives and servos

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +105℃ |
| Rated Voltage Range | 350 ~ 500V |
| Rated Capacitance Range | 47 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦$3\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥ 100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| L1 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# CW3S

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | | | | 22×20 | 0.32 | 3454 |
| 56 | 22×20 | 0.38 | 2657 | 22×20 | 0.35 | 2899 |
| 68 | 22×20 | 0.45 | 2188 | 22×20 | 0.42 | 2387 |
| 82 | 22×20 | 0.50 | 1815 | 22×20 | 0.46 | 1980 |
| 100 | 22×25 | 0.55 | 1488 | 22×25 | 0.54 | 1623 |
| 100 | 25×20 | 0.60 | 1488 | 25×20 | 0.54 | 1623 |
| 120 | 22×25 | 0.64 | 1240 | 22×25 | 0.59 | 1353 |
| 120 | 25×20 | 0.63 | 1240 | 25×25 | 0.59 | 1353 |
| 150 | 22×30 | 0.75 | 992 | 22×30 | 0.69 | 1082 |
| 150 | 25×25 | 0.70 | 992 | 25×25 | 0.69 | 1082 |
| 150 | 30×20 | 0.78 | 992 | 30×20 | 0.72 | 1082 |
| 180 | 22×30 | 0.85 | 827 | 22×30 | 0.79 | 902 |
| 180 | 25×25 | 0.81 | 827 | 25×25 | 0.75 | 902 |
| 180 | 30×20 | 0.84 | 827 | 30×20 | 0.78 | 902 |
| 220 | 22×35 | 0.98 | 676 | 22×35 | 0.91 | 738 |
| 220 | 25×30 | 0.94 | 676 | 25×30 | 0.93 | 738 |
| 220 | 30×20 | 0.91 | 676 | 30×25 | 0.91 | 738 |
| 220 | | | | 35×20 | 0.93 | 738 |
| 270 | 22×40 | 1.12 | 551 | 22×45 | 1.07 | 601 |
| 270 | 25×30 | 1.09 | 551 | 25×35 | 1.00 | 601 |
| 270 | 30×25 | 1.07 | 551 | 30×25 | 1.02 | 601 |
| 270 | 35×20 | 1.09 | 551 | | | |
| 330 | 22×45 | 1.25 | 451 | 22×50 | 1.22 | 492 |
| 330 | 25×35 | 1.25 | 451 | 25×40 | 1.22 | 492 |
| 330 | 30×25 | 1.24 | 451 | 30×30 | 1.16 | 492 |
| 330 | 35×20 | 1.28 | 451 | 35×25 | 1.19 | 492 |
| 390 | 25×40 | 1.41 | 382 | 22×55 | 1.37 | 416 |
| 390 | 30×30 | 1.34 | 382 | 25×45 | 1.37 | 416 |
| 390 | 35×25 | 1.38 | 382 | 30×35 | 1.32 | 416 |
| 390 | | | | 35×30 | 1.37 | 416 |
| 470 | 25×45 | 1.66 | 317 | 25×50 | 1.52 | 345 |
| 470 | 30×35 | 1.62 | 317 | 30×40 | 1.57 | 345 |
| 470 | 35×30 | 1.59 | 317 | 35×30 | 1.57 | 345 |
| 560 | 30×40 | 1.83 | 266 | 30×45 | 1.71 | 290 |
| 560 | 35×30 | 1.82 | 266 | 35×35 | 1.78 | 290 |
| 680 | 30×45 | 2.15 | 219 | 35×40 | 2.03 | 239 |
| 680 | 35×35 | 2.08 | 219 | | | |
| 820 | 35×40 | 2.32 | 181 | 35×45 | 2.27 | 198 |
| 1000 | 35×45 | 2.55 | 149 | 35×55 | 2.67 | 162 |

# CW3S

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | | | | 22×20 | 0.28 | 4030 |
| 56 | 22×20 | 0.36 | 3140 | 22×25 | 0.33 | 3382 |
| 68 | 22×20 | 0.42 | 2586 | 22×25 | 0.37 | 2785 |
| 68 | | | | 25×20 | 0.37 | 2785 |
| 82 | 22×25 | 0.43 | 2145 | 22×25 | 0.43 | 2310 |
| 82 | 25×20 | 0.42 | 2145 | 25×20 | 0.43 | 2310 |
| 100 | 22×25 | 0.54 | 1759 | 22×30 | 0.53 | 1894 |
| 100 | 25×20 | 0.51 | 1759 | 25×25 | 0.51 | 1894 |
| 100 | | | | 30×20 | 0.49 | 1894 |
| 120 | 22×30 | 0.62 | 1466 | 22×35 | 0.60 | 1578 |
| 120 | 25×25 | 0.55 | 1466 | 25×30 | 0.58 | 1578 |
| 120 | 30×20 | 0.61 | 1466 | 30×20 | 0.57 | 1578 |
| 150 | 22×30 | 0.73 | 1172 | 22×40 | 0.66 | 1263 |
| 150 | 25×25 | 0.65 | 1172 | 25×30 | 0.64 | 1263 |
| 150 | 30×20 | 0.68 | 1172 | 30×25 | 0.63 | 1263 |
| 150 | | | | 35×20 | 0.65 | 1263 |
| 180 | 22×35 | 0.75 | 977 | 22×45 | 0.78 | 1052 |
| 180 | 25×30 | 0.75 | 977 | 25×35 | 0.77 | 1052 |
| 180 | 30×25 | 0.79 | 977 | 30×30 | 0.73 | 1052 |
| 180 | | | | 35×25 | 0.75 | 1052 |
| 220 | 25×30 | 0.88 | 799 | 22×50 | 0.89 | 861 |
| 220 | 30×25 | 0.86 | 799 | 25×40 | 0.88 | 861 |
| 220 | 35×20 | 0.88 | 799 | 30×30 | 0.85 | 861 |
| 220 | | | | 35×25 | 0.77 | 861 |
| 270 | 22×45 | 1.01 | 651 | 25×50 | 1.01 | 701 |
| 270 | 25×35 | 1.01 | 651 | 30×35 | 0.98 | 701 |
| 270 | 30×30 | 1.01 | 651 | 35×30 | 0.96 | 701 |
| 270 | 35×25 | 1.04 | 651 | | | |
| 330 | 25×45 | 1.17 | 533 | 25×55 | 1.19 | 574 |
| 330 | 30×35 | 1.17 | 533 | 30×40 | 1.13 | 574 |
| 330 | 35×30 | 1.21 | 533 | 35×35 | 1.12 | 574 |
| 390 | 25×50 | 1.33 | 451 | 30×45 | 1.32 | 486 |
| 390 | 30×40 | 1.33 | 451 | 35×40 | 1.27 | 486 |
| 390 | 35×30 | 1.31 | 451 | | | |
| 470 | 25×60 | 1.52 | 374 | 30×50 | 1.49 | 403 |
| 470 | 30×45 | 1.52 | 374 | 35×45 | 1.45 | 403 |
| 470 | 35×35 | 1.51 | 374 | | | |
| 560 | 30×50 | 1.79 | 314 | 30×60 | 1.72 | 338 |
| 560 | 35×40 | 1.72 | 314 | 35×50 | 1.70 | 338 |

# CW3S

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| **680** | 35×45 | 2.04 | 259 | 35×55 | 2.05 | 279 |
| **820** | 35×50 | 2.28 | 214 | 35×65 | 2.43 | 231 |
| **1000** | 35×60 | 2.59 | 176 | 35×75 | 2.77 | 189 |

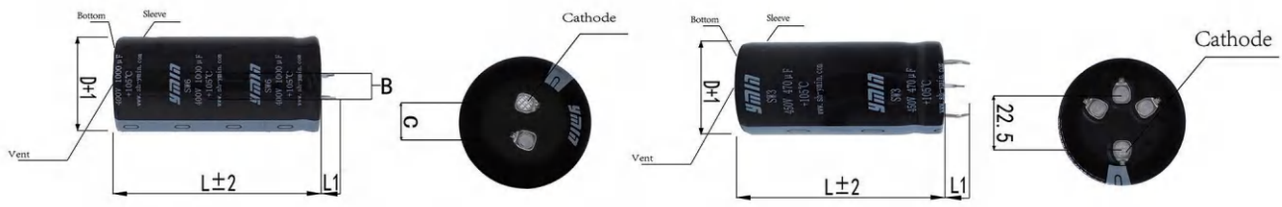
# CW6

- ◆ Compact size, high reliability, ultra-low temperature capability
- ◆ 105℃, 6000 hours
- ◆ Suitable for photovoltaic and industrial applications
- ◆ RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +105℃ |
| Rated Voltage Range | 350 ~ 600V |
| Rated Capacitance Range | 82 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.20 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(−25℃)/C(+20℃)≧0.8 ; C(−40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(−25℃)/Z(+20℃)≦5 ; Z(−40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 6000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# CW6

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 22×25 | 0.54 | 1459 |
| 120 | 22×25 | 0.64 | 1105 | 22×30 | 0.63 | 1216 |
| 150 | 22×30 | 0.77 | 884 | 22×35 | 0.76 | 973 |
| 150 | | | | 25×30 | 0.76 | 973 |
| 180 | 25×30 | 0.90 | 737 | 22×40 | 0.87 | 811 |
| 180 | | | | 25×30 | 0.83 | 811 |
| 180 | | | | 30×25 | 0.85 | 811 |
| 220 | 22×40 | 1.03 | 603 | 22×45 | 1.00 | 663 |
| 220 | 25×30 | 0.98 | 603 | 25×35 | 0.96 | 663 |
| 220 | 30×25 | 1.01 | 603 | 35×25 | 1.03 | 663 |
| 270 | 22×45 | 1.19 | 491 | 22×50 | 1.15 | 540 |
| 270 | 25×35 | 1.14 | 491 | 25×45 | 1.18 | 540 |
| 270 | 30×30 | 1.18 | 491 | 30×30 | 1.10 | 540 |
| 270 | 35×25 | 1.21 | 491 | | | |
| 330 | 22×50 | 1.35 | 402 | 25×50 | 1.35 | 442 |
| 330 | 25×40 | 1.31 | 402 | 30×35 | 1.28 | 442 |
| 330 | 30×35 | 1.37 | 402 | 35×30 | 1.31 | 442 |
| 390 | 25×45 | 1.49 | 340 | 30×40 | 1.46 | 374 |
| 390 | 30×40 | 1.56 | 340 | 35×35 | 1.51 | 374 |
| 390 | 35×30 | 1.52 | 340 | | | |
| 470 | 25×55 | 1.77 | 282 | 30×45 | 1.67 | 310 |
| 470 | 30×45 | 1.78 | 282 | 35×40 | 1.73 | 310 |
| 470 | 35×35 | 1.75 | 282 | | | |
| 560 | 30×50 | 2.02 | 237 | 35×45 | 1.96 | 261 |
| 560 | 35×40 | 2.00 | 237 | | | |
| 680 | 35×45 | 2.29 | 195 | 35×50 | 2.23 | 215 |
| 820 | 35×50 | 2.55 | 162 | 35×55 | 2.49 | 178 |
| 1000 | 35×55 | 2.79 | 133 | 35×65 | 2.83 | 146 |

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 82 | 22×25 | 0.45 | 1941 | 22×35 | 0.45 | 2103 |
| 100 | 22×30 | 0.54 | 1592 | 22×40 | 0.53 | 1724 |
| 100 | 25×25 | 0.54 | 1592 | 25×35 | 0.54 | 1724 |
| 120 | 22×35 | 0.63 | 1326 | 25×40 | 0.62 | 1437 |
| 150 | 22×40 | 0.74 | 1061 | 25×50 | 0.76 | 1149 |
| 150 | 25×30 | 0.70 | 1061 | 30×35 | 0.73 | 1149 |

# CW6

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 150 | 30×25 | 0.73 | 1061 | 35×30 | 0.75 | 1149 |
| 180 | 22×45 | 0.85 | 884 | 30×35 | 0.79 | 958 |
| 180 | 25×35 | 0.81 | 884 | 35×30 | 0.81 | 958 |
| 180 | 30×30 | 0.85 | 884 | | | |
| 180 | 35×25 | 0.87 | 884 | | | |
| 220 | 25×40 | 0.94 | 723 | 30×40 | 0.92 | 784 |
| 220 | 30×35 | 0.99 | 723 | 35×35 | 0.95 | 784 |
| 220 | 35×30 | 1.02 | 723 | | | |
| 270 | 25×45 | 1.09 | 589 | 30×50 | 1.11 | 639 |
| 270 | 30×40 | 1.15 | 589 | 35×40 | 1.10 | 639 |
| 270 | 35×35 | 1.19 | 589 | | | |
| 330 | 30×45 | 1.33 | 482 | 30×55 | 1.27 | 522 |
| 390 | 30×50 | 1.50 | 408 | 30×65 | 1.48 | 442 |
| 390 | 35×40 | 1.49 | 408 | 35×50 | 1.44 | 442 |
| 470 | 35×40 | 1.63 | 339 | 35×55 | 1.64 | 367 |
| 560 | 35×50 | 1.93 | 284 | 35×65 | 1.91 | 308 |
| 680 | 35×55 | 2.19 | 234 | 35×65 | 2.22 | 254 |
| 820 | 35×60 | 2.45 | 194 | 35×90 | 2.61 | 210 |
| 1000 | 35×70 | 2.78 | 159 | | | |

| Operating voltage (V) | 550(600) | | | 600(650) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 120 | 30×30 | 0.91 | 1547 | 30×40 | 0.96 | 1658 |
| | | | | 35×30 | 0.95 | 1658 |
| 150 | 30×35 | 1.04 | 1237 | 30×45 | 1.10 | 1325 |
| | | | | 35×35 | 1.07 | 1325 |
| 180 | 30×40 | 1.17 | 1032 | 30×50 | 1.22 | 1092 |
| | 35×30 | 1.10 | 1032 | 35×40 | 1.22 | 1092 |
| 220 | 30×50 | 1.35 | 844 | 30×60 | 1.40 | 893 |
| | 35×40 | 1.28 | 844 | 35×45 | 1.38 | 893 |
| 270 | 35×45 | 1.45 | 688 | 35×50 | 1.56 | 728 |
| 330 | 35×50 | 1.64 | 563 | 35×60 | 1.79 | 522 |
| 390 | 35×60 | 1.85 | 476 | | | |
| 470 | 35×60 | 2.22 | 390 | 35×65 | 2.15 | 317 |
| 680 | 35×75 | 3.87 | 305 | 40×70 | 3.74 | 223 |

# SN3

◆Standard product

◆85℃, 3000 hours

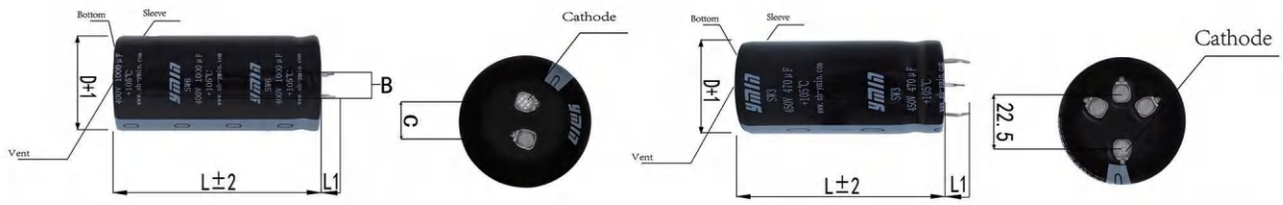
◆Suitable for industrial drives, servos, and power supplies

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | (16 ~ 100V)−40 ~ +85℃ ; (160 ~ 550V)−25 ~ +85℃ |
| Rated Voltage Range | 16 ~ 550V |
| Rated Capacitance Range | 100 ~ 56000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | Rated voltage (V): 16 / 25 / 35 / 50 / 63~100 / 160~400 / 450~550<br>tg δ: 0.5 / 0.4 / 0.35 / 0.3 / 0.2 / 0.15 / 0.2 |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC): ≦ ±20% of the initial value<br>Loss value (tg δ): ≦ 200% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC): ≦ ±15% of the initial value<br>Loss value (tg δ): ≦ 150% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.7 | 1.4 | 1.0 |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 16(20) | | | 25(32) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 5600 | | | | 22×25 | 2.10 | 84 |
| 6800 | | | | 22×30 | 2.40 | 69 |
| 6800 | | | | 25×25 | 2.42 | 68 |
| 8200 | 22×25 | 2.20 | 65 | 22×35 | 2.59 | 57 |
| 10000 | 22×30 | 2.50 | 66 | 22×40 | 2.84 | 48 |
| 10000 | 25×25 | 2.60 | 67 | 25×30 | 2.86 | 48 |
| 10000 | | | | 30×25 | 2.88 | 47 |
| 12000 | 22×35 | 2.90 | 46 | 22×45 | 3.28 | 40 |
| 12000 | | | | 25×35 | 3.30 | 40 |
| 12000 | | | | 30×30 | 3.32 | 39 |
| 15000 | 22×40 | 3.20 | 37 | 25×40 | 3.68 | 32 |
| 15000 | 25×30 | 3.30 | 36 | 35×25 | 3.70 | 31 |
| 15000 | 30×25 | 3.40 | 36 | | | |
| 18000 | 22×45 | 3.60 | 30 | 25×50 | 4.31 | 27 |
| 18000 | 25×35 | 3.70 | 30 | 30×35 | 4.34 | 26 |
| 18000 | | | | 35×30 | 4.36 | 26 |
| 22000 | 22×50 | 4.10 | 25 | 30×40 | 4.86 | 23 |
| 22000 | 25×40 | 4.20 | 25 | 35×35 | 4.88 | 23 |
| 22000 | 30×30 | 4.30 | 25 | | | |
| 22000 | 35×25 | 4.40 | 25 | | | |
| 27000 | 25×45 | 5.00 | 21 | | | |
| 27000 | 30×35 | 5.00 | 20 | | | |
| 33000 | 30×40 | 5.60 | 18 | 35×40 | 6.53 | 15 |
| 33000 | 35×30 | 5.40 | 17 | | | |
| 39000 | 30×45 | 6.20 | 15 | 35×45 | 7.52 | 12 |
| 39000 | 35×35 | 6.30 | 15 | | | |
| 47000 | 30×50 | 7.00 | 12 | | | |
| 47000 | 35×40 | 7.20 | 12 | | | |
| 56000 | 35×45 | 8.00 | 10 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 35(44) | | | 50(63) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2200 | | | | 22×25 | 1.62 | 122 |
| 2700 | | | | 22×30 | 1.86 | 102 |
| 2700 | | | | 25×25 | 1.89 | 103 |
| 3300 | 22×25 | 1.82 | 101 | 22×35 | 1.99 | 99 |
| 3900 | 22×30 | 2.13 | 87 | 22×35 | 2.11 | 87 |
| 3900 | | | | 25×30 | 2.13 | 87 |
| 3900 | | | | 30×25 | 2.14 | 88 |
| 4700 | 25×25 | 2.16 | 72 | 22×40 | 2.41 | 73 |
| 4700 | | | | 25×35 | 2.43 | 73 |
| 5600 | 22×35 | 2.32 | 73 | 22×50 | 2.54 | 75 |
| 5600 | 25×30 | 2.36 | 74 | 25×40 | 2.56 | 75 |
| 5600 | | | | 30×30 | 2.58 | 75 |
| 5600 | | | | 35×25 | 2.6 | 75 |
| 6800 | 22×40 | 2.73 | 59 | 25×45 | 2.82 | 60 |
| 6800 | 25×35 | 2.76 | 63 | 30×35 | 2.84 | 61 |
| 6800 | 30×25 | 2.79 | 65 | | | |
| 8200 | 22×50 | 3.05 | 58 | 25×50 | 3.24 | 59 |
| 8200 | 25×40 | 3.08 | 56 | 30×40 | 3.26 | 59 |
| 8200 | 30×30 | 3.11 | 55 | 35×30 | 3.28 | 59 |
| 8200 | 35×25 | 3.14 | 52 | | | |
| 10000 | 25×45 | 3.31 | 49 | 30×45 | 3.42 | 48 |
| 10000 | 30×35 | 3.34 | 49 | 35×35 | 3.44 | 48 |
| 12000 | 25×50 | 3.54 | 40 | 30×50 | 3.82 | 39 |
| 12000 | 30×40 | 3.56 | 40 | 35×40 | 3.84 | 40 |
| 12000 | 35×30 | 3.58 | 40 | | | |
| 15000 | 30×45 | 4.12 | 31 | 35×50 | 4.52 | 32 |
| 15000 | 35×35 | 4.15 | 31 | | | |
| 18000 | 30×50 | 4.65 | 26 | | | |
| 18000 | 35×40 | 4.68 | 26 | | | |
| 22000 | 35×45 | 5.26 | 22 | | | |
| 27000 | 35×50 | 7.10 | 19 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 63(79) | | | 80(100) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | | | | 22×25 | 1.26 | 199 |
| 1200 | | | | 22×30 | 1.46 | 166 |
| 1500 | 22×25 | 1.62 | 138 | 25×25 | 1.68 | 135 |
| 1800 | 22×30 | 1.81 | 112 | 22×35 | 1.86 | 112 |
| 1800 | | | | 25×30 | 1.90 | 113 |
| 2200 | 22×30 | 2.1 | 92 | 22×40 | 2.14 | 92 |
| 2200 | 25×25 | 2.12 | 93 | 25×35 | 2.16 | 93 |
| 2200 | | | | 30×25 | 2.18 | 93 |
| 2700 | 22×35 | 2.23 | 75 | 22×50 | 2.41 | 75 |
| 2700 | 25×30 | 2.26 | 75 | 25×40 | 2.43 | 75 |
| 2700 | | | | 30×30 | 4.45 | 75 |
| 2700 | | | | 35×25 | 4.47 | 75 |
| 3300 | 22×40 | 2.35 | 84 | 25×45 | 2.74 | 62 |
| 3300 | 25×35 | 2.37 | 83 | 30×35 | 2.76 | 62 |
| 3300 | 30×25 | 2.39 | 83 | | | 63 |
| 3900 | 22×45 | 2.63 | 69 | 25×50 | 3.14 | 52 |
| 3900 | 25×40 | 2.66 | 69 | 30×40 | 3.16 | 53 |
| 3900 | 30×30 | 2.69 | 70 | 35×30 | 3.18 | 53 |
| 3900 | 35×25 | 2.72 | 70 | | | |
| 4700 | | | | 30×45 | 3.54 | 45 |
| 4700 | | | | 30×50 | 3.57 | 45 |
| 5600 | 25×45 | 3.14 | 49 | 30×50 | 3.46 | 49 |
| 5600 | 30×35 | 3.17 | 49 | 35×40 | 3.48 | 49 |
| 5600 | 35×30 | 3.21 | 49 | | | |
| 6800 | 30×40 | 3.62 | 41 | 35×40 | 4.12 | 41 |
| 6800 | 35×35 | 3.66 | 41 | | | |
| 8200 | 30×50 | 3.72 | 40 | | | |
| 8200 | 35×40 | 3.76 | 40 | | | |
| 10000 | 35×45 | 4.28 | 35 | | | |
| 12000 | 35×50 | 4.76 | 28 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 100(125) | | | 160(200) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | | | | 22×25 | 1.06 | 603 |
| 270 | | | | 22×25 | 1.18 | 492 |
| 330 | | | | 22×25 | 1.29 | 406 |
| 390 | | | | 22×30 | 1.46 | 343 |
| 390 | | | | 25×25 | 1.50 | 343 |
| 470 | | | | 25×30 | 1.58 | 285 |
| 560 | | | | 22×35 | 1.92 | 239 |
| 560 | | | | 25×30 | 1.94 | 239 |
| 560 | | | | 30×25 | 1.96 | 239 |
| 680 | 22×25 | 1.05 | 294 | 22×40 | 2.16 | 198 |
| 680 | | | | 25×35 | 2.18 | 198 |
| 820 | 22×30 | 1.18 | 245 | 22×50 | 2.41 | 166 |
| 820 | | | | 25×40 | 2.43 | 166 |
| 820 | | | | 30×30 | 2.45 | 171 |
| 820 | | | | 35×25 | 2.47 | 172 |
| 1000 | 25×25 | 1.38 | 203 | 25×45 | 2.72 | 136 |
| 1000 | | | | 30×35 | 2.74 | 136 |
| 1000 | | | | 35×30 | 2.76 | 136 |
| 1200 | 22×35 | 1.54 | 167 | 25×50 | 3.12 | 115 |
| 1200 | 25×30 | 1.58 | 168 | 30×40 | 3.14 | 115 |
| 1200 | | | | 35×35 | 3.16 | 115 |
| 1500 | 22×40 | 1.74 | 135 | 30×45 | 3.62 | 94 |
| 1500 | 25×35 | 1.76 | 135 | 35×40 | 3.67 | 94 |
| 1500 | 30×25 | 1.78 | 135 | | | |
| 1800 | 22×50 | 2.06 | 112 | 35×45 | 3.85 | 90 |
| 1800 | 25×40 | 2.08 | 113 | | | |
| 1800 | 30×30 | 2.10 | 113 | | | |
| 1800 | 35×25 | 2.12 | 113 | | | |
| 2200 | 25×45 | 2.32 | 93 | 35×50 | 4.46 | 75 |
| 2200 | 30×35 | 2.36 | 93 | | | |
| 2200 | 35×30 | 2.40 | 93 | | | |
| 2700 | 25×50 | 2.62 | 76 | | | |
| 2700 | 30×40 | 2.67 | 76 | | | |
| 3300 | 30×45 | 3.04 | 62 | | | |
| 3300 | 35×35 | 3.07 | 63 | | | |
| 3900 | 30×50 | 3.34 | 52 | | | |
| 3900 | 35×40 | 3.38 | 53 | | | |
| 4700 | 35×50 | 3.92 | 45 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 180(225) | | | 200(250) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | | | | 22×25 | 1.02 | 605 |
| 270 | 22×25 | 1.18 | 497 | 22×30 | 1.16 | 495 |
| 330 | 22×30 | 1.36 | 404 | 22×30 | 1.36 | 407 |
| 330 | | | | 25×25 | 1.39 | 407 |
| 390 | 25×25 | 1.48 | 343 | 22×35 | 1.56 | 343 |
| 390 | | | | 25×30 | 1.58 | 344 |
| 470 | 22×35 | 1.71 | 285 | 22×40 | 1.82 | 285 |
| 470 | 25×30 | 1.74 | 285 | 30×25 | 1.86 | 285 |
| 470 | 30×25 | 1.77 | 285 | | | |
| 560 | 22×40 | 1.93 | 238 | 22×45 | 2.06 | 239 |
| 560 | 25×35 | 1.96 | 238 | 25×35 | 2.09 | 240 |
| 560 | | | | 30×30 | 2.11 | 241 |
| 560 | | | | 35×25 | 2.14 | 241 |
| 680 | 22×50 | 2.22 | 198 | 25×40 | 2.31 | 197 |
| 680 | 25×40 | 2.26 | 199 | 30×35 | 2.35 | 198 |
| 680 | 30×30 | 2.28 | 199 | | | |
| 680 | 35×25 | 2.34 | 199 | | | |
| 820 | 25×45 | 2.51 | 164 | 25×50 | 2.63 | 168 |
| 820 | 30×35 | 2.53 | 165 | 30×40 | 2.65 | 168 |
| 820 | 35×30 | 2.57 | 165 | | | |
| 820 | 25×50 | 2.84 | 136 | | | |
| 1000 | 30×40 | 2.87 | 136 | 30×45 | 2.92 | 137 |
| 1000 | | | | 35×35 | 2.96 | 137 |
| 1200 | 30×45 | 3.12 | 116 | 30×50 | 3.32 | 114 |
| 1200 | 35×35 | 3.16 | 116 | 35×40 | 3.36 | 114 |
| 1500 | 35×45 | 3.58 | 110 | 35×40 | 3.76 | 109 |
| 1800 | 35×50 | 4.08 | 93 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 250(300) | | | 315(365) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | 22×25 | 0.65 | 1992 | 22×25 | 0.62 | 1994 |
| 150 | | | | 22×30 | 0.84 | 1329 |
| 150 | | | | 25×25 | 0.85 | 1330 |
| 180 | 22×25 | 0.89 | 1109 | 22×35 | 0.95 | 1109 |
| 180 | | | | 25×30 | 0.96 | 1110 |
| 220 | 22×30 | 1.02 | 908 | 22×40 | 1.06 | 909 |
| 220 | 25×25 | 1.06 | 909 | 25×35 | 1.10 | 909 |
| 220 | | | | 30×25 | 1.14 | 909 |
| 270 | 22×35 | 1.16 | 738 | 22×45 | 1.24 | 738 |
| 270 | | | | 25×40 | 1.26 | 738 |
| 270 | | | | 30×30 | 1.28 | 738 |
| 270 | | | | 35×25 | 1.30 | 738 |
| 330 | 22×40 | 1.36 | 605 | 25×45 | 1.32 | 605 |
| 330 | 25×30 | 1.38 | 605 | 30×35 | 1.36 | 605 |
| 330 | 30×25 | 1.40 | 605 | | | |
| 390 | 22×45 | 1.66 | 513 | 25×50 | 1.52 | 514 |
| 390 | 25×35 | 1.69 | 513 | 30×40 | 1.56 | 514 |
| 390 | | | | 35×30 | 1.59 | 514 |
| 470 | 22×50 | 1.76 | 427 | 30×45 | 1.72 | 426 |
| 470 | 25×40 | 1.78 | 427 | 35×35 | 1.76 | 426 |
| 470 | 30×30 | 1.80 | 427 | | | |
| 470 | 35×25 | 1.82 | 427 | | | |
| 560 | 25×45 | 2.13 | 357 | 30×50 | 1.96 | 357 |
| 560 | 30×35 | 2.16 | 357 | 35×40 | 1.97 | 357 |
| 680 | 30×40 | 2.45 | 294 | 35×45 | 2.26 | 296 |
| 680 | 35×30 | 2.49 | 294 | | | |
| 820 | 30×45 | 2.56 | 246 | | | |
| 820 | 35×35 | 2.58 | 246 | | | |
| 1000 | 35×40 | 2.96 | 202 | | | |
| 1200 | 35×45 | 3.36 | 166 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | 22×25 | 0.78 | 1993 | | | |
| 120 | 22×30 | 0.81 | 1659 | | | |
| 120 | 25×25 | 0.82 | 1660 | | | |
| 150 | 22×35 | 0.93 | 1329 | | | |
| 150 | 25×30 | 0.94 | 1330 | | | |
| 180 | 22×40 | 1.1 | 1108 | | | |
| 180 | 30×25 | 1.14 | 1109 | | | |
| 220 | 22×45 | 1.22 | 909 | 22×45 | 1.3 | 870 |
| 220 | 25×35 | 1.26 | 909 | 25×35 | 1.23 | 870 |
| 220 | 30×30 | 1.28 | 909 | 30×30 | 1.17 | 870 |
| 220 | 35×25 | 1.3 | 910 | | | |
| 270 | 25×45 | 1.36 | 740 | 22×50 | 1.47 | 725 |
| 270 | 30×35 | 1.38 | 740 | 25×40 | 1.45 | 725 |
| 270 | | | | 30×35 | 1.43 | 725 |
| 330 | 25×50 | 1.56 | 605 | 22×60 | 1.74 | 589 |
| 330 | 30×40 | 1.58 | 605 | 25×50 | 1.72 | 589 |
| 330 | | | | 30×35 | 1.69 | 589 |
| 390 | 30×40 | 1.73 | 514 | 22×70 | 1.89 | 493 |
| 390 | 35×35 | 1.76 | 514 | 25×55 | 1.87 | 420 |
| 390 | | | | 30×40 | 1.85 | 420 |
| 470 | 30×40 | 1.96 | 427 | 25×65 | 2.16 | 413 |
| 470 | 35×40 | 1.98 | 427 | 30×50 | 2.13 | 413 |
| 470 | | | | 35×40 | 2.11 | 413 |
| 560 | 35×45 | 2.24 | 360 | 30×55 | 2.35 | 353 |
| 560 | | | | 35×45 | 2.33 | 353 |
| 560 | | | | 40×35 | 2.31 | 353 |
| 680 | 35×50 | 2.56 | 295 | 30×65 | 2.60 | 285 |
| 680 | | | | 35×50 | 2.57 | 285 |
| 680 | | | | 40×40 | 2.55 | 285 |
| 820 | 35×60 | 2.78 | 248 | 35×55 | 2.84 | 241 |
| 820 | | | | 40×45 | 2.82 | 241 |
| 820 | | | | 45×40 | 2.79 | 242 |
| 1000 | | | | 35×65 | 3.10 | 224 |
| 1000 | | | | 40×50 | 3.08 | 224 |
| 1000 | | | | 45×45 | 3.06 | 224 |
| 1200 | | | | 40×60 | 3.34 | 201 |
| 1200 | | | | 45×50 | 3.32 | 201 |
| 1500 | | | | 40×70 | 3.54 | 166 |
| 1500 | | | | 45×60 | 3.52 | 166 |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 30×25 | 0.86 | 1995 |
| 120 | | | | 30×30 | 0.96 | 1660 |
| 120 | | | | 35×25 | 0.98 | 1670 |
| 150 | | | | 30×35 | 1.19 | 1329 |
| 180 | | | | 30×40 | 1.32 | 1110 |
| 180 | | | | 35×30 | 1.36 | 1110 |
| 220 | 22×55 | 1.01 | 890 | 30×45 | 1.56 | 910 |
| 220 | 25×45 | 0.97 | 890 | 30×35 | 1.59 | 910 |
| 220 | 30×30 | 0.92 | 890 | | | |
| 270 | 22×65 | 1.28 | 722 | 30×50 | 1.74 | 738 |
| 270 | 25×50 | 1.19 | 722 | 35×40 | 1.76 | 739 |
| 270 | 30×40 | 1.12 | 722 | | | |
| 330 | 25×55 | 1.36 | 598 | 35×45 | 1.98 | 605 |
| 330 | 30×40 | 1.34 | 598 | | | |
| 330 | 35×35 | 1.32 | 598 | | | |
| 390 | 30×50 | 1.61 | 501 | 35×50 | 1.28 | 515 |
| 390 | 35×40 | 1.58 | 501 | | | |
| 390 | 40×30 | 1.56 | 501 | | | |
| 470 | 30×55 | 1.85 | 415 | | | |
| 470 | 35×45 | 1.83 | 415 | | | |
| 470 | 40×35 | 1.80 | 415 | | | |
| 560 | 30×60 | 2.08 | 355 | | | |
| 560 | 35×50 | 2.06 | 355 | | | |
| 560 | 40×40 | 2.04 | 355 | | | |
| 680 | 35×55 | 2.24 | 288 | | | |
| 680 | 40×45 | 2.22 | 288 | | | |
| 680 | 45×40 | 2.20 | 288 | | | |
| 820 | 35×65 | 2.48 | 246 | | | |
| 820 | 40×55 | 2.45 | 246 | | | |
| 820 | 45×45 | 2.43 | 246 | | | |
| 1000 | 40×60 | 2.76 | 226 | | | |
| 1000 | 45×50 | 2.74 | 226 | | | |
| 1200 | 40×70 | 2.99 | 209 | | | |
| 1200 | 45×60 | 2.97 | 210 | | | |
| 1500 | 40×85 | 3.23 | 170 | | | |
| 1500 | 45×70 | 3.21 | 170 | | | |

# SN3

## ■ List of Standard Products

| Operating voltage (V) | 550(600) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 180 | 30×50 | 1.06 | 1474 |
| | 35×35 | 1.06 | 1474 |
| 220 | 35×60 | 1.06 | 1206 |
| | 30×55 | 1.18 | 1206 |
| 270 | 35×45 | 1.31 | 983 |
| 330 | 35×50 | 1.50 | 804 |
| 390 | 35×60 | 1.67 | 681 |
| 470 | 35×70 | 1.95 | 565 |
| 560 | 35×70 | 2.10 | 472 |

# SN6

◆Standard product

◆85℃, 6000 hours

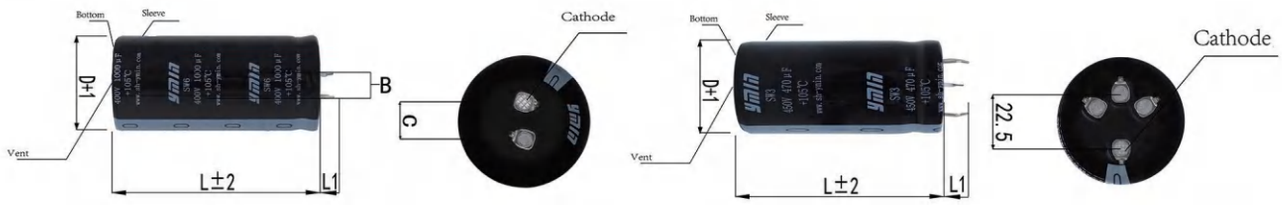
◆Suitable for frequency converters, servo drives, and power supplies

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | (16 ~ 100V)−40 ~ +85℃ ; (160 ~ 550V)−25 ~ +85℃ |
| Rated Voltage Range | 16 ~ 500V |
| Rated Capacitance Range | 82 ~ 22000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | Rated voltage (V): 16 / 25 / 35 / 50 / 63~100 / 160~500<br>tg δ: 0.6 / 0.5 / 0.4 / 0.3 / 0.2 / 0.15 |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 6000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC): ≦ ±20% of the initial value<br>Loss value (tg δ): ≦ 200% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC): ≦ ±15% of the initial value<br>Loss value (tg δ): ≦ 150% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| L1 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.7 | 1.4 | 1.0 |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 16(20) | | | 25(32) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 5600 | | | | 22×25 | 2.00 | 119 |
| 6800 | | | | 22×30 | 2.30 | 98 |
| | | | | 25×25 | 2.30 | 98 |
| 8200 | 22×25 | 2.20 | 97 | 22×35 | 2.60 | 81 |
| 10000 | | | | 22×40 | 2.90 | 66 |
| | 22×30 | 2.60 | 80 | 25×30 | 2.80 | 66 |
| | 25×25 | 2.60 | 80 | 30×25 | 3.00 | 66 |
| 12000 | | | | 22×45 | 3.30 | 55 |
| | | | | 25×35 | 3.20 | 55 |
| | 22×35 | 2.90 | 66 | 30×30 | 3.40 | 55 |
| 15000 | 22×40 | 3.30 | 53 | 25×40 | 3.70 | 44 |
| | 25×30 | 3.30 | 53 | 35×25 | 3.90 | 44 |
| | 30×25 | 3.40 | 53 | | | |
| 18000 | 22×45 | 3.80 | 44 | 25×50 | 4.30 | 37 |
| | 25×35 | 3.70 | 44 | 30×35 | 4.20 | 37 |
| | | | | 35×30 | 4.40 | 37 |
| 22000 | 22×50 | 4.20 | 36 | 30×40 | 4.80 | 30 |
| | 25×40 | 4.20 | 36 | 35×35 | 5.00 | 30 |
| | 30×30 | 4.20 | 36 | | | |
| | 35×25 | 4.40 | 36 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 35(44) | | | 50(63) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2200 | | | | 22×25 | 1.70 | 181 |
| 2700 | | | | 22×30 | 1.90 | 147 |
| | | | | 25×25 | 1.90 | 147 |
| 3300 | 22×25 | 1.80 | 161 | 22×30 | 2.00 | 121 |
| 3900 | 22×30 | 2.10 | 136 | 22×35 | 2.10 | 102 |
| | | | | 25×30 | 2.10 | 102 |
| | | | | 30×25 | 2.40 | 102 |
| 4700 | 25×25 | 2.20 | 113 | 22×40 | 2.40 | 85 |
| | | | | 25×35 | 2.40 | 85 |
| 5600 | 22×35 | 2.30 | 95 | 22×50 | 2.50 | 71 |
| | 25×30 | 2.30 | 95 | 25×40 | 2.50 | 71 |
| | | | | 30×30 | 2.50 | 71 |
| | | | | 35×25 | 2.60 | 71 |
| 6800 | 22×40 | 2.90 | 78 | 25×45 | 2.80 | 59 |
| | 25×35 | 2.60 | 78 | 30×35 | 2.80 | 59 |
| | 30×25 | 2.70 | 78 | | | |
| 8200 | 22×50 | 2.80 | 65 | 25×50 | 3.20 | 49 |
| | 25×40 | 2.80 | 65 | 30×40 | 3.00 | 49 |
| | 30×30 | 2.80 | 65 | 35×30 | 3.00 | 49 |
| | 35×25 | 2.90 | 65 | | | |
| 10000 | 25×45 | 3.10 | 53 | 30×45 | 3.40 | 40 |
| | 30×35 | 3.20 | 53 | | | |
| 12000 | 25×50 | 3.50 | 44 | 30×50 | 3.80 | 33 |
| | 35×30 | 3.60 | 44 | 35×40 | 3.80 | 33 |
| 15000 | 30×45 | 4.10 | 35 | 35×50 | 4.50 | 27 |
| | 35×35 | 4.10 | 35 | | | |
| 18000 | 30×50 | 4.60 | 30 | | | |
| | 35×40 | 4.70 | 34 | | | |
| 22000 | 35×45 | 5.3 | 24 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 63(79) | | | 80(100) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | | | | 22×25 | 1.30 | 265 |
| 1200 | | | | 22×30 | 1.50 | 221 |
| 1500 | 22×25 | 1.60 | 177 | 25×25 | 1.70 | 177 |
| 1800 | 22×25 | 1.80 | 147 | 22×35 | 1.90 | 147 |
| | | | | 25×30 | 1.90 | 147 |
| 2200 | 22×30 | 2.00 | 121 | 22×40 | 2.10 | 121 |
| | 25×25 | 2.00 | 121 | 25×35 | 2.20 | 121 |
| | | | | 30×25 | 2.20 | 121 |
| 2700 | 22×35 | 2.20 | 98 | 22×50 | 2.50 | 98 |
| | 25×30 | 2.30 | 98 | 25×40 | 2.50 | 98 |
| | | | | 30×30 | 2.50 | 98 |
| | | | | 35×25 | 2.50 | 98 |
| 3300 | 22×40 | 2.30 | 80 | 25×45 | 2.80 | 80 |
| | 25×35 | 2.30 | 80 | 30×35 | 2.80 | 80 |
| | 30×25 | 2.30 | 80 | | | |
| 3900 | 22×45 | 2.50 | 68 | 25×50 | 3.10 | 68 |
| | 25×40 | 2.60 | 68 | 30×40 | 3.20 | 68 |
| | 30×30 | 2.60 | 68 | 35×30 | 3.20 | 68 |
| | 35×25 | 2.70 | 68 | | | |
| 4700 | 30×30 | 2.90 | 57 | 30×45 | 3.60 | 57 |
| | | | | 35×35 | 3.60 | 57 |
| 5600 | 25×45 | 3.10 | 47 | 30×50 | 3.80 | 47 |
| | 30×35 | 3.20 | 47 | 35×40 | 3.80 | 47 |
| | 35×30 | 3.30 | 47 | | | |
| 6800 | 30×40 | 3.60 | 39 | 35×50 | 4.10 | 39 |
| | 35×35 | 3.70 | 39 | | | |
| 8200 | 30×50 | 3.70 | 32 | | | |
| | 35×40 | 3.80 | 32 | | | |
| 10000 | 35×45 | 4.30 | 27 | | | |
| 12000 | 35×50 | 4.80 | 22 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 100(125) | | | 160(200) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | | | | 22×25 | 1.00 | 905 |
| 270 | | | | 22×25 | 1.10 | 737 |
| 330 | | | | 22×25 | 1.30 | 603 |
| 390 | | | | 22×30 | 1.50 | 510 |
| | | | | 25×25 | 1.50 | 510 |
| 470 | | | | 25×25 | 1.70 | 424 |
| 560 | | | | 22×35 | 1.90 | 355 |
| | | | | 25×30 | 1.90 | 355 |
| | | | | 30×25 | 2.00 | 355 |
| 680 | 22×25 | 1.10 | 390 | 22×40 | 2.10 | 293 |
| | | | | 25×35 | 2.20 | 293 |
| 820 | 22×30 | 1.20 | 324 | 22×50 | 2.50 | 243 |
| | | | | 25×40 | 2.40 | 243 |
| | | | | 30×30 | 2.50 | 243 |
| | | | | 35×25 | 2.40 | 243 |
| 1000 | 25×25 | 1.40 | 265 | 25×45 | 2.70 | 199 |
| | | | | 30×35 | 2.80 | 199 |
| | | | | 35×30 | 2.70 | 199 |
| 1200 | 22×35 | 1.60 | 221 | 25×50 | 3.10 | 166 |
| | 25×30 | 1.60 | 221 | 30×40 | 3.20 | 166 |
| | | | | 35×35 | 3 | 166 |
| 1500 | 22×40 | 1.80 | 177 | 30×45 | 3.70 | 133 |
| | 25×35 | 1.70 | 177 | 35×40 | 3.5 | 133 |
| | 30×25 | 1.80 | 177 | | | |
| 1800 | 22×50 | 2.10 | 147 | 35×45 | 3.90 | 111 |
| | 30×30 | 2.10 | 147 | | | |
| | 35×25 | 2.20 | 147 | | | |
| 2200 | 25×45 | 2.20 | 121 | 35×50 | 4.50 | 91 |
| | 30×35 | 2.30 | 121 | | | |
| | 35×30 | 2.50 | 121 | | | |
| 2700 | 25×50 | 2.60 | 98 | | | |
| | 30×40 | 2.70 | 98 | | | |
| 3300 | 30×45 | 3.00 | 80 | | | |
| | 35×35 | 3.10 | 80 | | | |
| 3900 | 30×50 | 3.40 | 68 | | | |
| | 35×40 | 3.40 | 68 | | | |
| 4700 | 35×50 | 4.00 | 57 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 180(225) | | | 200(250) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | | | | 22×25 | 1.10 | 905 |
| 270 | 22×25 | 1.20 | 737 | 22×25 | 1.20 | 797 |
| 330 | 22×30 | 1.40 | 603 | 22×30 | 1.40 | 603 |
| | | | | 25×25 | 1.40 | 603 |
| 390 | 25×25 | 1.50 | 510 | 22×35 | 1.60 | 510 |
| | | | | 25×30 | 1.60 | 510 |
| 470 | 22×35 | 1.70 | 424 | 22×40 | 1.80 | 424 |
| | 25×30 | 1.70 | 424 | 30×25 | 1.90 | 424 |
| | 30×25 | 1.80 | 424 | | | |
| 560 | 22×40 | 1.90 | 355 | 22×45 | 2.00 | 355 |
| | 25×35 | 2.00 | 355 | 25×35 | 2.00 | 355 |
| | | | | 30×30 | 2.10 | 355 |
| | | | | 35×25 | 2.00 | 355 |
| 680 | 22×50 | 2.30 | 293 | 25×40 | 2.30 | 293 |
| | 25×40 | 2.20 | 293 | 30×35 | 2.40 | 293 |
| | 30×30 | 2.30 | 293 | | | |
| | 35×25 | 2.20 | 293 | | | |
| 820 | 25×45 | 2.50 | 243 | 25×50 | 2.60 | 243 |
| | 30×35 | 2.60 | 243 | 30×40 | 2.70 | 243 |
| | 35×30 | 2.50 | 243 | 35×30 | 2.50 | 243 |
| 1000 | 25×50 | 2.90 | 199 | 30×45 | 3.10 | 199 |
| | 30×40 | 2.90 | 199 | 35×35 | 2.80 | 199 |
| 1200 | 30×45 | 3.30 | 166 | 30×50 | 3.40 | 166 |
| | 35×35 | 3.10 | 166 | 35×40 | 3.20 | 166 |
| 1500 | 35×45 | 3.60 | 133 | 35×50 | 3.80 | 133 |
| 1800 | 35×50 | 4.10 | 111 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 250(300) | | | 315(365) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 22×25 | 0.60 | 1990 |
| 120 | | | | 22×30 | 0.70 | 1659 |
| 150 | | | | 22×30 | 0.80 | 1327 |
| | | | | 25×25 | 0.80 | 1327 |
| 180 | 22×25 | 0.90 | 1106 | 22×35 | 0.90 | 1106 |
| | | | | 25×30 | 0.90 | 1106 |
| 220 | 22×30 | 1.10 | 905 | 22×40 | 1.10 | 905 |
| | 25×25 | 1.10 | 905 | 25×35 | 1.10 | 905 |
| | | | | 30×25 | 1.10 | 905 |
| 270 | 22×35 | 1.20 | 737 | 22×45 | 1.20 | 737 |
| | | | | 25×40 | 1.30 | 737 |
| | | | | 30×30 | 1.30 | 737 |
| | | | | 35×25 | 1.30 | 737 |
| 330 | 22×40 | 1.40 | 603 | 25×45 | 1.40 | 603 |
| | 25×30 | 1.40 | 603 | 30×35 | 1.40 | 603 |
| | 30×25 | 1.50 | 603 | | | |
| 390 | 22×45 | 1.60 | 510 | 25×50 | 1.60 | 510 |
| | 25×35 | 1.60 | 510 | 30×40 | 1.60 | 510 |
| | | | | 35×30 | 1.60 | 510 |
| 470 | 22×50 | 1.80 | 424 | 30×45 | 1.80 | 424 |
| | 25×40 | 1.80 | 424 | 35×35 | 1.80 | 424 |
| | 30×30 | 1.80 | 424 | | | |
| | 35×25 | 1.90 | 424 | | | |
| 560 | 25×45 | 2.00 | 355 | 30×50 | 2.00 | 355 |
| | 30×35 | 2.00 | 355 | 35×40 | 2.00 | 355 |
| 680 | 30×40 | 2.30 | 293 | 35×45 | 2.30 | 293 |
| | 35×30 | 2.40 | 293 | | | |
| 820 | 30×45 | 2.60 | 243 | | | |
| | 35×35 | 2.60 | 243 | | | |
| 1000 | 35×40 | 3.00 | 199 | | | |
| 1200 | 35×45 | 3.40 | 166 | | | |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 82 | 22×25 | 0.64 | 2427 | | | |
| 100 | 22×25 | 0.72 | 1990 | | | |
| 120 | 22×30 | 0.82 | 1659 | | | |
| | 25×25 | 0.81 | 1659 | | | |
| 150 | 22×35 | 0.94 | 1327 | | | |
| | 25×30 | 0.94 | 1327 | | | |
| 180 | 22×40 | 1.10 | 1106 | | | |
| | 30×25 | 1.10 | 1106 | | | |
| 220 | 22×45 | 1.20 | 905 | 22×45 | 1.60 | 973 |
| | 25×35 | 1.20 | 905 | 25×35 | 1.52 | 973 |
| | 30×30 | 1.20 | 905 | 30×30 | 1.44 | 973 |
| | 35×25 | 1.30 | 905 | | | |
| 270 | 25×45 | 1.40 | 737 | 22×50 | 1.81 | 810 |
| | 30×25 | 1.40 | 737 | 25×40 | 1.79 | 810 |
| | | | | 30×35 | 1.76 | 811 |
| 330 | 25×50 | 1.60 | 603 | 22×60 | 2.14 | 659 |
| | 35×30 | 1.60 | 603 | 25×50 | 2.12 | 659 |
| | | | | 30×35 | 2.08 | 659 |
| 390 | 30×40 | 1.70 | 510 | 22×70 | 2.33 | 551 |
| | 35×35 | 1.80 | 510 | 25×55 | 2.30 | 469 |
| | 25×35 | 1.60 | 510 | 30×40 | 2.28 | 469 |
| 470 | 30×45 | 2.00 | 424 | 25×65 | 2.66 | 461 |
| | 35×40 | 2.00 | 424 | 30×50 | 2.62 | 462 |
| | 35×45 | 2.30 | 355 | 35×40 | 2.60 | 462 |
| 560 | | | | 25×75 | 2.90 | 394 |
| | | | | 30×55 | 2.87 | 394 |
| | | | | 35×45 | 2.93 | 394 |
| 680 | 35×50 | 2.60 | 293 | 30×60 | 3.20 | 394 |
| | | | | 35×50 | 3.17 | 318 |
| 820 | | | | 30×70 | 3.50 | 318 |
| | | | | 35×55 | 3.47 | 318 |
| 1000 | | | | 30×85 | 3.82 | 270 |
| | | | | 35×65 | 3.79 | 270 |
| 1200 | | | | 35×75 | 4.11 | 270 |
| 1500 | | | | 35×90 | 4.36 | 250 |

# SN6

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 25×30 | 0.90 | 1990 |
| | | | | 30×25 | 0.88 | 1990 |
| 120 | | | | 25×35 | 1.00 | 1658 |
| | | | | 30×30 | 1.00 | 1658 |
| | | | | 35×25 | 0.95 | 1658 |
| 150 | | | | 25×40 | 1.20 | 1327 |
| | | | | 30×35 | 1.20 | 1327 |
| 180 | | | | 30×40 | 1.40 | 1106 |
| | | | | 35×30 | 1.30 | 1106 |
| 220 | 22×55 | 1.24 | 1019 | 30×45 | 1.60 | 905 |
| | 25×45 | 1.19 | 1019 | 35×35 | 1.50 | 905 |
| | 30×35 | 1.14 | 1020 | | | |
| 270 | 22×65 | 1.57 | 849 | 30×50 | 1.80 | 737 |
| | 25×50 | 1.47 | 849 | 35×40 | 1.70 | 737 |
| | 30×40 | 1.38 | 849 | | | |
| 330 | 25×60 | 1.68 | 690 | 30×50 | 2.00 | 603 |
| | 30×45 | 1.66 | 691 | 35×45 | 1.90 | 603 |
| | 35×35 | 1.62 | 691 | | | |
| 390 | 25×70 | 1.98 | 577 | 35×50 | 2.30 | 511 |
| | 30×50 | 1.95 | 492 | | | |
| | 35×40 | 1.93 | 492 | | | |
| 470 | 30×55 | 2.27 | 484 | 35×60 | 2.50 | 424 |
| | 35×45 | 2.25 | 484 | | | |
| 560 | 30×65 | 2.56 | 413 | 35×65 | 2.80 | 356 |
| | 35×50 | 2.53 | 413 | | | |
| 680 | 30×75 | 2.77 | 413 | 35×70 | 3.20 | 293 |
| | 35×60 | 2.73 | 334 | | | |
| 820 | 35×70 | 3.05 | 334 | | | |
| 1000 | 35×80 | 3.40 | 283 | | | |
| 1200 | 35×95 | 3.68 | 283 | | | |
| 1500 | 35×115 | 3.99 | 262 | | | |

# SW3

◆High temperature resistance

◆105℃ for 3000 hours

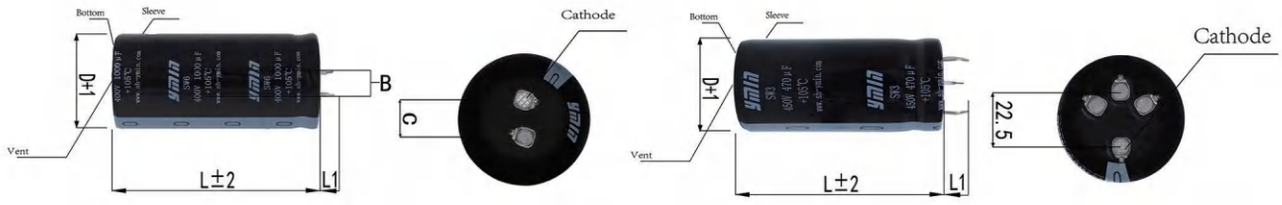
◆Suitable for frequency converters, industrial drives, and power supplies

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | (16 ~ 100V)−40 ~ +105℃ ; (160 ~ 500V)−25 ~ +105℃ |
| Rated Voltage Range | 16 ~ 500V |
| Rated Capacitance Range | 68 ~ 47000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | Rated voltage (V): 16 / 25 / 35 / 50 / 63~100 / 160~500<br>tg δ: 0.6 / 0.5 / 0.4 / 0.3 / 0.2 / 0.15 |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC): ≦ ±20% of the initial value<br>Loss value (tg δ): ≦ 200% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC): ≦ ±15% of the initial value<br>Loss value (tg δ): ≦ 150% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| L1 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 16(20) | | | 25(32) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 4700 | | | | 22×25 | 1.52 | 112 |
| 6800 | 22×25 | 1.53 | 96 | 22×30 | 1.86 | 76 |
| 6800 | | | | 25×25 | 1.90 | 76 |
| 8200 | | | | 22×35 | 2.14 | 64 |
| 8200 | | | | 25×30 | 2.18 | 64 |
| 8200 | | | | 30×25 | 2.22 | 64 |
| 10000 | 22×30 | 1.92 | 65 | 22×40 | 2.38 | 52 |
| 10000 | 25×25 | 1.98 | 66 | 25×35 | 2.42 | 52 |
| 12000 | 22×35 | 2.32 | 54 | 22×45 | 2.66 | 42 |
| 12000 | 25×30 | 2.36 | 54 | 25×40 | 2.70 | 42 |
| 12000 | 30×25 | 2.40 | 54 | 30×30 | 2.74 | 42 |
| 12000 | | | | 35×25 | 2.90 | 42 |
| 15000 | 22×40 | 2.58 | 42 | 25×45 | 3.14 | 35 |
| 15000 | 25×35 | 2.62 | 43 | 30×35 | 3.18 | 35 |
| 15000 | | | | 35×30 | 3.22 | 35 |
| 18000 | 22×45 | 2.98 | 36 | 25×50 | 3.48 | 29 |
| 18000 | 25×40 | 3.04 | 37 | 30×40 | 3.52 | 29 |
| 18000 | 30×30 | 3.10 | 37 | | | |
| 18000 | 35×25 | 3.14 | 37 | | | |
| 22000 | 25×45 | 3.32 | 29 | 30×45 | 3.98 | 23 |
| 22000 | 30×35 | 3.38 | 29 | 35×35 | 4.04 | 23 |
| 27000 | 25×50 | 3.74 | 24 | 35×45 | 4.74 | 20 |
| 27000 | 30×40 | 3.78 | 25 | | | |
| 27000 | 35×30 | 3.42 | 25 | | | |
| 33000 | 30×45 | 4.22 | 19 | 35×50 | 5.36 | 16 |
| 33000 | 35×35 | 4.26 | 19 | | | |
| 39000 | 30×50 | 4.68 | 17 | | | |
| 39000 | 35×40 | 4.72 | 17 | | | |
| 47000 | 35×45 | 5.24 | 13 | | | |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 35(44) | | | 50(63) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1800 | | | | 22×25 | 1.28 | 219 |
| 2200 | | | | 22×30 | 1.42 | 177 |
| 2700 | | | | 22×30 | 1.66 | 143 |
| 2700 | | | | 25×25 | 1.70 | 143 |
| 3300 | 22×25 | 1.37 | 139 | 22×35 | 1.96 | 120 |
| 3300 | | | | 25×30 | 2.00 | 120 |
| 3900 | 22×30 | 1.62 | 117 | 22×40 | 2.20 | 98 |
| 3900 | | | | 25×35 | 2.24 | 98 |
| 3900 | | | | 30×25 | 2.28 | 98 |
| 4700 | 25×25 | 1.72 | 97 | 22×45 | 2.56 | 82 |
| 4700 | | | | 30×30 | 2.60 | 83 |
| 4700 | | | | 35×25 | 2.64 | 83 |
| 5600 | 22×35 | 1.98 | 81 | 22×50 | 2.82 | 69 |
| 5600 | 25×30 | 2.06 | 81 | 25×40 | 2.86 | 69 |
| 5600 | 30×25 | 2.12 | 81 | 30×35 | 2.90 | 69 |
| 6800 | 22×40 | 2.26 | 65 | 25×50 | 3.28 | 57 |
| 6800 | 25×35 | 2.30 | 65 | 30×40 | 3.32 | 57 |
| 6800 | | | | 35×30 | 3.36 | 57 |
| 8200 | 22×50 | 2.56 | 56 | 30×45 | 3.68 | 47 |
| 8200 | 25×40 | 2.60 | 56 | 35×35 | 3.72 | 47 |
| 8200 | 30×30 | 2.65 | 56 | | | |
| 8200 | 35×25 | 2.71 | 56 | | | |
| 10000 | 25×45 | 2.86 | 43 | 30×50 | 4.02 | 38 |
| 10000 | 30×35 | 2.90 | 43 | 35×40 | 4.08 | 39 |
| 12000 | 25×50 | 3.22 | 38 | 35×45 | 4.46 | 31 |
| 12000 | 30×40 | 2.28 | 38 | | | |
| 12000 | 35×30 | 2.32 | 38 | | | |
| 15000 | 30×45 | 3.66 | 29 | | | |
| 15000 | 35×35 | 3.72 | 29 | | | |
| 18000 | 35×40 | 4.12 | 25 | | | |
| 22000 | 35×50 | 4.88 | 20 | | | |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 63(79) | | | 80(100) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 820 | | | | 22×25 | 1.10 | 323 |
| 1000 | | | | 22×25 | 1.22 | 266 |
| 1200 | 22×25 | 1.22 | 219 | 22×30 | 1.32 | 220 |
| 1200 | | | | 25×25 | 1.38 | 220 |
| 1500 | | | | 22×35 | 1.58 | 175 |
| 1500 | | | | 25×30 | 1.62 | 175 |
| 1800 | 22×30 | 1.48 | 144 | 22×40 | 1.76 | 143 |
| 1800 | 25×25 | 1.52 | 144 | 30×25 | 1.82 | 143 |
| 2200 | 22×35 | 1.72 | 120 | 22×45 | 2.04 | 120 |
| 2200 | 25×30 | 1.76 | 120 | 25×35 | 2.08 | 120 |
| 2200 | | | | 30×30 | 2.12 | 120 |
| 2200 | | | | 30×25 | 2.16 | 120 |
| 2700 | 22×40 | 1.92 | 97 | 25×45 | 2.36 | 96 |
| 2700 | 25×35 | 1.96 | 97 | 30×35 | 2.40 | 96 |
| 2700 | 30×25 | 2.00 | 97 | | | |
| 3300 | 22×50 | 2.22 | 77 | 25×50 | 2.70 | 76 |
| 3300 | 25×40 | 2.26 | 77 | 30×40 | 2.74 | 76 |
| 3300 | 30×30 | 2.30 | 77 | 35×30 | 2.78 | 76 |
| 3300 | 35×25 | 2.36 | 77 | | | |
| 3900 | 25×45 | 2.52 | 65 | 30×45 | 3.06 | 67 |
| 3900 | 30×35 | 2.56 | 65 | 35×35 | 3.12 | 67 |
| 4700 | 25×50 | 2.82 | 52 | 30×50 | 3.48 | 56 |
| 4700 | 30×40 | 2.86 | 53 | 35×45 | 3.54 | 56 |
| 4700 | 35×30 | 2.90 | 53 | | | |
| 5600 | 30×45 | 3.22 | 46 | 35×45 | 3.82 | 46 |
| 5600 | 35×35 | 3.26 | 46 | | | |
| 6800 | 30×50 | 3.66 | 36 | 35×50 | 4.16 | 38 |
| 6800 | 35×40 | 3.70 | 36 | | | |
| 8200 | 35×45 | 4.12 | 30 | | | |
| 10000 | 35×50 | 4.66 | 25 | | | |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 100(125) | | | 160(200) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 330 | | | | 22×25 | 1.14 | 601 |
| 390 | | | | 22×30 | 1.42 | 508 |
| 470 | | | | 22×35 | 1.51 | 422 |
| 470 | | | | 25×25 | 1.56 | 422 |
| 560 | 22×25 | 1.04 | 473 | 22×40 | 1.62 | 352 |
| 560 | | | | 25×30 | 1.68 | 352 |
| 680 | | | | 22×45 | 1.72 | 291 |
| 680 | | | | 25×35 | 1.76 | 291 |
| 680 | | | | 30×25 | 1.80 | 291 |
| 820 | 22×30 | 1.28 | 321 | 22×50 | 1.82 | 241 |
| 820 | 25×25 | 1.32 | 321 | 25×40 | 1.86 | 241 |
| 820 | | | | 30×30 | 1.90 | 241 |
| 820 | | | | 30×25 | 1.94 | 242 |
| 1000 | 22×35 | 1.48 | 254 | 25×45 | 2.06 | 197 |
| 1000 | 25×30 | 1.54 | 254 | 30×35 | 2.10 | 197 |
| 1200 | 22×40 | 1.68 | 220 | 25×50 | 2.18 | 164 |
| 1200 | 25×35 | 1.72 | 220 | 30×40 | 2.24 | 164 |
| 1200 | 30×25 | 1.76 | 220 | 35×30 | 2.30 | 164 |
| 1500 | 22×45 | 1.94 | 173 | 30×45 | 2.46 | 131 |
| 1500 | 25×40 | 2.00 | 173 | 35×35 | 2.50 | 131 |
| 1500 | 30×30 | 2.06 | 173 | | | |
| 1500 | 35×25 | 2.12 | 173 | | | |
| 1800 | 25×45 | 2.26 | 146 | 35×45 | 2.98 | 109 |
| 1800 | 30×35 | 2.30 | 146 | | | |
| 2200 | 25×50 | 2.48 | 120 | 35×50 | 3.00 | 89 |
| 2200 | 30×40 | 2.52 | 120 | | | |
| 2200 | 35×30 | 2.58 | 120 | | | |
| 2700 | 30×45 | 2.86 | 96 | | | |
| 2700 | 35×35 | 2.90 | 96 | | | |
| 3300 | 30×50 | 3.28 | 75 | | | |
| 3300 | 35×40 | 3.32 | 76 | | | |
| 3900 | 35×45 | 3.66 | 67 | | | |
| 4700 | 35×50 | 4.12 | 55 | | | |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 180(225) | | | 200(250) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | | | | 22×25 | 1.06 | 903 |
| 270 | 22×25 | 1.06 | 731 | 22×30 | 1.18 | 733 |
| 330 | 22×30 | 1.26 | 601 | 22×30 | 1.30 | 601 |
| 390 | 25×35 | 1.32 | 509 | 22×35 | 1.36 | 509 |
| 470 | 22×35 | 1.56 | 422 | 22×40 | 1.4 | 420 |
| 470 | 25×30 | 1.60 | 522 | 25×30 | 1.46 | 420 |
| 470 | | | | 30×25 | 1.48 | 420 |
| 560 | 22×40 | 1.62 | 352 | 22×45 | 1.58 | 352 |
| 560 | 25×35 | 1.68 | 352 | 25×35 | 1.62 | 352 |
| 560 | 30×25 | 1.72 | 353 | | | |
| 680 | 22×50 | 1.72 | 291 | 22×50 | 1.72 | 285 |
| 680 | 25×40 | 1.74 | 291 | 25×40 | 1.76 | 285 |
| 680 | 30×30 | 1.76 | 291 | 30×30 | 1.8 | 285 |
| 680 | 35×25 | 1.78 | 392 | 35×25 | 1.84 | 285 |
| 820 | 25×45 | 1.78 | 242 | 25×50 | 1.86 | 241 |
| 820 | 30×35 | 1.82 | 242 | 30×35 | 1.9 | 241 |
| 820 | | | | 35×30 | 1.94 | 241 |
| 1000 | 25×50 | 1.94 | 195 | 30×45 | 2.16 | 197 |
| 1000 | 30×40 | 1.98 | 196 | 35×35 | 2.2 | 197 |
| 1000 | 35×30 | 2.02 | 196 | | | |
| 1200 | 30×45 | 2.20 | 164 | 30×50 | 2.32 | 163 |
| 1200 | 35×35 | 2.26 | 164 | 35×40 | 2.36 | 163 |
| 1500 | 30×50 | 2.36 | 131 | 35×45 | 2.56 | 131 |
| 1500 | 35×40 | 2.40 | 131 | | | |
| 1800 | 35×45 | 2.66 | 109 | 35×50 | 2.68 | 108 |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 250(300) | | | 350(400) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 22×30 | 0.66 | 1987 |
| 100 | | | | 25×25 | 0.70 | 1987 |
| 120 | | | | 22×35 | 0.74 | 1653 |
| 150 | | | | 22×40 | 0.82 | 1325 |
| 150 | | | | 25×30 | 0.84 | 1325 |
| 150 | | | | 30×25 | 0.86 | 1325 |
| 180 | 22×25 | 0.92 | 1103 | 22×45 | 0.88 | 1105 |
| 180 | | | | 25×35 | 0.90 | 1105 |
| 180 | | | | 30×30 | 0.92 | 1105 |
| 220 | 22×30 | 1.12 | 902 | 22×50 | 0.96 | 903 |
| 220 | 25×25 | 1.16 | 903 | 25×40 | 0.98 | 903 |
| 220 | | | | 35×25 | 1.00 | 903 |
| 270 | 22×35 | 1.12 | 733 | 25×50 | 1.02 | 732 |
| 270 | | | | 30×35 | 1.04 | 732 |
| 270 | | | | 35×30 | 1.06 | 932 |
| 330 | 22×40 | 1.20 | 602 | 30×45 | 1.12 | 598 |
| 330 | 25×30 | 1.26 | 602 | 35×35 | 1.14 | 599 |
| 330 | 30×25 | 1.30 | 602 | | | |
| 390 | 22×45 | 1.26 | 607 | 30×50 | 1.20 | 505 |
| 390 | 25×35 | 1.30 | 607 | | | |
| 470 | 22×50 | 1.38 | 421 | 35×45 | 1.32 | 422 |
| 470 | 25×40 | 1.42 | 421 | | | |
| 470 | 30×30 | 1.46 | 421 | | | |
| 470 | 35×25 | 1.50 | 421 | | | |
| 560 | 25×45 | 1.52 | 352 | 35×50 | 1.50 | 352 |
| 560 | 30×35 | 1.56 | 352 | | | |
| 560 | 35×30 | 1.60 | 352 | | | |
| 680 | 25×50 | 1.66 | 291 | | | |
| 680 | 30×40 | 1.70 | 291 | | | |
| 820 | 30×45 | 1.78 | 241 | | | |
| 820 | 35×35 | 1.82 | 241 | | | |
| 1000 | 30×50 | 1.88 | 197 | | | |
| 1000 | 35×40 | 1.92 | 197 | | | |
| 1200 | 35×45 | 2.10 | 163 | | | |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 400(450) | | | 450(500) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | 22×45 | 1.18 | 302 | 22×55 | 0.92 | 306 |
| 220 | 25×35 | 1.12 | 301 | 25×45 | 0.88 | 306 |
| 220 | 30×30 | 1.06 | 301 | 30×30 | 0.84 | 305 |
| 270 | 22×50 | 1.34 | 272 | 22×65 | 1.16 | 275 |
| 270 | 25×40 | 1.32 | 272 | 25×50 | 1.08 | 275 |
| 270 | 30×35 | 1.30 | 271 | 30×40 | 1.02 | 274 |
| 330 | 22×60 | 1.58 | 242 | 25×55 | 1.24 | 245 |
| 330 | 25×50 | 1.56 | 242 | 30×40 | 1.22 | 244 |
| 330 | 30×35 | 1.54 | 241 | 35×35 | 1.20 | 244 |
| 390 | 22×70 | 1.72 | 209 | 30×50 | 1.46 | 213 |
| 390 | 25×55 | 1.70 | 209 | 35×40 | 1.44 | 213 |
| 390 | 30×40 | 1.68 | 209 | 40×30 | 1.42 | 212 |
| 470 | 25×65 | 1.96 | 177 | 30×55 | 1.68 | 179 |
| 470 | 30×50 | 1.94 | 177 | 35×45 | 1.66 | 179 |
| 470 | 35×40 | 1.92 | 176 | 40×35 | 1.64 | 179 |
| 560 | 30×55 | 2.14 | 154 | 30×60 | 1.89 | 157 |
| 560 | 35×45 | 2.12 | 154 | 35×50 | 1.87 | 156 |
| 560 | 40×35 | 2.10 | 153 | 40×40 | 1.85 | 156 |
| 680 | 30×65 | 2.36 | 129 | 35×55 | 2.04 | 133 |
| 680 | 35×50 | 2.34 | 129 | 40×45 | 2.02 | 133 |
| 680 | 40×40 | 2.32 | 128 | 45×40 | 2.00 | 132 |
| 820 | 35×55 | 2.58 | 103 | 35×65 | 2.25 | 112 |
| 820 | 40×45 | 2.56 | 103 | 40×55 | 2.23 | 112 |
| 820 | 45×40 | 2.54 | 102 | 45×45 | 2.21 | 112 |
| 1000 | 35×65 | 2.82 | 85 | 40×60 | 2.51 | 90 |
| 1000 | 40×50 | 2.80 | 85 | 45×55 | 2.49 | 90 |
| 1000 | 45×45 | 2.78 | 85 | | | |
| 1200 | 40×60 | 3.04 | 73 | 40×70 | 2.72 | 79 |
| 1200 | 45×50 | 3.02 | 72 | 45×60 | 2.70 | 79 |
| 1500 | 40×70 | 3.22 | 52 | 40×80 | 2.94 | 56 |
| 1500 | 45×60 | 3.20 | 52 | 45×70 | 2.92 | 56 |

# SW3

## ■ List of Standard Products

| Operating voltage (V) | 500(550) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| **68** | 22×25 | 0.52 | 3845 |
| **82** | 22×30 | 0.62 | 3215 |
| **100** | 22×35 | 0.68 | 2631 |
| **120** | 22×35 | 0.78 | 2204 |
| **120** | 25×30 | 0.82 | 2204 |
| **150** | 25×40 | 0.88 | 1759 |
| **180** | 25×40 | 1.00 | 1471 |
| **220** | 30×35 | 1.22 | 1196 |
| **270** | 35×30 | 1.30 | 975 |

# SW6

◆High ripple, long lifespan, high temperature resistance

◆105℃, 6000 hours

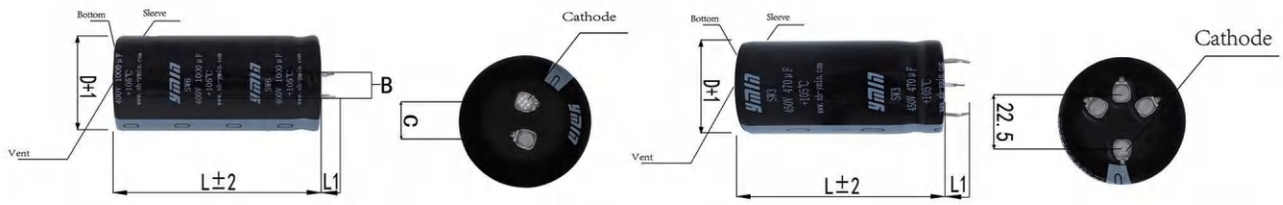
◆Suitable for frequency converters, servo drives, and power supplies

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −25 ~ +105℃ |
| Rated Voltage Range | 10 ~ 500V |
| Rated Capacitance Range | 47 ~ 56000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 额定电压(V) 10 16 25 35 50 63 80 100 160~400 450~500<br>tg δ 0.55 0.5 0.45 0.4 0.35 0.3 0.25 0.2 0.15 0.2 |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| L1 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 10(13) | | | 16(20) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 5600 | | | | 22×25 | 1.44 | 119 |
| 6800 | | | | 22×30 | 1.66 | 98 |
| 8200 | 22×25 | 1.30 | 89 | 25×25 | 1.67 | 81 |
| 10000 | 22×30 | 1.65 | 73 | 22×35 | 2.08 | 66 |
| | 25×25 | 1.64 | 73 | 25×30 | 2.07 | 66 |
| 12000 | 22×35 | 1.85 | 61 | 22×40 | 2.36 | 55 |
| | 25×25 | 1.82 | 61 | 25×35 | 2.37 | 55 |
| | | | | 30×25 | 2.33 | 55 |
| 15000 | 22×40 | 2.12 | 49 | 22×45 | 2.69 | 44 |
| | 25×30 | 2.11 | 49 | 25×40 | 2.72 | 44 |
| | 30×25 | 2.14 | 49 | 30×30 | 2.54 | 44 |
| 18000 | 22×45 | 2.40 | 41 | 25×45 | 3.06 | 37 |
| | 25×35 | 2.32 | 41 | 30×35 | 3.02 | 37 |
| | 30×30 | 2.37 | 41 | 35×30 | 3.09 | 37 |
| 22000 | 25×40 | 2.59 | 33 | 25×50 | 3.39 | 30 |
| | 30×30 | 2.73 | 33 | 30×40 | 3.46 | 30 |
| 27000 | 25×45 | 3.01 | 27 | 30×45 | 3.88 | 25 |
| | 30×35 | 3.13 | 27 | 35×35 | 3.85 | 25 |
| | 35×30 | 3.05 | 27 | | | 26 |
| 33000 | 25×50 | 3.43 | 22 | 30×50 | 4.33 | 20 |
| | 30×40 | 3.53 | 22 | 35×40 | 4.33 | 20 |
| | 35×35 | 3.49 | 22 | | | |
| 39000 | 30×45 | 3.78 | 19 | 35×45 | 4.96 | 17 |
| | 35×40 | 3.96 | 19 | | | |
| 47000 | 30×50 | 4.58 | 16 | 35×50 | 5.49 | 14 |
| | 35×45 | 4.60 | 16 | | | |
| 56000 | 35×50 | 5.06 | 13 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 25(32) | | | 35(44) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2700 | | | | 22×25 | 1.29 | 197 |
| 3300 | | | | 22×30 | 1.42 | 161 |
| 3900 | 22×25 | 1.31 | 153 | 22×35 | 1.58 | 136 |
| | | | | 25×25 | 1.58 | 136 |
| 4700 | 22×30 | 1.51 | 127 | 22×40 | 1.78 | 113 |
| | 25×25 | 1.51 | 127 | 25×30 | 1.77 | 113 |
| 5600 | 22×35 | 1.72 | 107 | 22×45 | 1.98 | 95 |
| | 25×25 | 1.76 | 107 | 25×35 | 1.98 | 95 |
| | | | | 30×25 | 2.03 | 95 |
| 6800 | 22×40 | 1.87 | 88 | 22×50 | 2.26 | 78 |
| | 25×30 | 1.90 | 88 | 25×40 | 2.24 | 78 |
| | | | | 30×30 | 2.28 | 78 |
| 8200 | 22×45 | 2.14 | 73 | 25×45 | 2.56 | 65 |
| | 25×35 | 2.18 | 73 | 30×35 | 2.50 | 65 |
| | 30×25 | 2.19 | 73 | 35×30 | 2.54 | 65 |
| 10000 | 22×50 | 2.45 | 60 | 30×40 | 2.86 | 53 |
| | 25×40 | 2.43 | 60 | 35×30 | 2.88 | 53 |
| | 30×30 | 2.38 | 60 | | | |
| 12000 | 25×45 | 2.79 | 50 | 30×45 | 3.38 | 44 |
| | 30×35 | 2.70 | 50 | 35×35 | 3.30 | 44 |
| | 35×30 | 2.76 | 50 | | | |
| 15000 | 30×40 | 3.13 | 40 | 35×40 | 3.98 | 35 |
| 18000 | 30×45 | 3.52 | 33 | 35×45 | 4.29 | 30 |
| | 35×35 | 3.50 | 33 | | | |
| 22000 | 30×50 | 3.92 | 27 | | | |
| | 35×40 | 3.95 | 27 | | | |
| 27000 | 35×50 | 4.72 | 22 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 50(63) | | | 63(79) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | | | | 22×25 | 1.10 | 398 |
| 1500 | 22×25 | 1.02 | 310 | 22×30 | 1.41 | 265 |
| | | | | 25×25 | 1.38 | 265 |
| 1800 | 22×30 | 1.17 | 258 | 22×35 | 1.49 | 221 |
| | 25×25 | 1.17 | 258 | 25×30 | 1.45 | 221 |
| 2200 | 22×30 | 1.33 | 211 | 22×40 | 1.67 | 181 |
| | 25×25 | 1.34 | 211 | 30×25 | 1.65 | 181 |
| 2700 | 22×35 | 1.51 | 172 | 22×45 | 1.91 | 147 |
| | 25×30 | 1.47 | 172 | 25×35 | 1.9 | 147 |
| | 30×25 | 1.50 | 172 | 30×30 | 1.92 | 147 |
| 3300 | 22×40 | 1.69 | 141 | 25×40 | 2.20 | 121 |
| | 30×25 | 1.70 | 141 | 35×30 | 2.18 | 121 |
| 3900 | 22×45 | 1.89 | 119 | 25×45 | 2.58 | 102 |
| | 25×35 | 1.90 | 119 | 30×35 | 2.46 | 102 |
| | 30×30 | 1.90 | 119 | 35×30 | 2.31 | 102 |
| 4700 | 25×40 | 2.11 | 99 | 30×40 | 2.82 | 85 |
| | 30×35 | 2.13 | 99 | 35×35 | 2.77 | 85 |
| 5600 | 25×45 | 2.36 | 83 | 30×45 | 3.22 | 71 |
| | 30×35 | 2.39 | 83 | 35×40 | 3.20 | 71 |
| | 35×30 | 2.41 | 83 | | | |
| 6800 | 30×40 | 2.79 | 68 | 35×45 | 3.61 | 59 |
| | 35×35 | 2.78 | 68 | | | |
| 8200 | 30×50 | 3.35 | 57 | 35×50 | 3.94 | 49 |
| | 35×40 | 3.33 | 57 | | | |
| 10000 | 35×45 | 3.79 | 46 | | | |
| 12000 | 35×50 | 4.06 | 39 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 80(100) | | | 100(125) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 560 | | | | 22×25 | 1.01 | 474 |
| 680 | 22×25 | 0.97 | 510 | 22×30 | 1.19 | 390 |
| 820 | 22×25 | 1.09 | 405 | 22×35 | 1.33 | 324 |
| | | | | 25×25 | 1.26 | 324 |
| 1000 | 22×30 | 1.29 | 332 | 22×40 | 1.40 | 265 |
| | 25×25 | 1.23 | 332 | 25×30 | 1.42 | 265 |
| | | | | 30×25 | 1.44 | 265 |
| 1200 | 22×35 | 1.48 | 277 | 22×45 | 1.58 | 221 |
| | 25×25 | 1.38 | 277 | 25×35 | 1.57 | 221 |
| | 30×25 | 1.41 | 277 | 30×30 | 1.60 | 221 |
| 1500 | 22×40 | 1.70 | 221 | 22×50 | 1.85 | 177 |
| | 25×30 | 1.72 | 221 | 25×40 | 1.86 | 177 |
| | 30×25 | 1.75 | 221 | 35×30 | 1.85 | 177 |
| 1800 | 22×45 | 1.82 | 184 | 25×45 | 2.29 | 147 |
| | 25×35 | 1.80 | 184 | 30×35 | 2.19 | 147 |
| | 30×30 | 1.78 | 184 | 35×30 | 2.15 | 147 |
| 2200 | 25×45 | 2.12 | 151 | 30×40 | 2.52 | 121 |
| | 30×30 | 2.02 | 151 | 35×35 | 2.48 | 121 |
| 2700 | 30×35 | 2.34 | 123 | 30×45 | 2.86 | 98 |
| | 35×30 | 2.33 | 123 | 35×40 | 2.87 | 98 |
| 3300 | 30×40 | 2.69 | 101 | 35×45 | 3.25 | 80 |
| | 35×35 | 2.60 | 101 | | | |
| 3900 | 30×45 | 2.94 | 85 | 35×50 | 3.56 | 68 |
| | 35×40 | 3.00 | 85 | | | |
| 4700 | 35×45 | 3.44 | 71 | | | |
| 5600 | 35×50 | 3.72 | 59 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 160(200) | | | 180(225) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 220 | 22×25 | 0.63 | 905 | 22×25 | 0.63 | 905 |
| 270 | 22×30 | 0.76 | 737 | 22×30 | 0.76 | 737 |
| | | | | 25×25 | 0.76 | 737 |
| 330 | 22×35 | 0.90 | 603 | 22×35 | 0.90 | 603 |
| | 25×25 | 0.84 | 603 | 25×30 | 0.90 | 603 |
| 390 | 25×30 | 0.97 | 510 | 22×40 | 1.03 | 510 |
| | 30×25 | 1.00 | 510 | 25×35 | 1.06 | 510 |
| | | | | 30×25 | 1.02 | 510 |
| 470 | 22×40 | 1.11 | 424 | 22×45 | 1.17 | 424 |
| | 25×35 | 1.14 | 424 | 30×30 | 1.17 | 424 |
| | 30×30 | 1.17 | 424 | | | |
| 560 | 22×45 | 1.26 | 355 | 22×50 | 1.32 | 355 |
| | | | | 25×40 | 1.32 | 355 |
| | | | | 30×35 | 1.33 | 355 |
| 680 | 22×50 | 1.44 | 293 | 25×45 | 1.51 | 293 |
| | 25×40 | 1.43 | 293 | 35×30 | 1.49 | 293 |
| | 30×35 | 1.5 | 293 | | | |
| 820 | 25×45 | 1.63 | 243 | 25×50 | 1.71 | 243 |
| | 30×40 | 1.66 | 243 | 30×40 | 1.74 | 243 |
| | 35×30 | 1.63 | 243 | 35×35 | 1.75 | 243 |
| 1000 | 30×45 | 1.89 | 199 | 30×45 | 2.01 | 199 |
| | 35×35 | 1.89 | 199 | 35×40 | 2.07 | 199 |
| 1200 | 30×50 | 2.16 | 166 | 30×50 | 2.25 | 166 |
| | 35×40 | 2.23 | 166 | 35×45 | 2.23 | 166 |
| 1500 | 35×45 | 2.61 | 133 | 35×50 | 2.76 | 133 |
| 1800 | 35×50 | 2.97 | 111 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 200(250) | | | 250(300) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 150 | | | | 22×25 | 0.52 | 1327 |
| 180 | 22×25 | 0.57 | 1106 | 22×30 | 0.64 | 1106 |
| | | | | 25×25 | 0.62 | 1106 |
| 220 | 22×30 | 0.70 | 905 | 22×35 | 0.76 | 905 |
| | | | | 25×30 | 0.76 | 905 |
| 270 | 22×35 | 0.83 | 737 | 22×40 | 0.88 | 737 |
| | 25×25 | 0.76 | 737 | 25×35 | 0.90 | 737 |
| | | | | 30×25 | 0.85 | 737 |
| 330 | 22×40 | 0.96 | 603 | 22×45 | 1.01 | 603 |
| | 25×30 | 0.90 | 603 | 30×30 | 1.00 | 603 |
| 390 | 25×35 | 1.06 | 510 | 22×50 | 1.13 | 510 |
| | 30×25 | 1.02 | 510 | 25×40 | 1.13 | 510 |
| | | | | 30×35 | 1.15 | 510 |
| 470 | 22×45 | 1.17 | 424 | 25×45 | 1.29 | 424 |
| | 25×40 | 1.22 | 424 | 35×30 | 1.24 | 424 |
| | 30×30 | 1.17 | 424 | | | |
| 560 | 25×45 | 1.39 | 355 | 25×50 | 1.45 | 355 |
| | 30×35 | 1.38 | 355 | 30×40 | 1.48 | 355 |
| | | | | 35×35 | 1.49 | 355 |
| 680 | 25×50 | 1.58 | 293 | 30×45 | 1.71 | 293 |
| | 30×40 | 1.61 | 293 | 35×40 | 1.74 | 293 |
| | 35×30 | 1.49 | 293 | | | |
| 820 | 30×45 | 1.85 | 243 | 30×50 | 1.94 | 243 |
| | 35×35 | 1.75 | 243 | | | |
| 1000 | 30×50 | 2.11 | 199 | 35×45 | 2.20 | 199 |
| | 35×40 | 2.07 | 199 | | | |
| 1200 | 35×45 | 2.38 | 166 | | | |
| 1500 | 35×50 | 2.76 | 133 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 315(365) | | | 350(400) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 68 | 22×25 | 0.32 | 2923 | 22×25 | 0.34 | 2927 |
| 82 | 22×30 | 0.38 | 2427 | 22×30 | 0.40 | 2427 |
| 100 | 25×25 | 0.41 | 1990 | 25×25 | 0.47 | 1990 |
| 120 | 22×35 | 0.48 | 1659 | 22×35 | 0.52 | 1659 |
| | 25×30 | 0.49 | 1659 | 25×30 | 0.53 | 1659 |
| | | | | 30×25 | 0.53 | 1699 |
| 150 | 22×40 | 0.56 | 1327 | 22×40 | 0.59 | 1327 |
| | 30×25 | 0.51 | 1327 | 25×35 | 0.60 | 1327 |
| 180 | 22×45 | 0.63 | 1106 | 22×45 | 0.68 | 1106 |
| | 25×35 | 0.62 | 1106 | 25×40 | 0.70 | 1106 |
| | 30×30 | 0.63 | 1106 | 30×30 | 0.71 | 1106 |
| 220 | 22×50 | 0.72 | 905 | 22×50 | 0.78 | 905 |
| | 25×40 | 0.71 | 905 | 25×45 | 0.82 | 905 |
| | 30×35 | 0.74 | 905 | 30×35 | 0.82 | 905 |
| 270 | 25×45 | 0.81 | 737 | 25×50 | 0.94 | 406 |
| | 30×40 | 0.85 | 737 | 30×40 | 0.93 | 406 |
| | 35×30 | 0.82 | 737 | 35×30 | 0.90 | 406 |
| 330 | 25×50 | 0.92 | 603 | 30×45 | 1.05 | 603 |
| | 35×35 | 0.90 | 690 | 35×35 | 1.01 | 603 |
| 390 | 30×45 | 1.04 | 681 | 30×50 | 1.18 | 510 |
| | 35×40 | 1.05 | 681 | 35×40 | 1.13 | 510 |
| 470 | 30×50 | 1.15 | 565 | 35×45 | 1.26 | 424 |
| | 35×45 | 1.18 | 565 | | | |
| 560 | 35×50 | 1.34 | 474 | 35×50 | 1.39 | 355 |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 400(450) | | | 450(500) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 68 | 22×30 | 0.38 | 2927 | 22×30 | 0.38 | 3903 |
| 82 | 25×25 | 0.41 | 2427 | 22×35 | 0.44 | 3237 |
| | | | | 25×30 | 0.45 | 3237 |
| | | | | 30×25 | 0.46 | 3237 |
| 100 | 22×35 | 0.46 | 1990 | 22×40 | 0.50 | 2654 |
| | 25×30 | 0.48 | 1990 | 25×35 | 0.52 | 2654 |
| | 30×25 | 0.48 | 1990 | | | |
| 120 | 22×40 | 0.53 | 1659 | 22×50 | 0.58 | 2212 |
| | 25×35 | 0.55 | 1659 | 25×40 | 0.58 | 2212 |
| | 30×30 | 0.56 | 1659 | 30×30 | 0.58 | 2212 |
| 150 | 22×50 | 0.63 | 1327 | 25×45 | 0.66 | 1769 |
| | 25×40 | 0.65 | 1327 | 30×35 | 0.68 | 1769 |
| 180 | 25×45 | 0.72 | 1106 | 25×50 | 0.74 | 1474 |
| | 30×35 | 0.74 | 1106 | 30×40 | 0.77 | 1474 |
| | | | | 35×30 | 0.77 | 1474 |
| 220 | 22×50 | 0.79 | 905 | 22×60 | 0.88 | 1206 |
| | 25×40 | 0.85 | 905 | 25×50 | 0.88 | 1206 |
| | 30×35 | 0.89 | 905 | 30×35 | 0.88 | 1206 |
| 270 | 22×55 | 0.99 | 737 | 22×70 | 0.97 | 983 |
| | 25×45 | 0.98 | 737 | 25×55 | 0.99 | 983 |
| | 30×40 | 0.96 | 737 | 30×45 | 1.01 | 983 |
| 330 | 22×65 | 1.12 | 603 | 25×60 | 1.13 | 804 |
| | 25×55 | 1.12 | 603 | 30×45 | 1.15 | 804 |
| | 30×40 | 1.10 | 603 | 35×40 | 1.15 | 804 |
| 390 | 25×60 | 1.29 | 510 | 30×55 | 1.27 | 681 |
| | 30×45 | 1.27 | 510 | 35×45 | 1.27 | 681 |
| | 35×40 | 1.27 | 510 | 40×35 | 1.28 | 681 |
| 470 | 25×70 | 1.35 | 424 | 30×60 | 1.53 | 565 |
| | 30×55 | 1.33 | 424 | 35×50 | 1.54 | 565 |
| | 35×45 | 1.33 | 424 | 40×40 | 1.54 | 565 |
| 560 | 30×60 | 1.59 | 356 | 30×65 | 1.82 | 474 |
| | 35×50 | 1.58 | 356 | 35×55 | 1.83 | 474 |
| | 40×40 | 1.60 | 356 | 40×45 | 1.83 | 474 |
| 680 | 30×70 | 1.95 | 293 | 35×60 | 2.22 | 391 |
| | 35×55 | 1.93 | 293 | 40×50 | 2.23 | 391 |
| | 40×45 | 1.94 | 293 | 45×45 | 2.23 | 391 |
| 820 | 35×60 | 2.36 | 243 | 35×70 | 2.67 | 324 |
| | 40×50 | 2.34 | 243 | 40×60 | 2.69 | 324 |
| | 45×45 | 2.34 | 243 | 45×50 | 2.69 | 324 |
| 1000 | 35×70 | 2.81 | 199 | 40×65 | 3.28 | 266 |
| | 40×55 | 2.82 | 199 | 45×60 | 3.28 | 266 |
| | 45×50 | 2.82 | 199 | | | |

# SW6

## ■ List of Standard Products

| Operating voltage (V) | 500(550) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 47 | 22×30 | 0.41 | 5647 |
| 56 | 22×30 | 0.47 | 4736 |
| 68 | 22×35 | 0.54 | 3903 |
| | 25×30 | 0.54 | 3903 |
| 82 | 22×40 | 0.62 | 3237 |
| | 25×35 | 0.62 | 3237 |
| 100 | 22×45 | 0.67 | 2654 |
| | 25×40 | 0.67 | 2654 |
| | 30×30 | 0.67 | 2654 |
| 120 | 22×50 | 0.77 | 2212 |
| | 25×40 | 0.74 | 2212 |
| | 30×35 | 0.77 | 2212 |
| | 35×30 | 0.80 | 2212 |
| 150 | 25×45 | 0.82 | 1769 |
| | 30×40 | 0.85 | 1769 |
| | 35×30 | 0.67 | 1769 |
| | 35×35 | 0.85 | 1769 |
| 180 | 25×50 | 0.98 | 1474 |
| | 30×45 | 1.01 | 1474 |
| 220 | 30×50 | 1.12 | 1206 |
| | 35×35 | 0.94 | 1206 |
| | 35×40 | 1.12 | 1206 |
| 270 | 30×50 | 1.25 | 983 |
| | 35×40 | 1.25 | 983 |
| 330 | 35×45 | 1.36 | 804 |
| 390 | 35×50 | 1.54 | 681 |
| 470 | 35×60 | 1.69 | 565 |

# SH15

◆15mmL Reliable Product

◆105℃ 3000 Hours

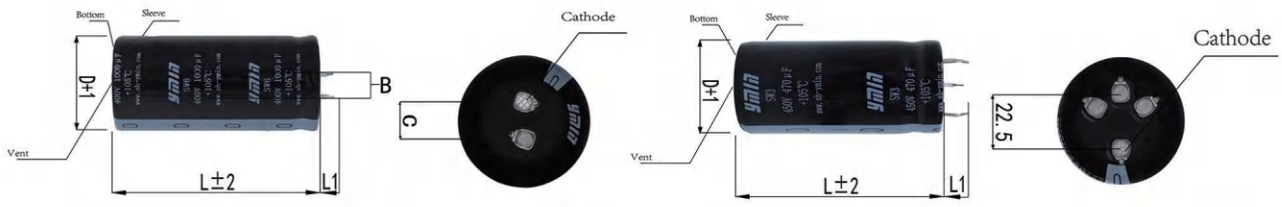
◆Suitable for Thinner Power Supplies

◆RoHS Compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | (160 ~ 250V)−40 ~ +105℃ ; (315 ~ 400V)−25 ~ +105℃ |
| Rated Voltage Range | 160 ~ 400V |
| Rated Capacitance Range | 39 ~ 390μF |
| Rated Capacitance Tolerance | ±20% (20℃ 120Hz) |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.8 ; C(-40℃)/C(+20℃)≧0.65 |
| Insulation Resistance | Z(-25℃)/Z(+20℃)≦5 ; Z(-40℃)/Z(+20℃)≦8 |
| Insulation Voltage | The insulation resistance between all terminals and the insulating sleeves on the container sleeve and the mounting straps was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| L1 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# SH15

## ■ List of Standard Products

| Operating voltage (V) | 160(200) | | | 180(225) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 150 | | | | 22×15 | 0.58 | 895 |
| 180 | 22×15 | 0.62 | 801 | 25×15 | 0.73 | 853 |
| 220 | 25×15 | 0.78 | 748 | 30×15 | 0.83 | 805 |
| 270 | 30×15 | 0.92 | 683 | 30×15 | 0.98 | 731 |
| 330 | 30×15 | 0.98 | 601 | 35×15 | 1.09 | 601 |
| 390 | 30×15 | 1.14 | 508 | 35×15 | 1.15 | 509 |

| Operating voltage (V) | 200(250) | | | 250(300) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 100 | | | | 22×15 | 0.49 | 1204 |
| 120 | 22×15 | 0.53 | 1032 | 25×15 | 0.58 | 1179 |
| 150 | 25×15 | 0.62 | 995 | 30×15 | 0.68 | 1145 |
| 180 | 25×15 | 0.73 | 947 | 30×15 | 0.72 | 1103 |
| 220 | 30×15 | 0.88 | 903 | 35×15 | 0.88 | 903 |
| 270 | 30×15 | 0.98 | 733 | 35×15 | 0.98 | 733 |
| 330 | 35×15 | 1.07 | 601 | | | |

| Operating voltage (V) | 315(365) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 39 | | | | 22×15 | 0.29 | 3585 |
| 47 | | | | 25×15 | 0.33 | 3386 |
| 56 | 22×15 | 0.33 | 2755 | 30×15 | 0.38 | 2842 |
| 68 | 25×15 | 0.38 | 2454 | 30×15 | 0.42 | 2341 |
| 80 | 30×15 | 0.43 | 1949 | 35×15 | 0.48 | 1941 |
| 100 | 30×15 | 0.48 | 1738 | 35×15 | 0.54 | 1592 |
| 120 | 35×15 | 0.53 | 1653 | | | |
| 150 | 35×15 | 0.58 | 1325 | | | |

# CW3H

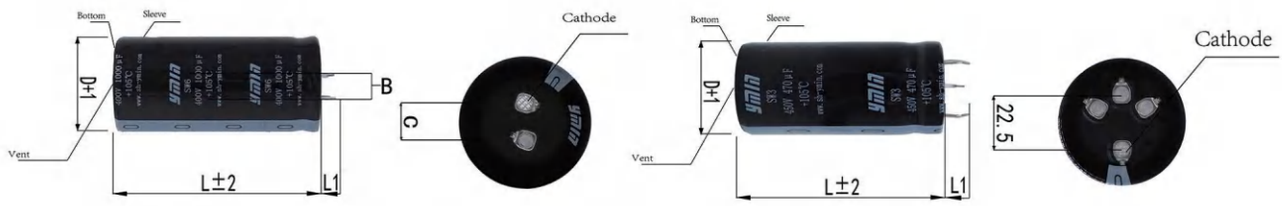
NEW

- ◆ High reliability, low ESR
- ◆ 105℃, 3000 hours
- ◆ Suitable for new energy photovoltaics and automotive electronics
- ◆ RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | -40 ~ +105℃ |
| Rated Voltage Range | 350 ~ 600V |
| Rated Capacitance Range | 120 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.20 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.8 ; C(-40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(-25℃)/Z(+20℃)≦5 ; Z(-40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# CW3H

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) |
| 120 | 22×30 | 0.70 | 1380 | 22×30 | 0.65 | 1517 |
| | 25×25 | 0.70 | 1380 | 25×25 | 0.65 | 1517 |
| | 30×20 | 0.71 | 1380 | 30×20 | 0.68 | 1517 |
| | | | | 35×20 | 0.68 | 1517 |
| 150 | 22×35 | 0.82 | 1104 | 22×35 | 0.76 | 1213 |
| | 25×30 | 0.82 | 1104 | 25×30 | 0.76 | 1213 |
| | 30×25 | 0.83 | 1104 | 30×25 | 0.77 | 1213 |
| | 35×20 | 0.83 | 1104 | 35×20 | 0.79 | 1213 |
| 180 | 22×40 | 0.94 | 919 | 22×40 | 0.87 | 1010 |
| | 25×30 | 0.94 | 919 | 25×30 | 0.87 | 1010 |
| | 30×25 | 0.94 | 919 | 30×25 | 0.87 | 1010 |
| | | | | 35×25 | 0.87 | 1010 |
| 220 | 22×45 | 1.08 | 751 | 22×45 | 1.00 | 826 |
| | 25×35 | 1.08 | 751 | 25×40 | 1.00 | 826 |
| | 30×25 | 1.10 | 751 | 30×30 | 1.02 | 826 |
| | 35×25 | 1.10 | 751 | 35×25 | 1.02 | 826 |
| 270 | 22×50 | 1.23 | 617 | 25×45 | 1.17 | 673 |
| | 25×40 | 1.23 | 617 | 30×30 | 1.17 | 673 |
| | 30×30 | 1.23 | 617 | 35×25 | 1.17 | 673 |
| | 35×25 | 1.25 | 617 | | | |
| 330 | 25×45 | 1.37 | 504 | 25×50 | 1.34 | 550 |
| | 30×35 | 1.37 | 504 | 30×35 | 1.31 | 550 |
| | 35×30 | 1.37 | 504 | 35×30 | 1.31 | 550 |
| 390 | 25×50 | 1.53 | 426 | 25×55 | 1.51 | 465 |
| | 30×35 | 1.55 | 426 | 30×40 | 1.51 | 465 |
| | 35×30 | 1.55 | 426 | 35×35 | 1.51 | 465 |
| 470 | 25×60 | 1.81 | 353 | 30×45 | 1.66 | 385 |
| | 30×45 | 1.81 | 353 | 35×40 | 1.68 | 385 |
| | 35×35 | 1.81 | 353 | | | |
| 560 | 30×50 | 1.98 | 290 | 30×50 | 1.87 | 323 |
| | 35×40 | 1.98 | 290 | 35×45 | 1.87 | 323 |
| 680 | 30×60 | 2.37 | 239 | 35×50 | 2.23 | 265 |
| | 35×45 | 2.37 | 239 | | | |
| 820 | 35×50 | 2.56 | 198 | 35×55 | 2.49 | 219 |
| 1000 | 35×55 | 2.81 | 163 | 35×70 | 2.94 | 180 |

# CW3H

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) |
| 120 | 22×40 | 0.69 | 1880 | 22×50 | 0.66 | 1415 |
| | 25×25 | 0.69 | 1880 | 25×40 | 0.66 | 1415 |
| | 30×25 | 0.71 | 1880 | 30×30 | 0.65 | 1415 |
| | 35×20 | 0.71 | 1880 | 35×25 | 0.63 | 1415 |
| 150 | 22×45 | 0.77 | 987 | 22×50 | 0.73 | 1132 |
| | 25×30 | 0.77 | 987 | 25×40 | 0.70 | 1132 |
| | 30×25 | 0.79 | 987 | 30×30 | 0.70 | 1132 |
| | 35×25 | 0.79 | 987 | 35×25 | 0.71 | 1132 |
| 180 | | | | 22×60 | 0.86 | 943 |
| | 22×40 | 0.81 | 822 | 25×50 | 0.85 | 943 |
| | 25×35 | 0.81 | 822 | 30×35 | 0.82 | 943 |
| | 30×30 | 0.83 | 822 | 35×30 | 0.82 | 943 |
| 220 | | | | 22×65 | 0.97 | 771 |
| | 25×40 | 0.96 | 673 | 25×55 | 0.93 | 771 |
| | 30×30 | 0.94 | 673 | 30×40 | 0.93 | 771 |
| | 35×25 | 0.97 | 673 | 35×25 | 0.90 | 771 |
| 270 | 25×45 | 1.11 | 549 | 25×60 | 1.11 | 628 |
| | 30×35 | 1.10 | 549 | 30×45 | 1.08 | 628 |
| | 35×30 | 1.14 | 549 | 35×35 | 1.06 | 628 |
| 330 | | | | 25×70 | 1.31 | 513 |
| | 30×40 | 1.29 | 449 | 30×50 | 1.27 | 513 |
| | 35×35 | 1.29 | 449 | 35×40 | 1.25 | 513 |
| 390 | 30×45 | 1.47 | 379 | 30×60 | 1.45 | 435 |
| | 35×35 | 1.45 | 379 | 35×45 | 1.45 | 435 |
| 470 | 30×50 | 1.68 | 314 | 30×65 | 1.64 | 360 |
| | 35×40 | 1.65 | 314 | 35×50 | 1.59 | 360 |
| 560 | 30×60 | 1.97 | 263 | 30×65 | 1.90 | 302 |
| | 35×45 | 1.94 | 263 | 35×50 | 1.87 | 302 |
| 680 | 35×55 | 2.25 | 216 | 35×65 | 2.25 | 248 |
| 820 | 35×60 | 2.52 | 179 | 35×70 | 2.67 | 205 |
| 1000 | 35×70 | 2.85 | 147 | 35×85 | 3.05 | 169 |

# CW3H

## ■ List of Standard Products

| Operating voltage (V) | 550(600) | | | 600(650) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) |
| 120 | 30×30 | 0.95 | 1646 | 30×40 | 1.00 | 2016 |
| | | | | 35×30 | 0.96 | 2016 |
| 150 | 30×35 | 1.06 | 1317 | 30×45 | 1.15 | 1612 |
| | | | | 35×35 | 1.12 | 1612 |
| 180 | 30×40 | 1.13 | 1097 | 30×50 | 1.28 | 1343 |
| | 35×30 | 1.11 | 1097 | 35×40 | 1.25 | 1343 |
| 220 | 30×50 | 1.26 | 898 | 30×60 | 1.47 | 1098 |
| | 35×40 | 1.24 | 898 | 35×45 | 1.46 | 1098 |
| 270 | 35×45 | 1.39 | 731 | 35×50 | 1.63 | 894 |
| 330 | 35×50 | 1.59 | 598 | 35×55 | 1.87 | 731 |
| 390 | 35×60 | 1.76 | 505 | 35×60 | 2.92 | 618 |
| 470 | 35×65 | 2.05 | 419 | 40×60 | 3.06 | 512 |
| 560 | 35×75 | 2.33 | 351 | 40×80 | 3.22 | 429 |
| | 35×80 | 2.20 | 351 | | | |

# CW6H

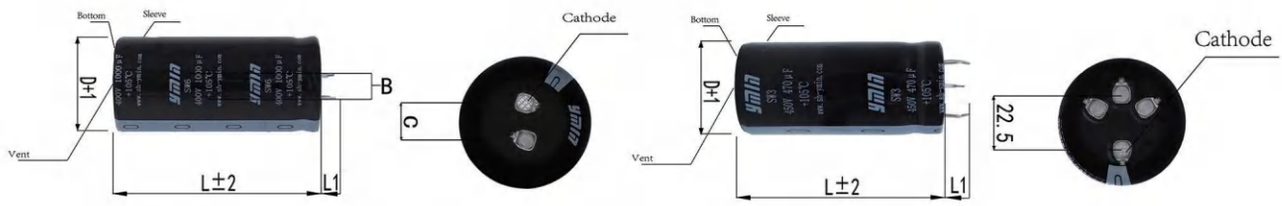
NEW

- ◆High reliability, low ESR, long lifespan
- ◆105℃, 6000 hours
- ◆Suitable for new energy photovoltaics and automotive electronics
- ◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | -40 ~ +105℃ |
| Rated Voltage Range | 350 ~ 600V |
| Rated Capacitance Range | 120 ~ 1000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦3$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.20 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.8 ; C(-40℃)/C(+20℃)≧0.65 |
| Impedance Characteristics (120Hz) | Z(-25℃)/Z(+20℃)≦5 ; Z(-40℃)/Z(+20℃)≦8 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±15% of the initial value<br>Loss value (tg δ) ≦ 150% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

## ■ Product dimension drawing (unit: mm)




| ΦD | Φ22 | Φ25 | Φ30 | Φ35 | Φ40 |
|---|---|---|---|---|---|
| B | 11.6 | 11.8 | 11.8 | 11.8 | 12.25 |
| C | 8.4 | 10 | 10 | 10 | 10 |
| $L_1$ | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.7 | 2.2 | 1.7 | 1.0 |

# CW6H

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) |
| 120 | 22×25 | 0.67 | 1497 | 22×30 | 0.66 | 1634 |
| 150 | 22×30 | 0.80 | 1197 | 22×35 | 0.79 | 972 |
| | | | | 25×30 | 0.77 | 972 |
| 180 | 25×30 | 0.91 | 997 | 22×40 | 0.91 | 810 |
| | | | | 25×30 | 0.92 | 810 |
| | | | | 30×25 | 0.92 | 810 |
| 220 | 22×40 | 1.05 | 815 | 22×45 | 1.05 | 663 |
| | 25×30 | 1.03 | 815 | 25×35 | 1.01 | 663 |
| | 30×25 | 1.03 | 815 | 35×25 | 1.06 | 663 |
| 270 | 22×45 | 1.19 | 664 | 22×50 | 1.20 | 540 |
| | 25×35 | 1.19 | 664 | 25×45 | 1.23 | 540 |
| | 30×30 | 1.18 | 664 | 30×30 | 1.16 | 540 |
| | 35×25 | 1.16 | 664 | | | |
| 330 | 22×50 | 1.32 | 543 | 25×50 | 1.41 | 441 |
| | 25×40 | 1.31 | 543 | 30×35 | 1.37 | 441 |
| | 30×35 | 1.29 | 543 | 35×30 | 1.43 | 441 |
| 390 | 25×45 | 1.47 | 459 | 30×40 | 1.53 | 365 |
| | 30×40 | 1.47 | 459 | 35×35 | 1.54 | 365 |
| | 35×30 | 1.45 | 459 | | | |
| 470 | 25×55 | 1.89 | 380 | 30×45 | 1.75 | 302 |
| | 30×45 | 1.89 | 380 | 35×40 | 1.81 | 302 |
| | 35×35 | 1.87 | 380 | | | |
| 560 | 30×50 | 1.93 | 320 | 35×45 | 2.05 | 253 |
| | 35×40 | 1.94 | 320 | | | |
| 680 | 35×45 | 2.30 | 263 | 35×50 | 2.34 | 209 |
| 820 | 35×50 | 2.50 | 218 | 35×55 | 2.60 | 173 |
| 1000 | 35×55 | 2.67 | 179 | 35×65 | 2.97 | 141 |

# CW6H

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max,mΩ) |
| 120 | 22×35 | 0.66 | 1380 | 25×40 | 0.65 | 1543 |
| 150 | 22×40 | 0.77 | 1104 | 25×50 | 0.79 | 1235 |
| | 25×30 | 0.76 | 1104 | 30×35 | 0.76 | 1235 |
| | 30×25 | 0.76 | 1104 | 35×30 | 0.78 | 1235 |
| 180 | 22×45 | 0.89 | 920 | 30×35 | 0.82 | 1029 |
| | 25×35 | 0.89 | 920 | 35×30 | 0.85 | 1029 |
| | 30×30 | 0.86 | 920 | | | |
| | 35×25 | 0.85 | 920 | | | |
| 220 | 25×40 | 0.98 | 752 | 30×40 | 0.96 | 841 |
| | 30×35 | 1.03 | 752 | 35×35 | 0.99 | 841 |
| | 35×30 | 1.07 | 752 | | | |
| 270 | 25×45 | 1.14 | 612 | 30×50 | 1.16 | 685 |
| | 30×40 | 1.18 | 612 | 35×40 | 1.15 | 685 |
| | 35×35 | 1.23 | 612 | | | |
| 330 | 30×45 | 1.39 | 501 | 30×55 | 1.33 | 560 |
| 390 | 30×50 | 1.57 | 501 | 30×65 | 1.55 | 473 |
| | 35×40 | 1.56 | 501 | 35×50 | 1.51 | 473 |
| 470 | 35×40 | 1.70 | 415 | 35×55 | 1.72 | 392 |
| 560 | 35×50 | 2.02 | 348 | 35×65 | 2.00 | 328 |
| 680 | 35×55 | 2.28 | 286 | 35×75 | 2.33 | 270 |
| 820 | 35×60 | 2.57 | 237 | 35×90 | 2.74 | 223 |
| 1000 | 35×70 | 2.91 | 195 | | | |

# CW6H

## ■ List of Standard Products

| Operating voltage (V) | 550(600) | | | 600(650) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 120 | 30×30 | 0.95 | 1776 | 30×40 | 1.00 | 2673 |
| | | | | 35×30 | 0.99 | 2673 |
| 150 | 30×35 | 1.09 | 1420 | 30×45 | 1.15 | 2137 |
| | | | | 35×35 | 1.12 | 2137 |
| 180 | 30×40 | 1.22 | 1183 | 30×50 | 1.28 | 1780 |
| | 35×30 | 1.15 | 1183 | 35×40 | 1.28 | 1780 |
| 220 | 30×50 | 1.41 | 967 | 30×60 | 1.47 | 1456 |
| | 35×40 | 1.34 | 967 | 35×45 | 1.44 | 1456 |
| 270 | 35×45 | 1.52 | 787 | 35×50 | 1.63 | 1187 |
| 330 | 35×50 | 1.72 | 643 | 35×60 | 1.87 | 971 |
| 390 | 35×60 | 1.94 | 545 | 35×70 | 2.20 | 823 |
| 470 | 35×65 | 2.33 | 452 | 40×60 | 2.25 | 683 |

# ES3

◆85℃, 3000-hour long lifespan

◆Suitable for UPS power supplies and industrial controllers

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −40 ~ +85℃(10~100V) ； −25 ~ +85℃(160~500V) |
| Rated Voltage Range | 200 ~ 500V |
| Rated Capacitance Range | 1000 ~ 22000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.18 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | 200~450 C(-25℃)/C(+20℃)≧0.7 ； 500 C(-40℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

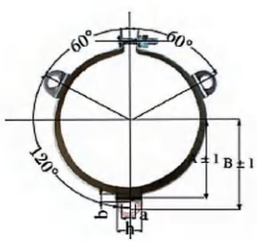
## ■ Product dimension drawing (unit: mm)



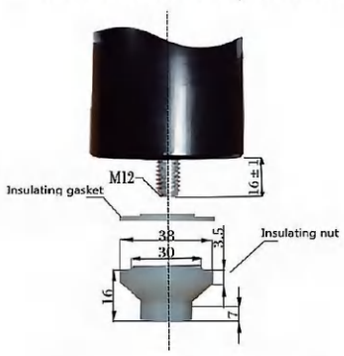
| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

### ■ Y-shaped clasp

Y type snap ring(Code:Y)




### ■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.70 | 1.00 | 1.10 | 1.30 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.89 | 1.67 | 1.00 |

# ES3

## ■ List of Standard Products

| Operating voltage (V) | 400(450) | | | 450(500) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×75 | 3.64 | 83 | 51×75 | 3.95 | 82 |
| 1200 | 51×75 | 3.96 | 79 | 51×96 | 4.12 | 79 |
| 1500 | 51×96 | 4.32 | 57 | 51×115 | 4.45 | 57 |
| 1800 | 51×96 | 5.34 | 46 | 51×130 | 5.46 | 49 |
| 2200 | 51×115 | 7.45 | 38 | 51×130 | 7.36 | 37 |
| 2200 | 51×105 | 6.74 | 40 | 64×96 | 7.69 | 35 |
| 2700 | 51×130 | 8.56 | 34 | 64×115 | 8.48 | 32 |
| 2700 | 64×96 | 8.94 | 33 | 64×96 | 8.51 | 31 |
| 3300 | 64×115 | 10.40 | 32 | 64×130 | 10.17 | 30 |
| 3300 | 64×96 | 11.04 | 30 | 64×115 | 10.77 | 29 |
| 3900 | 64×130 | 12.24 | 27 | 77×115 | 11.84 | 27 |
| 3900 | 64×115 | 12.96 | 26 | 64×130 | 11.63 | 28 |
| 4700 | 77×115 | 14.44 | 3 | 77×115 | 14.21 | 23 |
| 4700 | 64×130 | 14.18 | 24 | 77×130 | 13.87 | 24 |
| 5600 | 77×130 | 16.33 | 21 | 77×155 | 15.68 | 17 |
| 5600 | 77×115 | 16.83 | 20 | 77×130 | 15.50 | 17 |
| 6800 | 77×130 | 17.34 | 16 | 90×157 | 17.78 | 15 |
| 6800 | 77×155 | 17.84 | 16 | 77×155 | 18.46 | 14 |
| 8200 | 90×157 | 21.60 | 14 | 90×157 | 19.08 | 13 |
| 8200 | 77×155 | 21.62 | 14 | 77×175 | 19.58 | 12 |
| 10000 | 90×157 | 21.55 | 12 | 90×160 | 22.15 | 12 |
| 10000 | 77×190 | 22.44 | 12 | 90×195 | 24.00 | 10 |
| 12000 | 90×196 | 26.62 | 11 | 90×196 | 27.80 | 10 |
| 12000 | 90×155 | 26.52 | 11 | 90×235 | 28.32 | 9 |
| 15000 | 90×236 | 21.41 | 10 | 90×236 | 31.56 | 9 |
| 15000 | 90×196 | 32.00 | 10 | | | |
| 18000 | 90×236 | 39.36 | 8 | 101×234 | 41.06 | 8 |
| 22000 | 101×234 | 45.56 | 7 | | | |

# ES3

## ■ List of Standard Products

| Operating voltage (V) | 500(550) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1200 | 51×115 | 4.30 | 101 |
| 1200 | 51×130 | 4.05 | 107 |
| 1500 | 51×130 | 5.30 | 90 |
| 1500 | 64×115 | 5.24 | 93 |
| 1800 | 64×115 | 6.23 | 76 |
| 1800 | 64×130 | 6.42 | 74 |
| 2200 | 64×130 | 7.24 | 59 |
| 2700 | 77×115 | 8.69 | 41 |
| 2700 | 77×120 | 8.48 | 44 |
| 3300 | 77×115 | 10.35 | 36 |
| 3300 | 77×130 | 9.84 | 38 |
| 3900 | 77×130 | 11.32 | 33 |
| 3900 | 77×155 | 11.44 | 32 |
| 4700 | 77×171 | 13.02 | 30 |
| 4700 | 90×130 | 13.36 | 29 |
| 5600 | 77×196 | 15.74 | 26 |
| 5600 | 90×155 | 16.22 | 24 |
| 6800 | 90×170 | 17.20 | 23 |
| 6800 | 90×190 | 17.52 | 23 |
| 8200 | 90×196 | 19.56 | 20 |
| 8200 | 90×220 | 19.40 | 21 |
| 10000 | 90×236 | 23.05 | 16 |
| 10000 | 90×245 | 23.00 | 16 |
| 12000 | 101×234 | 29.35 | 14 |

# ES3M

◆Suitable for DC welding machines and inverter welding machines

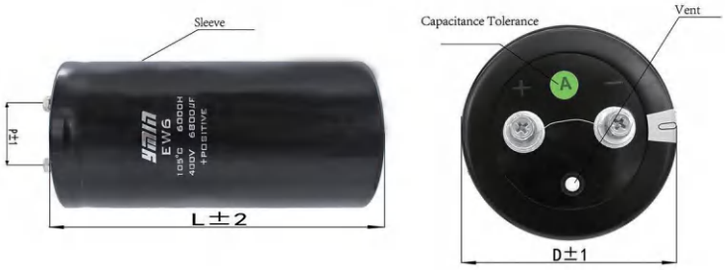
◆85℃, 3000-hour warranty, high ripple, miniaturized

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −25 ~ +85℃ |
| Rated Voltage Range | 200 ~ 500V |
| Rated Capacitance Range | 1000 ~ 39000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.18 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | 200~450 C(-25℃)/C(+20℃)≧0.7 ; 500 C(-40℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 85℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

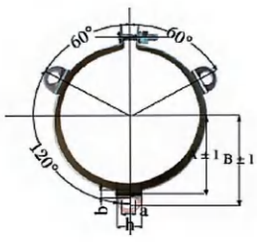
## ■ Product dimension drawing (unit: mm)



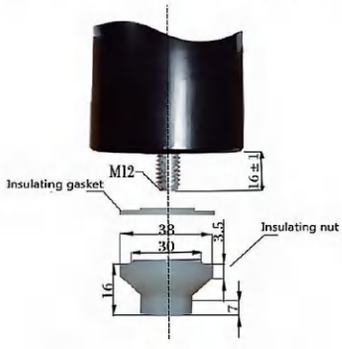

| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

### ■ Y-shaped clasp

Y type snap ring(Code:Y)




### ■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.70 | 1.00 | 1.10 | 1.30 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.89 | 1.67 | 1.00 |

# ES3M

## ■ List of Standard Products

| Operating voltage (V) | 200(250) | | | 250(300) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 3300 | | | | 51×80 | 6.84 | 28 |
| 3300 | | | | 35×100 | 6.23 | 30 |
| 3900 | | | | 51×80 | 7.56 | 23 |
| 3900 | | | | 35×115(105) | 6.84 | 26 |
| 4700 | 51×75 | 7.68 | 24 | 51×90 | 8.52 | 22 |
| 4700 | 35×100 | 5.83 | 28 | 35×115 | 7.64 | 25 |
| 5600 | 51×80 | 9.12 | 21 | 64×75 | 9.09 | 19 |
| 5600 | 35×115 | 8.18 | 23 | 51×115 | 9.36 | 19 |
| 6800 | 64×65(70) | 10.68 | 18 | 64×85 | 10.92 | 16 |
| 6800 | 51×90(95) | 10.56 | 19 | 51×150(140) | 11.70 | 15 |
| 8200 | 64×75 | 10.38 | 16 | 77×80 | 11.92 | 14 |
| 8200 | 51×130 | 11.28 | 16 | 64×96(105) | 12.00 | 14 |
| 10000 | 64×85 | 12.48 | 14 | 77×90 | 14.04 | 13 |
| 10000 | 51×150(140) | 11.64 | 14 | 64×110 | 14.04 | 13 |
| 12000 | 77×80 | 14.42 | 13 | 77×100 | 15.66 | 12 |
| 12000 | 64×115(105) | 14.52 | 13 | 64×125 | 15.48 | 12 |
| 15000 | 77×90 | 16.99 | 12 | 77×115 | 18.12 | 11 |
| 15000 | 64×120 | 17.28 | 12 | 64×145 | 18.37 | 11 |
| 18000 | 77×105(115) | 19.57 | 11 | 90×100 | 22.04 | 10 |
| 18000 | 64×125 | 19.80 | 11 | 77×130 | 21.24 | 10 |
| 22000 | 90×90 | 22.66 | 10 | 90×115 | 24.67 | 9 |
| 22000 | 77×120 | 23.52 | 9 | 77×155 | 25.08 | 9 |
| 27000 | 90×105 | 26.77 | 8 | 90×135 | 26.16 | 8 |
| 27000 | 77×140 | 25.80 | 8 | 77×180 | 26.40 | 8 |
| 33000 | 90×120 | 29.86 | 7 | 101×160 | 28.49 | 7 |
| 33000 | 77×160 | 30.36 | 7 | 90×190 | 28.80 | 7 |
| 39000 | 90×140 | 34.16 | 6 | 101×180 | 35.83 | 6 |
| 39000 | 77×185 | 34.80 | 6 | 90×210 | 36.00 | 6 |

# ES3M

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2200 | 51×75 | 7.45 | 42 | 51×90 | 7.45 | 38 |
| 2200 | 35×105 | 6.74 | 45 | 35×110 | 6.74 | 40 |
| 2700 | 51×90 | 8.94 | 36 | 64×75 | 8.56 | 34 |
| 2700 | 35×115 | 7.71 | 39 | 51×100 | 8.94 | 33 |
| 3300 | 64×75 | 9.36 | 33 | 64×85 | 10.40 | 32 |
| 3300 | 51×110 | 9.90 | 33 | 51×115 | 11.04 | 30 |
| 3900 | 64×75 | 11.32 | 28 | 64×96 | 12.24 | 27 |
| 3900 | 51×115 | 10.87 | 29 | 51×130 | 12.97 | 26 |
| 4700 | 77×75 | 13.37 | 26 | 77×80 | 14.44 | 23 |
| 4700 | 64×90 | 13.46 | 26 | 64×105 | 14.18 | 24 |
| 4700 | 51×130 | 13.54 | 26 | | | |
| 5600 | 77×80 | 15.55 | 23 | 77×90 | 16.33 | 21 |
| 5600 | 64×105 | 15.50 | 23 | 64×125 | 16.83 | 20 |
| 6800 | 77×96 | 17.34 | 18 | 77×105 | 17.34 | 16 |
| 6800 | 64×120 | 17.14 | 19 | 64×140 | 17.84 | 16 |
| 8200 | 77×105 | 19.99 | 16 | 90×95 | 21.60 | 14 |
| 8200 | 64×135 | 19.76 | 17 | 77×120 | 21.62 | 14 |
| 10000 | 90×95 | 23.26 | 14 | 90×105 | 21.55 | 12 |
| 10000 | 77×120 | 23.87 | 13 | 77×140 | 22.44 | 12 |
| 12000 | 90×110 | 24.58 | 12 | 90×125 | 26.62 | 11 |
| 12000 | 77×140 | 25.33 | 11 | 77×160 | 26.52 | 11 |

# ES3M

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×65 | 3.95 | 82 | 51×75 | 3.74 | 118 |
| 1000 | 36×100 | 3.70 | 83 | 36×110 | 3.56 | 121 |
| 1200 | | | | 51×85 | 4.30 | 101 |
| 1200 | | | | 36×120 | 4.05 | 107 |
| 1500 | 51×80 | 4.45 | 57 | 64×70 | 5.30 | 90 |
| 1500 | 36×110 | 4.23 | 59 | 51×95 | 5.24 | 93 |
| 2200 | 64×70 | 7.36 | 37 | 64×85 | 7.24 | 59 |
| 2200 | 51×100 | 7.69 | 35 | 51×120 | 7.32 | 55 |
| 2700 | 64×80 | 8.48 | 32 | 77×80 | 8.69 | 41 |
| 2700 | 51×115 | 8.51 | 31 | 64×96 | 8.48 | 44 |
| 3300 | 64×96 | 10.17 | 30 | 77×90 | 10.35 | 36 |
| 3300 | 51×135 | 10.77 | 29 | 64×110 | 9.84 | 38 |
| 3900 | 77×85 | 11.84 | 27 | 77×100 | 11.32 | 33 |
| 3900 | 64×105 | 11.63 | 28 | 64×125 | 11.44 | 32 |
| 4700 | 77×90 | 14.21 | 23 | 64×145 | 13.02 | 30 |
| 4700 | 64×120 | 13.87 | 24 | 77×115 | 13.36 | 29 |
| 5600 | 77×105 | 15.68 | 17 | 90×105 | 15.74 | 26 |
| 5600 | 64×135 | 15.50 | 17 | 77×130 | 16.22 | 25 |
| 6800 | 90×100 | 17.78 | 15 | 90×120 | 17.20 | 24 |
| 6800 | 77×120 | 18.46 | 14 | 77×155 | 17.52 | 23 |
| 8200 | 90×110 | 19.08 | 13 | 101×120 | 19.56 | 20 |
| 8200 | 77×135 | 19.58 | 12 | 90×155 | 19.40 | 21 |
| 10000 | 90×125 | 22.15 | 12 | 101×145 | 23.05 | 16 |
| 10000 | 77×160 | 24.00 | 10 | 90×190 | 23.00 | 16 |

# ES6

◆85℃ for 6000 hours

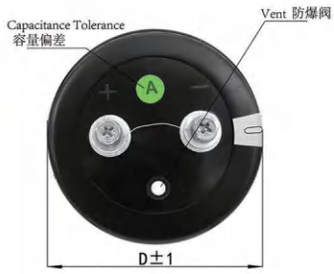
◆Suitable for UPS power supplies and industrial frequency converters

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −25 ~ +85℃ |
| Rated Voltage Range | 200 ~ 500V |
| Rated Capacitance Range | 1000 ~ 47000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.18 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | 200~450 C(-25℃)/C(+20℃)≧0.7 ; 500 C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 85℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

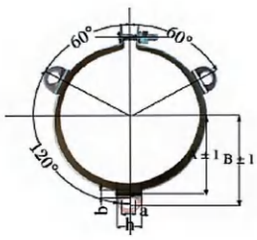
## ■ Product dimension drawing (unit: mm)

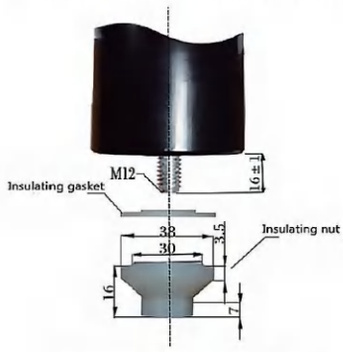

| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

### ■ Y-shaped clasp

Y type snap ring(Code:Y)




### ■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.70 | 1.00 | 1.10 | 1.30 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.89 | 1.67 | 1.00 |

# ES6

## ■ List of Standard Products

| Operating voltage (V) | 200(250) | | | 250(300) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 3300 | | | | 51×90 | 7.50 | 25 |
| 3300 | | | | 35×110 | 6.78 | 27 |
| 3900 | | | | 51×96 | 8.80 | 22 |
| 3900 | | | | 35×115 | 7.89 | 25 |
| 4700 | 51×90 | 8.90 | 23 | 64×80(70) | 10.00 | 19 |
| 4700 | 35×110 | 8.05 | 25 | 51×115(105) | 10.44 | 19 |
| 5600 | 51×96 | 10.60 | 19 | 64×90(85) | 10.27 | 16 |
| 5600 | 35×115 | 9.51 | 21 | 51×130 | 10.90 | 16 |
| 6800 | 64×80 | 11.94 | 16 | 64×96 | 12.80 | 15 |
| 6800 | 51×115 | 12.30 | 15 | 51×150(145) | 13.56 | 14 |
| 8200 | 64×90 | 12.74 | 14 | 77×90 | 14.32 | 13 |
| 8200 | 51×130 | 13.20 | 14 | 64×115 | 14.30 | 13 |
| 10000 | 64×96 | 14.50 | 13 | 77×96 | 15.91 | 12 |
| 10000 | 51×150(145) | 15.36 | 13 | 64×130 | 16.40 | 12 |
| 12000 | 77×90 | 17.03 | 12 | 77×115 | 17.59 | 12 |
| 12000 | 64×115 | 17.00 | 12 | 64×155 | 18.10 | 11 |
| 15000 | 77×96 | 19.69 | 11 | 90×96 | 20.33 | 10 |
| 15000 | 64×130 | 20.20 | 11 | 77×130 | 21.10 | 9 |
| 18000 | 77×115 | 23.10 | 10 | 90×115 | 24.17 | 9 |
| 18000 | 64×155 | 23.77 | 10 | 77×150 | 24.80 | 8 |
| 22000 | 90×96 | 26.40 | 8 | 90×130 | 28.45 | 7 |
| 22000 | 77×130 | 27.40 | 8 | 77×170 | 29.20 | 7 |
| 27000 | 90×130 | 29.61 | 7 | 90×150 | 30.24 | 7 |
| 27000 | 77×165 | 30.10 | 7 | 77×190 | 30.80 | 7 |
| 33000 | 90×150 | 34.85 | 6 | 101×180 | 31.85 | 5 |
| 33000 | 77×190 | 35.50 | 6 | 90×210 | 32.00 | 5 |
| 39000 | 101×140 | 39.31 | 4 | | | |
| 39000 | 90×160 | 39.00 | 4 | | | |
| 47000 | 101×170 | 46.71 | 3 | | | |
| 47000 | 90×190 | 46.00 | 3 | | | |

# ES6

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2200 | 51×90 | 8.00 | 37 | 51×96 | 9.30 | 34 |
| 2200 | 35×110 | 7.23 | 38 | 35×120 | 8.51 | 37 |
| 2700 | 64×80 | 9.71 | 35 | 64×80 | 9.52 | 32 |
| 2700 | 51×115 | 10.00 | 34 | 51×115 | 9.80 | 31 |
| 3300 | 64×90 | 10.70 | 32 | 64×90 | 12.00 | 30 |
| 3300 | 51×130 | 11.10 | 31 | 51×150(140) | 12.86 | 29 |
| 3900 | 64×90 | 12.60 | 28 | 77×90(85) | 13.54 | 25 |
| 3900 | 51×150(145) | 13.72 | 26 | 64×115(105) | 13.30 | 26 |
| 4700 | 77×90 | 14.42 | 25 | 77×96 | 15.64 | 23 |
| 4700 | 64×115 | 14.40 | 25 | 64×115 | 15.20 | 24 |
| 5600 | 77×115(105) | 16.19 | 23 | 77×115(105) | 17.20 | 18 |
| 5600 | 64×130 | 16.00 | 23 | 64×130 | 17.00 | 19 |
| 6800 | 77×115 | 17.78 | 17 | 77×130(120) | 20.50 | 16 |
| 6800 | 64×155 | 18.30 | 17 | 64×155(150) | 20.41 | 16 |
| 8200 | 90×115(105) | 21.48 | 15 | 90×115 | 23.19 | 14 |
| 8200 | 77×130 | 21.50 | 15 | 77×150 | 23.80 | 13 |
| 10000 | 90×115 | 24.30 | 12 | 90×130 | 25.42 | 11 |
| 10000 | 77×155 | 25.30 | 11 | 77×170 | 26.20 | 10 |
| 12000 | 90×150 | 27.49 | 11 | 90×150 | 31.00 | 10 |
| 12000 | 77×190 | 28.00 | 11 | 77×190 | 31.58 | 9 |
| 15000 | 101×150(140) | 33.67 | 9 | 101×150(140) | 36.71 | 8 |
| 15000 | 90×170 | 34.30 | 9 | 90×170 | 37.40 | 8 |
| 18000 | 101×170 | 40.90 | 8 | 101×180 | 38.72 | 7 |
| 18000 | 90×190 | 40.30 | 8 | 90×210 | 38.90 | 7 |
| 22000 | 101×200 | 42.88 | 7 | 101×210 | 49.21 | 7 |
| 22000 | 90×220 | 42.00 | 7 | 90×250 | 50.00 | 6 |
| 25000 | 101×210 | 46.26 | 7 | | | |
| 25000 | 90×250 | 47.00 | 7 | | | |

# ES6

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×80(75) | 4.90 | 80 | 51×90 | 4.90 | 115 |
| 1000 | 35×100 | 4.59 | 85 | 35×120 | 4.61 | 118 |
| 1200 | | | | 51×96 | 6.00 | 102 |
| 1200 | | | | 35×130 | 5.70 | 106 |
| 1500 | 51×96 | 7.10 | 56 | 64×80 | 7.09 | 86 |
| 1500 | 35×120 | 6.50 | 64 | 51×115 | 7.30 | 84 |
| 1800 | | | | 64×96 | 8.33 | 58 |
| 1800 | | | | 51×130 | 8.40 | 57 |
| 2200 | 64×80 | 8.84 | 34 | 77×96 | 11.00 | 48 |
| 2200 | 51×115 | 9.10 | 32 | 64×115 | 10.70 | 49 |
| 2700 | 64×96 | 10.50 | 31 | 77×115(105) | 11.64 | 39 |
| 2700 | 51×150(145) | 11.12 | 30 | 64×130 | 11.50 | 41 |
| 3300 | 77×90 | 12.22 | 29 | 77×115 | 13.80 | 35 |
| 3300 | 64×115 | 12.20 | 29 | 64×155(150) | 14.20 | 34 |
| 3900 | 77×96 | 13.16 | 27 | 90×100(96) | 15.90 | 31 |
| 3900 | 64×130 | 13.50 | 27 | 77×130 | 16.50 | 30 |
| 4700 | 77×115 | 15.35 | 23 | 90×115 | 17.77 | 26 |
| 4700 | 64×155(150) | 15.80 | 22 | 77×155 | 18.50 | 25 |
| 5600 | 90×115(105) | 18.19 | 16 | 90×130 | 19.38 | 24 |
| 5600 | 77×130 | 18.20 | 16 | 77×190 | 21.00 | 22 |
| 6800 | 90×115 | 20.47 | 14 | 101×130(120) | 23.09 | 23 |
| 6800 | 77×150 | 21.00 | 13 | 90×155 | 24.10 | 22 |
| 8200 | 90×130 | 22.80 | 12 | 101×150(140) | 26.70 | 19 |
| 8200 | 77×170 | 23.50 | 11 | 90×170 | 27.20 | 21 |
| 10000 | 90×155 | 28.00 | 11 | 101×180 | 32.05 | 16 |
| 10000 | 77×190 | 28.12 | 10 | 90×210 | 32.20 | 15 |
| 12000 | 101×140 | 32.39 | 10 | | | |
| 12000 | 90×170 | 33.00 | 9 | | | |
| 15000 | 101×180 | 39.32 | 8 | | | |
| 15000 | 90×210 | 39.50 | 8 | | | |
| 18000 | 101×210 | 46.26 | 8 | | | |
| 18000 | 90×250 | 47.00 | 7 | | | |

# EW3

◆105℃ for 3000 hours

◆Suitable for UPS power supplies and industrial control systems

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −25 ~ +105℃ |
| Rated Voltage Range | 200 ~ 500V |
| Rated Capacitance Range | 1000 ~ 33000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | 200~450 C(-25℃)/C(+20℃)≧0.7 ; 500 C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

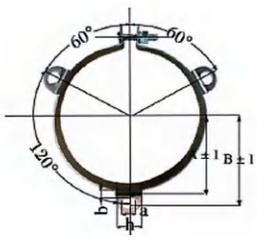
## ■ Product dimension drawing (unit: mm)



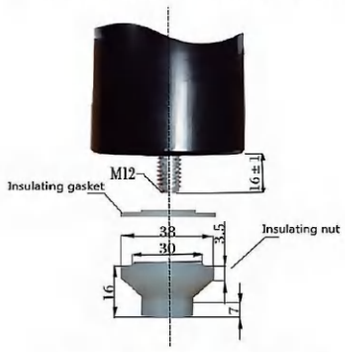
| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

### ■ Y-shaped clasp

Y type snap ring(Code:Y)




### ■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.70 | 2.20 | 1.70 | 1.00 |

# EW3

## ■ List of Standard Products

| Operating voltage (V) | 200(250) | | | 250(300) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 2200 | | | | 51×75 | 3.10 | 40 |
| 3300 | 51×75 | 3.50 | 36 | 51×96 | 4.00 | 32 |
| 4700 | 51×96 | 4.50 | 24 | 51×115 | 5.00 | 20 |
| 6800 | 51×130 | 6.00 | 16 | 64×96 | 6.90 | 13 |
| 8200 | 64×96 | 7.10 | 14 | 64×115 | 7.60 | 12 |
| 10000 | 64×115 | 8.00 | 12 | 64×130 | 8.50 | 11 |
| 12000 | 64×130 | 9.20 | 9 | 77×120 | 9.50 | 9 |
| 15000 | 77×115 | 11.00 | 7 | 77×150 | 12.00 | 7 |
| 18000 | 77×130 | 13.20 | 6 | 77×170 | 13.30 | 6 |
| 22000 | 77×155 | 14.00 | 5 | 90×130 | 12.91 | 6 |
| 22000 | 90×130 | 14.16 | 5 | 90×150 | 14.00 | 5 |
| 27000 | 90×150 | 15.00 | 4 | 90×170 | 15.00 | 4 |
| 33000 | 90×155 | 16.20 | 4 | 90×210 | 17.20 | 3 |

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | | | | 51×75 | 2.50 | 82 |
| 1200 | | | | 51×75 | 3.00 | 70 |
| 1500 | | | | 51×90 | 3.60 | 50 |
| 1800 | | | | 51×96 | 4.10 | 42 |
| 2200 | 51×105 | 3.30 | 40 | 51×115 | 4.50 | 32 |
| 2700 | 51×130 | 4.00 | 38 | 51×130 | 5.30 | 26 |
| 3300 | 64×96 | 4.50 | 32 | 64×115 | 6.20 | 23 |
| 3900 | 64×115 | 5.00 | 27 | 64×130 | 7.20 | 20 |
| 4700 | 64×130 | 5.50 | 24 | 77×115 | 8.70 | 17 |
| 5600 | 77×115 | 6.10 | 20 | 77×130 | 9.60 | 15 |
| 6800 | 77×130 | 7.20 | 14 | 77×155 | 10.80 | 13 |
| 8200 | 77×150 | 8.00 | 12 | 77×170 | 12.00 | 11 |
| 10000 | 90×130 | 9.00 | 11 | 90×150 | 14.00 | 10 |
| 12000 | 90×150 | 10.00 | 10 | 90×160 | 16.10 | 9 |
| 15000 | 90×170 | 12.60 | 8 | 90×190 | 17.50 | 7 |
| 18000 | 90×210 | 14.10 | 6 | | | |
| 22000 | 90×235 | 15.30 | 4 | | | |
| 22000 | 101×210 | 15.49 | 4 | | | |
| 25000 | 90×250 | 16.00 | 4 | | | |
| 25000 | 101×230 | 16.40 | 4 | | | |

# EW3

## ■ List of Standard Products

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (85℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×80 | 2.50 | 82 | 51×105 | 4.00 | 95 |
| 1200 | 51×80 | 3.00 | 72 | | | |
| 1500 | 51×96 | 3.60 | 53 | 51×130 | 5.50 | 61 |
| 1800 | 51×105 | 4.10 | 43 | | | |
| 2200 | 51×130 | 4.50 | 33 | 64×115 | 6.50 | 40 |
| 2700 | 64×115 | 5.00 | 27 | | | |
| 3300 | 64×130 | 6.00 | 24 | 77×130 | 8.50 | 28 |
| 3900 | 77×115 | 7.00 | 20 | 77×155 | 10.50 | 25 |
| 4700 | 77×130 | 8.40 | 18 | 77×170 | 12.00 | 22 |
| 4700 | | | | 90×130 | 11.64 | 23 |
| 5600 | 77×150 | 9.50 | 16 | 90×150 | 13.10 | 20 |
| 6800 | 77×170 | 10.20 | 13 | 90×170 | 14.20 | 16 |
| 6800 | 90×130 | 9.90 | 14 | | | |
| 8200 | 90×150 | 11.50 | 11 | 90×190 | 16.00 | 15 |
| 10000 | 90×170 | 13.50 | 10 | 90×210 | 16.80 | 12 |
| 12000 | 90×190 | 16.00 | 9 | | | |

# EW6

◆105℃, 6000 hours

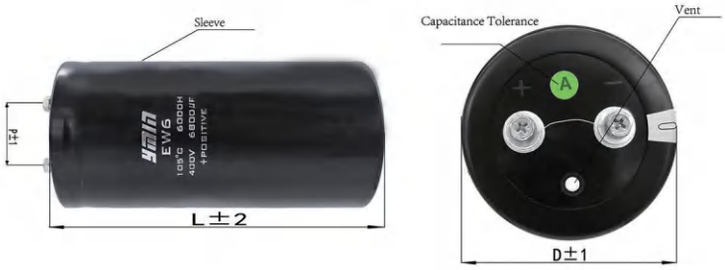
◆Suitable for UPS power supplies, industrial control systems, and industrial servos

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | −25 ~ +105℃ |
| Rated Voltage Range | 350 ~ 500V |
| Rated Capacitance Range | 1000 ~ 22000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.15 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | 350~450 C(-25℃)/C(+20℃)≧0.7 ; 500 C(-25℃)/C(+20℃)≧0.6 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met. |
| | Capacity change rate (ΔC) ≦ ±20% of the initial value |
| | Loss value (tg δ) ≦ 200% of the initial specification value |
| | Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test. |
| | Capacity change rate (ΔC) ≦ ±20% of the initial value |
| | Loss value (tg δ) ≦ 200% of the initial specification value |
| | Leakage current (LC) ≦ Initial specification value |
| | Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

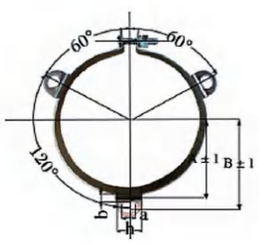
## ■ Product dimension drawing (unit: mm)



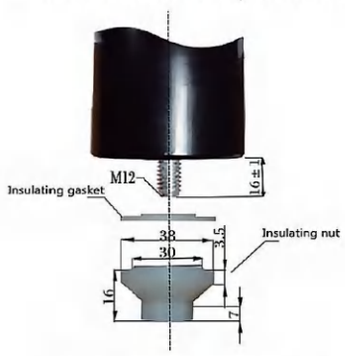

| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

### ■ Y-shaped clasp

Y type snap ring(Code:Y)




### ■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| 直径(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.80 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ | 105℃ |
|---|---|---|---|---|
| Coefficient | 2.70 | 2.20 | 1.70 | 1.00 |

# EW6

## ■ List of Standard Products

| Operating voltage (V) | 350(400) | | | 400(450) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | | | | 51×75 | 4.00 | 80 |
| 1200 | | | | 51×80 | 4.70 | 75 |
| 1500 | | | | 51×90 | 5.30 | 45 |
| 1800 | | | | 51×96 | 6.50 | 40 |
| 2200 | 51×105 | 7.00 | 36 | 51×115 | 7.70 | 36 |
| 2700 | 51×130 | 8.40 | 34 | 64×96 | 9.00 | 34 |
| 3300 | 64×96 | 9.80 | 27 | 64×115 | 11.00 | 27 |
| 3900 | 64×115 | 11.50 | 24 | 64×130 | 12.40 | 24 |
| 4700 | 64×130 | 13.00 | 20 | 77×115 | 14.50 | 20 |
| 5600 | 77×115 | 14.70 | 17 | 77×130 | 16.20 | 17 |
| 6800 | 77×130 | 16.80 | 11 | 77×155 | 18.30 | 11 |
| 8200 | 77×155 | 19.60 | 9 | 77×170 | 21.00 | 9 |
| 10000 | 90×130 | 23.00 | 8 | 90×155 | 24.50 | 8 |
| 12000 | 90×155 | 25.00 | 6 | 90×170 | 27.60 | 6 |
| 15000 | 90×190 | 30.80 | 5 | 90×210 | 32.00 | 5 |
| 18000 | 90×235 | 38.00 | 4 | | | |
| 22000 | 101×235 | 44.00 | 4 | | | |

| Operating voltage (V) | 450(500) | | | 500(550) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×80 | 4.00 | 80 | 51×105 | 4.50 | 90 |
| 1200 | 51×96 | 4.80 | 75 | | | |
| 1500 | 51×105 | 5.30 | 45 | 51×130 | 6.40 | 50 |
| 1800 | 51×130 | 6.50 | 40 | | | |
| 2200 | 64×96 | 7.60 | 36 | 64×130 | 8.00 | 40 |
| 2700 | 64×115 | 8.90 | 34 | | | |
| 3300 | 64×130 | 11.00 | 27 | 77×130 | 12.00 | 31 |
| 3900 | 77×115 | 12.50 | 24 | 77×155 | 13.00 | 27 |
| 4700 | 77×130 | 14.50 | 20 | 77×170 | 15.50 | 22 |
| 5600 | 77×150 | 16.20 | 17 | 77×190 | 17.00 | 19 |
| 6800 | 90×155 | 18.00 | 11 | 90×170 | 19.00 | 12 |
| 8200 | 90×170 | 21.00 | 9 | 90×210 | 22.00 | 9 |
| 10000 | 90×190 | 24.50 | 8 | 90×235 | 27.00 | 9 |
| 12000 | 90×235 | 27.50 | 6 | | | |

# EH3

◆Suitable for high voltage and large power supplies below 630V, medium and high voltage frequency converters (For 1200V DC bus, selecting two in series can replace three in series for 400V)

◆85℃ 3000-hour warranty, high ripple reduction

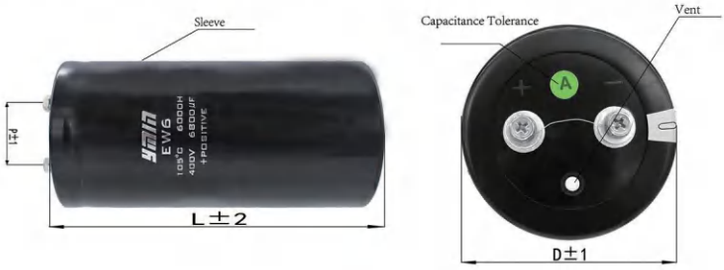
◆Suitable for photovoltaics and industrial control

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | -25 ~ +85℃ |
| Rated Voltage Range | 550 ~ 630V |
| Rated Capacitance Range | 1000 ~ 10000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$ (C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.3 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.5 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥ 100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 85℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC): ≦ ±20% of the initial value<br>Loss value (tg δ): ≦ 200% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC): ≦ ±20% of the initial value<br>Loss value (tg δ): ≦ 200% of the initial specification value<br>Leakage current (LC): ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

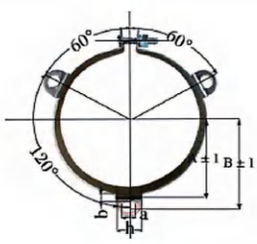
## ■ Product dimension drawing (unit: mm)



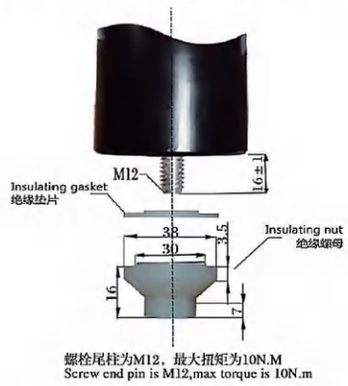

| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| Terminal diameter (mm) | 13 | 13 | 13 | 17 | 17 |
| Torque (N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

■ Y-shaped clasp

Y type snap ring(Code:Y)




■ Tail column assembly and dimensions




螺栓尾柱为M12，最大扭矩为10N.M
Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.70 | 1.00 | 1.20 | 1.25 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.89 | 1.67 | 1.00 |

# EH3

## ■ List of Standard Products

| Operating voltage (V) | 550(600) | | | 600(650) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×96 | 4.95 | 230 | 51×110 | 5.65 | 250 |
| 1200 | 51×105 | 5.75 | 210 | 51×130 | 7.08 | 235 |
| 1500 | 51×115 | 6.90 | 195 | 51×150 | 8.57 | 218 |
| 1800 | 51×130 | 7.71 | 168 | 64×115 | 10.28 | 190 |
| 2200 | 64×110 | 9.20 | 151 | 77×90 | 12.70 | 160 |
| 2700 | 77×100 | 10.81 | 110 | 77×105 | 14.92 | 131 |
| 3300 | 77×120 | 12.65 | 90 | 77×120 | 16.61 | 96 |
| 3900 | 77×130 | 14.38 | 67 | 77×140 | 19.35 | 70 |
| 3900 | 90×110 | 13.95 | 68 | | | |
| 4700 | 90×120 | 16.68 | 57 | 77×155 | 20.52 | 66 |
| 5600 | 90×150 | 19.09 | 43 | 90×155 | 24.84 | 46 |
| 6800 | 90×170 | 22.43 | 36 | 90×180 | 25.81 | 41 |
| 8200 | 90×190 | 24.84 | 31 | | | |
| 10000 | 101×190 | 28.98 | 29 | | | |

| Operating voltage (V) | 630(680) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 64×100 | 4.37 | 270 |
| 1200 | 64×115 | 4.72 | 250 |
| 1500 | 77×100 | 5.87 | 231 |
| 1800 | 77×115 | 6.56 | 205 |
| 2200 | 77×130 | 7.48 | 165 |
| 2200 | 90×115 | 7.26 | 171 |
| 2700 | 90×130 | 9.20 | 143 |
| 3300 | 90×150 | 10.58 | 110 |
| 3900 | 90×160 | 12.08 | 85 |
| 4700 | 90×170 | 13.11 | 70 |
| 4700 | 101×150 | 13.27 | 68 |
| 5600 | 101×190 | 15.30 | 56 |

# EH6

◆Suitable for high voltage and large power supplies below 630V, medium and high voltage frequency converters (For 1200V DC busbars, two units in series can replace three units in series for 400V)

◆85℃, 6000-hour warranty, high ripple resistance, long lifespan

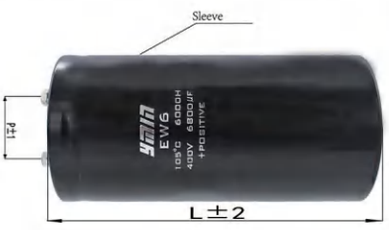
◆Suitable for photovoltaics and industrial control

◆RoHS compliant

## ■ Main technical parameters

| project | characteristic |
|---|---|
| Operating Temperature Range | -25 ~ +85℃ |
| Rated Voltage Range | 550 ~ 630V |
| Rated Capacitance Range | 1000 ~ 10000μF (20℃ 120Hz) |
| Rated Capacitance Tolerance | ±20% |
| Leakage Current (mA) | ≦0.01$\sqrt{CV}$(C: Nominal capacity; V: Rated voltage) or 0.94mA, whichever is smaller, test for 5 minutes at 20℃. |
| Maximum Loss (20° C) | 0.3 (20℃ 120Hz) |
| Temperature Characteristics (120Hz) | C(-25℃)/C(+20℃)≧0.5 |
| Insulation Resistance | The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ. |
| Insulation Voltage | An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed. |
| Durability | Under conditions of 85℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value |
| High Temperature No-Load Characteristics | After being stored at 85℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.<br>Capacity change rate (ΔC) ≦ ±20% of the initial value<br>Loss value (tg δ) ≦ 200% of the initial specification value<br>Leakage current (LC) ≦ Initial specification value<br>Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test. |

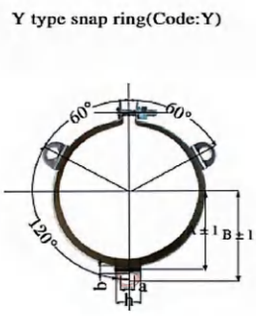
## ■ Product dimension drawing (unit: mm)



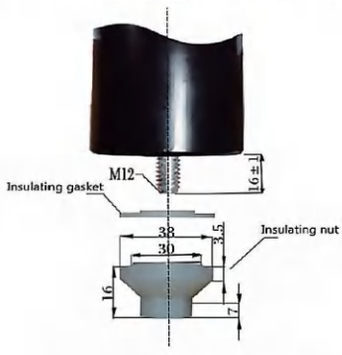


| D(mm) | 51 | 64 | 77 | 90 | 101 |
|---|---|---|---|---|---|
| P(mm) | 22 | 28.3 | 32 | 32 | 41 |
| screw | M5 | M5 | M5 | M6 | M8 |
| 端子直径(mm) | 13 | 13 | 13 | 17 | 17 |
| 扭矩(N.m) | 2.2 | 2.2 | 2.2 | 3.5 | 7.5 |

■ Y-shaped clasp




■ Tail column assembly and dimensions




Screw end pin is M12,max torque is 10N.m

| diameter(mm) | A(mm) | B(mm) | a(mm) | b(mm) | h(mm) |
|---|---|---|---|---|---|
| 51 | 31.8 | 36.5 | 7 | 4.5 | 14 |
| 64 | 38.1 | 42.5 | 7 | 4.5 | 14 |
| 77 | 44.5 | 49.2 | 7 | 4.5 | 14 |
| 90 | 50.8 | 55.6 | 7 | 4.5 | 14 |
| 101 | 56.5 | 63.4 | 7 | 4.5 | 14 |

## ■ Ripple current correction factor

### Frequency compensation coefficient

| Frequency | 50Hz | 120Hz | 500Hz | 1kHz | ≧10kHz |
|---|---|---|---|---|---|
| Correction Factor | 0.70 | 1.00 | 1.10 | 1.30 | 1.40 |

### Temperature compensation coefficient

| Temperature (° C) | 40℃ | 60℃ | 85℃ |
|---|---|---|---|
| Coefficient | 1.89 | 1.67 | 1.00 |

# EH6

## ■ List of Standard Products

| Operating voltage (V) | 550(600) | | | 600(650) | | |
|---|---|---|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 51×96 | 4.95 | 230 | 51×110 | 5.65 | 250 |
| 1200 | 51×105 | 5.75 | 210 | 51×130 | 7.08 | 235 |
| 1500 | 51×115 | 6.90 | 195 | 51×150 | 8.57 | 218 |
| 1800 | 51×130 | 7.71 | 168 | 64×115 | 10.28 | 190 |
| 2200 | 64×110 | 9.20 | 151 | 77×90 | 12.70 | 160 |
| 2700 | 77×100 | 10.81 | 110 | 77×105 | 14.92 | 131 |
| 3300 | 77×120 | 12.65 | 90 | 77×120 | 16.61 | 96 |
| 3900 | 77×130 | 14.38 | 67 | 77×140 | 19.35 | 70 |
| 3900 | 90×110 | 13.95 | 68 | | | |
| 4700 | 90×120 | 16.68 | 57 | 77×155 | 20.52 | 66 |
| 5600 | 90×150 | 19.09 | 43 | 90×155 | 24.84 | 46 |
| 6800 | 90×170 | 22.43 | 36 | 90×180 | 25.81 | 41 |
| 8200 | 90×190 | 24.84 | 31 | | | |
| 10000 | 101×190 | 28.98 | 29 | | | |

| Operating voltage (V) | 630(680) | | |
|---|---|---|---|
| project / Capacity (μF) | Dimensions: ΦD×L (mm) | Ripple current (105℃ 120Hz) Arms | ESR (Max, mΩ / 120Hz 20℃) |
| 1000 | 64×100 | 4.37 | 270 |
| 1200 | 64×115 | 4.72 | 250 |
| 1500 | 77×100 | 5.87 | 231 |
| 1800 | 77×115 | 6.56 | 205 |
| 2200 | 77×130 | 7.48 | 165 |
| 2200 | 90×115 | 7.26 | 171 |
| 2700 | 90×130 | 9.20 | 143 |
| 3300 | 90×150 | 10.58 | 110 |
| 3900 | 90×160 | 12.08 | 85 |
| 4700 | 90×170 | 13.11 | 70 |
| 4700 | 101×150 | 13.27 | 68 |
| 5600 | 101×190 | 15.30 | 46 |

# Application areas

Photovoltaics

obc

charging pile

UPS power supply

Energy storage


5G base station power supply

Industrial servo

Industrial Drive

Active power filter

Industrial frequency converter

# Partner Brands

BYD AUTO

Fengtian Electronics

Dong Shengyuan Technology

Boao Electric

Taian Technology

Suzhou Huichuan

Aiswei New Energy

Wheatfield Energy Technology

Shenzhen KSTAR

Growatt New Energy

Yuxin Pingrui Electronics

Nanjing Bifudi

Chint Electric

Precautions:

1) Confirmation of Operating Environment, Installation Environment, and Rated Performance

* Please confirm that the operating environment and installation environment comply with the capacitor's product catalog and specifications.

2) Operating Temperature, Ripple Current, and Lifespan

* Please use the capacitor within the operating temperature range and ripple current range specified in the product catalog and specifications.

* Do not use at high temperatures (above the upper limit of operating temperature).

* Do not allow overcurrent (above the rated ripple current) to pass through the capacitor.

Based on the results of accelerated testing, the capacitor's lifespan can be calculated using a lifespan estimation formula. However, the estimated lifespan has errors and cannot be used as a guarantee. Please use the estimated result as a reference and select a capacitor with a sufficient lifespan. For information on lifespan estimation methods, please consult our company. Please contact us if the ripple voltage variation exceeds 70Vp-p.

3) Circuit Usage

* Capacitors must be used with polarity specified. Do not apply reverse voltage or AC voltage. In circuits with reversed polarity, please use bipolar capacitors. However, bipolar capacitors cannot be used in AC circuits.

* Do not use capacitors in circuits with repeated rapid charging and discharging. For capacitors used in rechargeable/discharge circuits, please consult us.

For products stored for extended periods (over 12 months), recharging is required before use.

4) Applied Voltage

Do not apply overvoltage (voltage exceeding the rated operating voltage) to the capacitor.

5) Capacitor Insulation

Completely isolate the capacitor from the circuit in the following situations:

1. Between the aluminum case and cathode terminals, anode terminals, and circuit wiring.

2. Between self-standing, unconnected terminals (for strength enhancement) and other anode terminals, cathode terminals, and circuit wiring.

The capacitor's outer sheath does not guarantee insulation. Do not use it in applications requiring insulation.

6) Environmental Restrictions
Do not use the capacitor in the following environments:

1. Direct splashes of water, salt water, oil, or environments with condensation.

2. Environments filled with harmful gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine, etc.).

3. Environments with ozone, ultraviolet radiation, or radiation exposure.

4. Excessive vibration or shock conditions exceeding the range specified in the product catalog or specifications.

5. Do not reuse capacitors that have been assembled into equipment and already energized, except for capacitors removed during routine maintenance to test electrical characteristics.

7) Installation Environment Design When installing capacitors onto a printed circuit board, the following should be confirmed beforehand in the design:

1. Ensure that the capacitor terminal gap matches the PCB hole gap.

2. Do not extend wiring or the circuit board above the capacitor pressure valve in the design.

3. Please leave a certain gap at the pressure valve of the capacitor as specified in the product catalog or specification sheet.

| Product diameter | interval |
|---|---|
| Φ18~Φ35mm | 3mm up |
| Φ40mm ↑ | 5mm up |

4. When the pressure valve of the aluminum electrolytic capacitor contacts the printed circuit board, please install a vent hole in the opposite position on the printed circuit board.
5. Do not place heat-generating components around the capacitor or on the other side of the printed circuit board (below the capacitor).
8) Pre-installation Preparations

Do not reuse capacitors that have been assembled into the equipment and have already been energized. Except for capacitors removed for periodic maintenance to test electrical characteristics, they should not be reused.

- Capacitors may experience voltage re-emergence. In this case, please use a resistor with a power rating of approximately 1KΩ to discharge them.
- The leakage current of capacitors stored for a long time may increase. In this case, please use a resistor with a power rating of 1KΩ to voltage-treat them.

8-1) Installation-1

- Please confirm the capacitor's ratings (capacitance and voltage) before installation.
- Please confirm the capacitor's polarity before installation.
- Do not drop the capacitor on the ground. Do not use capacitors that have been dropped on the ground. • Do not deform the capacitor during installation.

8-2) Installation -2

- Ensure the capacitor terminal gap matches the PCB hole gap before installation.
- If concerned about vibration or impact during assembly, use auxiliary tools and adhesives to enhance the capacitor's stability when installing it onto the PCB.

9) Storage Conditions

- Do not store capacitors in high temperature and high humidity environments. Store indoors at a temperature of 5° C to 35° C and a relative humidity below 75%.
- Do not store capacitors in environments where they may come into direct contact with water, salt water, or oil.
- Do not store capacitors in environments filled with harmful gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine, etc.).
- Do not store capacitors in environments with ozone, ultraviolet radiation, or radiation exposure.

10) Cleaning the PCB

- Do not use halogen-containing solvents to clean capacitors. However, if cleaning is necessary, use a cleanable capacitor and use it within the limits specified in the product catalog or specifications. • When cleaning cleaner-resistant capacitors, please ensure proper contamination management of the cleaning agent (conductivity, pH value, specific gravity, water content, etc.).
- After cleaning cleaner-resistant capacitors, do not store them in an environment containing cleaning solution or in a sealed container.

Furthermore, after cleaning, thoroughly dry the printed circuit board and capacitors with hot air. Keep the hot air temperature below the upper operating temperature limit.

11) Fixatives and Coating Agents

* Do not use fixatives or coating agents containing halogenated solvents.

* Before using fixatives and coating agents, thoroughly clean the area between the substrate and the capacitor's sealing surface, ensuring no flux residue or dirt remains.

* Before using fixatives and coating agents, dry any cleaning agents or other contaminants adhering to the capacitor.

* When using fixatives and coating agents, do not completely block the capacitor's sealing surface.

12) Soldering

* Soldering conditions (temperature, time) must not exceed the range specified in the product catalog or specifications.

* If the terminal gaps do not match the PCB hole gaps, and processing is performed before soldering, the capacitor body must not be subjected to stress.

* When manually trimming with a soldering iron, ensure the solder is fully melted before removing it to avoid putting pressure on the capacitor terminals.

* Do not allow the tip of the soldering iron to touch the capacitor body.

13) Wave Soldering

* When soldering, do not immerse the capacitor body in molten solder. Insert a printed circuit board as a barrier, and solder only the surface of the circuit board on the reverse side of the capacitor.

* Soldering conditions (preheating, soldering temperature, terminal immersion time) must not exceed the range specified in the product catalog or specifications.

* Do not apply flux to any part other than the terminals.

* During soldering, take care to prevent other components from tipping over and coming into contact with the capacitor.

14) Reflow Soldering

* Soldering conditions (preheating, soldering temperature, time, number of reflow soldering cycles) must not exceed the range specified in the product catalog or specifications.

* When using an infrared heater, the absorption rate of infrared radiation varies depending on the color and material of the capacitor; please pay attention to the heating temperature.

* If reflow soldering beyond the specified range is required, please contact us.

15) Disposal

* If the capacitor comes into contact with water, salt water, oil (or other conductive liquids), it will cause condensation and may lead to malfunction. If oil comes into contact with sealing rubber, pressure valves, etc., it will result in poor airtightness. Please keep the capacitor's operating environment dry and clean. Do not use capacitors if they have been immersed in rainwater or other contaminated water.

• Do not place or use capacitors in environments containing hydrogen sulfide, nitrous acid, sulfurous acid, chlorine, bromine, or harmful gases such as ammonia. The intrusion of these gases will cause corrosion.

• Do not place capacitors in areas exposed to ozone, ultraviolet radiation, or other forms of radiation.

• Dust or other powder buildup at the capacitor terminals can cause rusting as this dust absorbs moisture. If dust is noticeable at the terminals, stop the capacitor from being powered on and gently wipe it with a paper or cloth dampened with water or ethanol while the capacitor is fully discharged. Do not use detergents or other chemicals.

• Do not use capacitors in environments subject to excessive vibration or impact.

16) Key Points: Aluminum electrolytic capacitors will experience a sharp deterioration in their characteristics when subjected to the following loads.

• Reverse voltage

Voltage exceeding rated value

• Ripple current exceeding rated value

• Rapid charging and discharging

At this time, the capacitor may generate a large amount of heat, the internal pressure will rise, causing the pressure valve to open, internal gas to be ejected, and leakage to occur. In some cases, flammable materials may enter along with the capacitor damage, potentially leading to explosion and fire. 17) Bolt products must meet the following requirements (failure to use according to the specified conditions may result in major accidents such as explosion and fire):

• Operating temperature and ripple current

• Operating environment and storage environment: Please use the capacitor according to the operating range specified in the product manual.

• For the specified range of operating temperature and ripple current, please select the capacitor based on the maximum load conditions. If excessive current passes through the capacitor, abnormal heating, short circuit, fire, and other major accidents may occur.

• The capacitor itself is a heat-generating component. Please note that it will cause the temperature inside the machine to rise. To ensure the machine operates in a normal state, please check the temperature of the environment around the capacitor.

The permissible ripple current decreases as the ambient temperature (the temperature around the capacitor) rises. Select the permissible ripple current based on the predicted highest ambient temperature.

• Frequency changes will cause capacitor characteristics to change. Please determine the frequency of the change before selecting a capacitor. Especially at low frequencies, the impedance of capacitors of equivalent value will increase, and be aware that this will generate a significant amount of heat.

• Regarding applied voltage and other operating conditions:

Capacitors are generally polarized. Reverse voltage and AC voltage input can cause serious accidents such as short circuits and fires. For AC applications, please select specially designated capacitors.

• Use bipolar capacitors in circuits with reversed polarity. However, do not use them in AC circuits in this case.

• Do not input voltage exceeding the rated voltage. In cases where AC components overlap in DC voltage, do not exceed the maximum rated current. Excessive voltage can cause short circuits, fires, and other serious accidents.

Surge voltage regulations also exist, but these are conditional and cannot guarantee long-term use. Even for short periods, do not input voltage exceeding the rated voltage; select capacitors according to requirements.

• When connecting multiple capacitors in parallel, fully consider the impedance of the wires. The wire impedance and capacitor polarity must be connected in the same direction. When directly connecting multiple capacitors, use capacitors of the same specification. Voltage divider resistors must be connected in parallel. When using them, design the circuit so that all capacitors receive the same input voltage. Ensure that the voltage across each capacitor does not exceed its rated voltage. • Select capacitors whose lifespan matches that of the machine. Aluminum electrolytic capacitors may short-circuit or fail if used beyond their service life.

Please inspect regularly and replace capacitors as needed.

• Do not subject to rapid, repeated charging and discharging. For welding equipment or similar applications where charging and discharging is the primary purpose, use dedicated capacitors. Control circuits for rotating equipment such as servo motors involve repeated charging and discharging; please consult with relevant parties before selecting capacitors.

Even without rapid discharge, continuous and significant voltage fluctuations, especially in harsh environments like those experienced by commercial power supplies, and the continuous voltage fluctuations in the filtering of voltage doubler rectifier circuits, can lead to deterioration of lifespan characteristics and short-term failures. In practical operation, it is crucial to confirm the operating conditions and select specialized capacitors.

* Pre-installation knowledge:* First, determine the capacitor specifications and install it according to the specified range. * Always connect according to polarity. Do not use capacitors with reverse voltage input, even if they appear undamaged, as this will cause serious malfunctions. * After being dropped or impacted, capacitors will have weakened electrical properties. Do not impact them; carefully check the packaging for damage before use.

* During installation, avoid deforming the capacitors. Deformation can lead to leakage, short circuits, and other serious accidents. * Do not use capacitors that have been grouped and energized. Capacitors used for periodic electrical performance testing should not be used again.
* Installation method:* Do not place any wiring or wiring patterns near pressure valves. When the pressure valve operates, it can cause a double hazard: electrolyte spraying, short circuits, and fires due to shelf displacement.

* Do not place heat-generating items around the capacitor. Localized high temperatures, such as radiant heat, will significantly shorten the capacitor's lifespan. Additionally, if the temperature of the connector is higher than the capacitor's internal temperature, it will hinder heat dissipation, also significantly shortening the capacitor's lifespan. Please ensure proper temperature distribution during device design.

* Prevent pressure valve actuation. A clearance of at least 5mm should be maintained above the pressure valve. If the diffused gas is obstructed when the pressure valve actuates, it can lead to explosions, fires, and other serious accidents caused by increased internal pressure.
* For bolt-type capacitors:

* When placing the capacitor horizontally, it should be tilted towards the positive terminal. If the positive terminal is lower than the negative terminal, internal corrosion may occur over time. Otherwise, the mixture (core fixing material) inside the pressure valve will overflow.
* For terminal bolt-type capacitors, the pressure (cap end) should face downwards. • Recommended torque for terminal bolt type, and allowable current for the terminal (maximum allowable current for the terminal) are as follows: (Note: If using a machine with high vibration, prior consultation is required.)

| Terminal | Recommended Torque (Allowable Value) N·m | Terminal Allowable Current (A) |
|---|---|---|
| M5 | 2.2 (1.5~3.0) | 60 |
| M6 | 3.5 (3.0~4.0) | 100 |
| M8 | 7.5 (7.0~8.0) | 120 |

For terminal bolt type wiring (M5 terminal diameter 13mm/10mm, M6 terminal diameter 17mm), a wire thickness of less than 2mm is suitable. If it exceeds 2mm, the screw length should be increased to compensate. The size of the screw's tightening area will cause malfunctions due to overheating. If the screw is not fully tightened or inserted at an angle, it may cause serious malfunctions such as localized overheating and fire. Ensure that the screw is inserted straight and properly tightened.

• The recommended washer bore diameter for M5 terminals is 6mm. An excessively large bore diameter can lead to poor contact between the terminal and the washer, causing localized overheating, fire, and other serious malfunctions.

• Do not apply pressure (or other physical pressure) to the lead area (the area between the aluminum casing and the cap).
• Operating Environment
• Storage
• Store indoors at a temperature of 5-35° C and humidity below 75%RH (25° C), avoiding direct sunlight. Storage time should be within 3 years. After 3 years, the risk of capacitor leakage will increase. Voltage treatment should be used. If the storage period exceeds 5 years, replace with a new capacitor.

• If the temperature and humidity exceed the above operating conditions, store under the above conditions.

• Use in its original packaging whenever possible.

• After a capacitor has been discharged once, a charge may be generated due to recharge. Do not touch the terminal connections with your hands. Otherwise, there is a risk of electric shock. Completely discharge the capacitor with a resistor (approximately 1kΩ) or a discharge plate before use.

• Trial Operation

• Due to the risk of electric shock, please do not directly touch the terminals.

• Avoid placing conductive materials between the capacitor terminals to prevent short circuits.

• Do not allow conductive solutions such as acids and alkalis to come into contact with the capacitor.

• The operating environment should be confirmed in the operating environment section of the design.

• Maintenance and Inspection

• Capacitors used in industrial machinery should be inspected regularly.

Inspection Items:

(1) Appearance: The condition of the pressure valve (obvious expansion when the valve is open), obvious abnormalities such as leakage.

(2) Electrical Performance: Capacitance, tangent of the loss angle, leakage current, and items specified in the catalog. Electrical performance testing is based on 20° C. Place the capacitor in a 20° C environment until the internal temperature reaches a certain level before testing. Discuss whether it can be used. Maintenance and

• All capacitors that have exceeded their shelf life should be replaced. Using new and old capacitors simultaneously will cause uneven current and voltage distribution,

If the electrolyte comes into contact with skin, wash immediately with soap and water. Never allow it to enter your mouth.

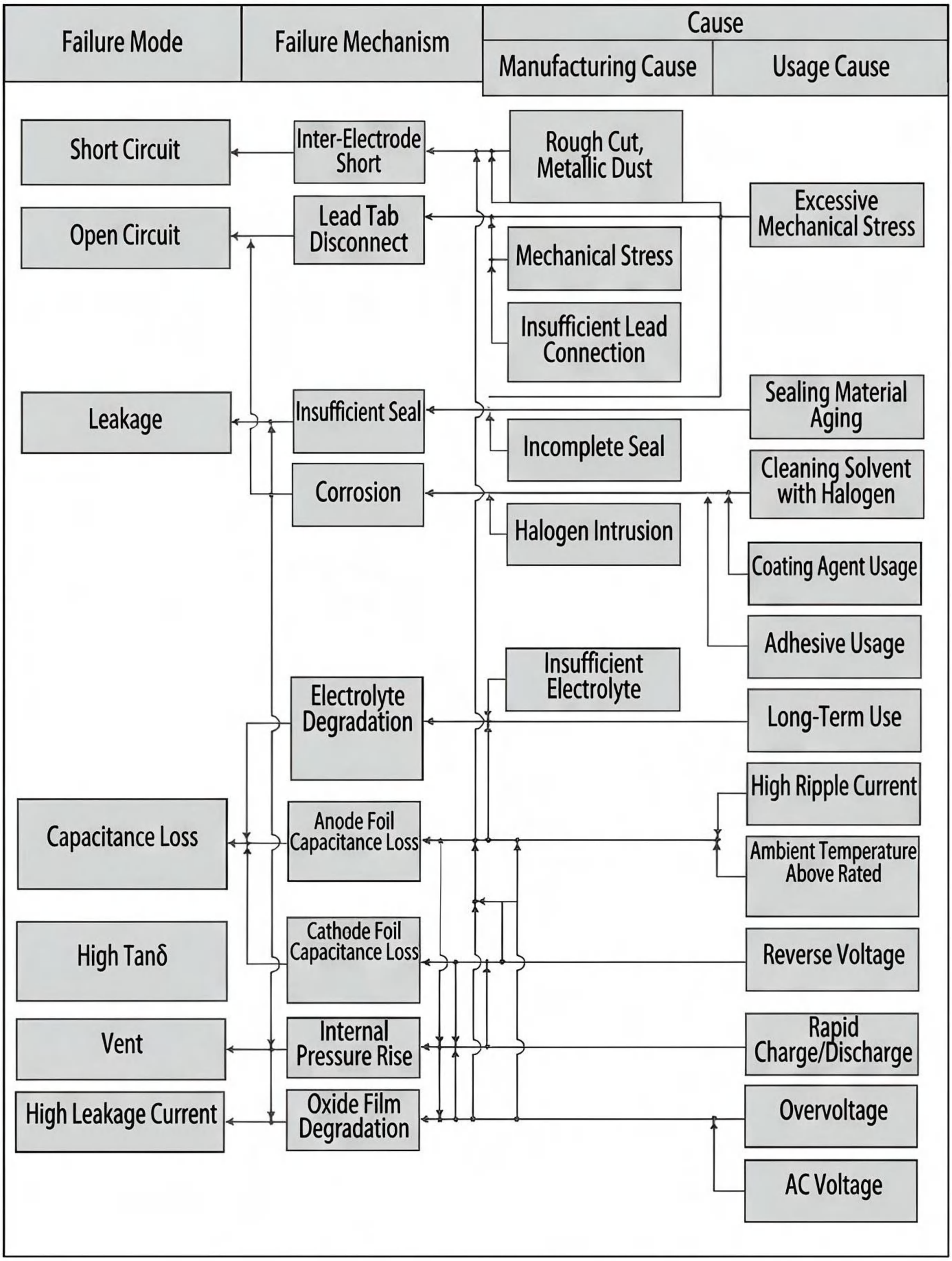
18 ) Lifespan estimation of large liquid aluminum electrolytic capacitors:

$$Lx = Lr \times 2^{A} \times 2^{B} \times 2^{C}$$

$$A = \frac{T_0 - Tx}{10} \qquad B = 1 - \frac{Ix^{2}}{Irc^{2}} \qquad C = 1 - \frac{Vx}{Vw}$$

| project | Project significance |
|---|---|
| Lx | Estimated service life under actual use conditions, H |
| Lr | Guaranteed life with maximum allowable ripple current superimposed at maximum rated temperature, H |
| $T_0$ | Maximum allowable operating temperature, ℃ |
| $T_x$ | Ambient temperature during capacitor operation, ℃ |
| Ix | Actual ripple current (mA) |
| Irc | Equivalent ripple current of actual ripple current (mA) Irc=I×FF |
| I | Rated maximum ripple current (mA) (refer to the rated value specified in the catalog or approval document) |
| $F_F$ | Frequency compensation factor (refer to the catalog or approval document) |
| Vx | Actual DC voltage applied to the electrolytic capacitor (V) |
| Vw | Rated operating voltage of the electrolytic capacitor (V) |

# Failure Modes and Their Main Causes



# Introduction to other product lines

## Liquid miniature product line

The Liquid Crystal Miniature Capacitor Division has been engaged in R&D and manufacturing since 2001,boasting an industry-leading R&D and manufacturing team. The division has repeatedly launched miniaturized capacitors, meeting customers' specific capacitorrequirements. Currently, the division offers two packages: liquid surface mount aluminum electrolytic capacitors and liquid leaded aluminum electrolytic capacitors. These products feature advantages such as miniaturization, high stability, high capacitance, high voltage, high temperature resistance, low impedance, high ripple, and long lifespan. They are widely used in various industries including new energy vehicle electronics, high-power power supplies, smart lighting, gallium nitride fast charging, home appliances, and photovoltaics.

## Solid and solid-liquid hybrid product lines

Established in 2017, the Solid-State and Hybrid Solid-Liquid Electrolytic Capacitors Division now offers two main product lines: solid-state aluminum electrolytic capacitors and hybrid solid-liquid aluminum electrolytic capacitors. These products meet multiple certifications, including AEC-Q200 and IATF16949 . Solid-state aluminum electrolytic capacitors offer advantages such as miniaturization, large capacitance, ultra-low ESR, low leakage current, and resistance to high current surges. Hybrid solid-liquid aluminum electrolytic capacitors offer advantages such as high reliability, wide temperature stability, wide frequency stability, ultra-low ESR, excellent shock resistance, and resistance to high current surges. Solid-state aluminum electrolytic capacitors are mainly used in gallium nitride PD fast charging, industrial control, artificial intelligence, IDC servers, and military industries, while hybrid solid-liquid aluminum electrolytic capacitors are primarily used in the new energy vehicle electronics industry.

## Solid-state multilayer product line

The Solid State Multilayer (SMS) Business Unit began R&D in 2018 and started mass production in March 2020, currently boasting a monthly capacity of 6 million units. SMS polymer solid aluminum electrolytic capacitors offer advantages such as high voltage and large capacity, thin profile, ultra-low impedance, and high ripple current tolerance. Currently a leading form of aluminum electrolytic capacitor, they feature ultra-low ESR and powerful filtering capabilities, and are used in communications, military, IoT, IDC servers, artificial intelligence, and other terminals.

## Supercapacitor Product Line

The Supercapacitor Division was established in 2017 and now boasts a comprehensive range of domestic and international double-layer supercapacitors (cylindrical lead type, horn type, modular type, SMD surface mount type) and hybrid supercapacitors. Products meet multiple certifications from State Grid AEC-Q200 and IATF16949. They are widely used in advanced industries such as smart meters (electricity meters, water meters, gas meters), automotive electronics (ETC, dashcams), new energy (wind turbine pitch control, photovoltaic), and military (tank emergency jump starters).

## Large liquid product line

Established in 2009, the Liquid Large-Scale Business Unit specializes in horn-shaped and bolt-type aluminum electrolytic capacitors. These liquid large-scale aluminum electrolytic capacitors offer advantages such as ultra-high voltage (16V~630V), ultra-low temperature operation, high stability, low leakage current, high ripple current tolerance, and long lifespan. They are widely used in photovoltaic inverters, charging pile on-board computer (OBC) systems, outdoor energy storage power supplies, and industrial frequency converters.

## Ceramic Capacitor (MLCC) Product Line

Established in 2019, the MLCC Business Unit is dedicated to the R&D, manufacturing, and application promotion of high-voltage MLCCs. It offers product series such as X7R and NPO, with voltages ranging from 1KV to 3KV, all being large-size high-voltage products of 1206 and above. These products are widely used in adapters, switching power supplies, high-voltage power supplies, lighting devices, and other products, fully benchmarking against high-end products from Taiwanese and Japanese manufacturers!

## Polymer tantalum capacitor product line

The Polymer Tantalum Capacitor Division was established in 2022. Compared to its peers, Yongming's polymer tantalum capacitors offer higher capacitance, lower ESR, and higher voltage withstand. These products are widely used in digital servers, PCs, ultra-thin chargers, automotive electronics, communications, base stations, switches, industrial power modules, and military power supplies, among other fields. Yongming's polymer tantalum capacitors have a promising future as a replacement for imported tantalum capacitors and are worth pursuing.

## Metallized film capacitor product line

Established in 2023, the Film Capacitor Division possesses advanced technology and manufacturing equipment. Through leading technology and unique structural optimization, its performance is comparable to that of top international counterparts. It currently offers product series such as MDP, MDA, and MDR, which are widely used in industries such as new energy charging piles, automotive electronics, photovoltaic inverters, and wind power converters. Yongming Film Capacitors is committed to becoming a competitive, top-tier film capacitor manufacturer in the international import market, providing technical services to meet customer needs.

# Capacitor Solutions, Ask YMIN for your Applications

## Respond quickly and accurately to customer needs