

# ALUMINUM ELECTROLYTIC CAPACITORS

**UPA** Miniature Sized, Low Impedance, High Reliability For Switching Power Supplies



- Lower impedance than UPW.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).



## Specifications

| Item  | Performance Characteristics   |  |      |      |      |      |            |
|---|---|--|------|------|------|------|------------|
| Category Temperature Range  | -55 to +105°C   |  |      |      |      |      |            |
| Rated Voltage Range   | 6.3 to 35V  |  |      |      |      |      |            |
| Rated Capacitance Range   | 180 to 10000µF  |  |      |      |      |      |            |
| Capacitance Tolerance   | ±20% at 120Hz, 20°C   |  |      |      |      |      |            |
| Leakage Current   | After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.03CV or 4 (µA), whichever is greater.   |  |      |      |      |      |            |
| Tangent of loss angle (tan δ)   | Rated voltage (V)   | 6.3  | 10   | 16   | 25   | 35   | 120Hz 20°C |
|   | tan δ (MAX.)  | 0.22   | 0.19 | 0.16 | 0.14 | 0.12 |            |
| For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF. |   |  |      |      |      |      |            |
| Stability at Low Temperature  | Rated voltage (V)   | 6.3  | 10   | 16   | 25   | 35   | 120Hz      |
|   | Impedance ratio (MAX.) Z-55°C / Z+20°C  | 3  | 3    | 3    | 3    | 3    |            |
| Endurance   | The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 5000 hours (3000 hours for φD=8, 4000 hours for φD=10) at 105°C, the peak voltage shall not exceed the rated voltage. |  |      |      |      |      |            |
|   | Capacitance change  | Within ±20% of the initial capacitance value (6.3V, 10V : ±30%)  |      |      |      |      |            |
|   | tan δ   | 200% or less than the initial specified value (6.3V, 10V : 300%) |      |      |      |      |            |
| Shelf Life  | After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.                                 |  |      |      |      |      |            |
|   | Leakage current   | Less than or equal to the initial specified value                |      |      |      |      |            |
| Marking   | Printed with white color letter on dark brown sleeve.   |  |      |      |      |      |            |

## Radial Lead Type

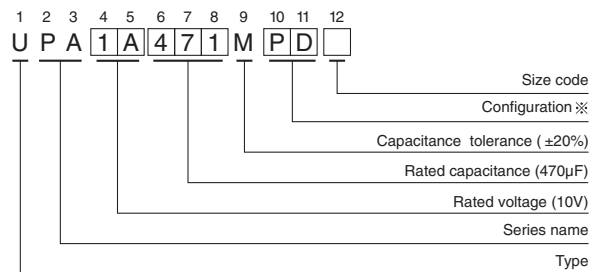


|   |          |     |
|---|----------|-----|
| α | (L < 20) | 1.5 |
|   | (L ≥ 20) | 2.0 |

|    | (mm) |     |      |     |     |
|----|------|-----|------|-----|-----|
| φD | 8    | 10  | 12.5 | 16  | 18  |
| P  | 3.5  | 5.0 | 5.0  | 7.5 | 7.5 |
| φd | 0.6  | 0.6 | *0.6 | 0.8 | 0.8 |

※ : In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm.

## Type numbering system (Example : 10V 470µF)



※ Configuration

| φD         | Pb-free leadwire<br>Pb-free PET sleeve |
|------------|--|
| 8 · 10     | PD                                     |
| 12.5 to 18 | HD                                     |

## Frequency coefficient of rated ripple current

| Cap. (µF)     | Frequency |       |       |      |               |
|---------------|-----------|-------|-------|------|---------------|
|               | 50Hz      | 120Hz | 300Hz | 1kHz | 10kHz or more |
| 180 to 330    | 0.55      | 0.65  | 0.75  | 0.85 | 1.00          |
| 390 to 1000   | 0.70      | 0.75  | 0.80  | 0.90 | 1.00          |
| 1200 to 10000 | 0.80      | 0.85  | 0.90  | 0.95 | 1.00          |

• Please refer to page 20 about the end seal configuration.

Please refer to page 20, 21, 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.

• Dimension table in next page.

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■ Dimensions

| Cap.(μF)<br>Code |     | V (Code) | Item | 6.3 (0J)                    |                    |                   | 10 (1A)                                      |                             |                    | 16 (1C)           |  |                             |                    |                   |  |      |
|------------------|-----|----------|------|-----------------------------|--------------------|-------------------|--|-----------------------------|--------------------|-------------------|--|-----------------------------|--------------------|-------------------|--|------|
|                  |     |          |      | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |                   | Rated<br>ripple<br>(mArms)<br>105°C / 100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |                   | Rated<br>ripple<br>(mArms)<br>105°C / 100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |                   | Rated<br>ripple<br>(mArms)<br>105°C / 100kHz |      |
|                  |     |          |      |                             | 20°C /<br>100kHz   | -10°C /<br>100kHz |  |                             | 20°C /<br>100kHz   | -10°C /<br>100kHz |  |                             | 20°C /<br>100kHz   | -10°C /<br>100kHz |  |      |
| 330              | 331 |          |      |                             |                    |                   |  |                             |                    |                   |  |                             |                    |                   |  |      |
| 390              | 391 |          |      |                             |                    |                   |  |                             |                    |                   |  | 8 × 11.5                    | 0.090              | 0.180             | 630  |      |
| 470              | 471 |          |      |                             |                    |                   | 8 × 11.5                                     | 0.090                       | 0.180              | 630               |  | 8 × 11.5                    | 0.090              | 0.180             | 630  |      |
| 560              | 561 |          |      | 8 × 11.5                    | 0.090              | 0.180             | 630  | 8 × 11.5                    | 0.090              | 0.180             | 630  |                             |                    |                   |  |      |
| 680              | 681 |          |      | 8 × 11.5                    | 0.090              | 0.180             | 630  |                             |                    |                   |  | 8 × 15                      | 0.062              | 0.124             | 860  |      |
|                  |     |          |      |                             |                    |                   |  |                             |                    |                   |  | ▲10 × 12.5                  | 0.063              | 0.126             | 900  |      |
| 820              | 821 |          |      |                             |                    |                   | 8 × 15                                       | 0.062                       | 0.124              | 860               |  | 8 × 20                      | 0.044              | 0.088             | 1220   |      |
|                  |     |          |      |                             |                    |                   | ▲10 × 12.5                                   | 0.063                       | 0.126              | 900               |  | ▲10 × 16                    | 0.049              | 0.098             | 1240   |      |
|                  |     |          |      |                             |                    |                   | 8 × 20                                       | 0.044                       | 0.088              | 1220              |  | 10 × 16                     | 0.049              | 0.098             | 1240   |      |
| 1000             | 102 |          |      | 8 × 15                      | 0.062              | 0.124             | 860  | 8 × 20                      | 0.044              | 0.088             | 1220   |                             | ▲10 × 12.5         | 0.063             | 0.126  | 900  |
|                  |     |          |      | ▲10 × 12.5                  | 0.063              | 0.126             | 900  | ▲10 × 12.5                  | 0.063              | 0.126             | 900  |                             | ●10 × 16           | 0.049             | 0.098  | 1240 |
|                  |     |          |      |                             |                    |                   |  | ●10 × 16                    | 0.049              | 0.098             | 1240   |                             | ●10 × 20           | 0.035             | 0.070  | 1490 |
| 1200             | 122 |          |      | 10 × 12.5                   | 0.063              | 0.126             | 900  | 8 × 20                      | 0.044              | 0.088             | 1220   |                             | 10 × 20            | 0.035             | 0.070  | 1490 |
|                  |     |          |      | ●10 × 16                    | 0.049              | 0.098             | 1240   | ▲10 × 16                    | 0.049              | 0.098             | 1240   |                             |                    |                   |  |      |
|                  |     |          |      | 8 × 20                      | 0.044              | 0.088             | 1220   |                             |                    |                   |  |                             |                    |                   |  |      |
| 1500             | 152 |          |      | ▲10 × 16                    | 0.049              | 0.098             | 1240   | 10 × 20                     | 0.035              | 0.070             | 1490   |                             | 10 × 25            | 0.033             | 0.066  | 1680 |
|                  |     |          |      | ●10 × 20                    | 0.035              | 0.070             | 1490   |                             |                    |                   |  |                             |                    |                   |  |      |
| 1800             | 182 |          |      |                             |                    |                   |  | 10 × 20                     | 0.035              | 0.070             | 1490   |                             |                    |                   |  |      |
|                  |     |          |      |                             |                    |                   |  | ▲10 × 25                    | 0.033              | 0.066             | 1680   |                             |                    |                   |  |      |
| 2200             | 222 |          |      | 10 × 20                     | 0.035              | 0.070             | 1490   | 10 × 25                     | 0.033              | 0.066             | 1680   | 12.5 × 20                   | 0.029              | 0.058             | 1890   |      |
|                  |     |          |      | ●10 × 25                    | 0.033              | 0.066             | 1680   | ●12.5 × 20                  | 0.029              | 0.058             | 1890   | ●12.5 × 25                  | 0.022              | 0.044             | 2280   |      |
| 2700             | 272 |          |      | 10 × 25                     | 0.033              | 0.066             | 1680   | 12.5 × 20                   | 0.029              | 0.058             | 1890   | 12.5 × 25                   | 0.022              | 0.044             | 2280   |      |
| 3300             | 332 |          |      | 12.5 × 20                   | 0.029              | 0.058             | 1890   | 12.5 × 25                   | 0.022              | 0.044             | 2280   | 12.5 × 31.5                 | 0.018              | 0.036             | 2720   |      |
|                  |     |          |      |                             |                    |                   |  |                             |                    |                   |  | ▲16 × 20                    | 0.026              | 0.052             | 2330   |      |
| 3900             | 392 |          |      | 12.5 × 25                   | 0.022              | 0.044             | 2280   | 12.5 × 25                   | 0.022              | 0.044             | 2280   | 12.5 × 35.5                 | 0.016              | 0.032             | 2940   |      |
| 4700             | 472 |          |      | 12.5 × 25                   | 0.022              | 0.044             | 2280   | 12.5 × 31.5                 | 0.018              | 0.036             | 2720   | 16 × 25                     | 0.019              | 0.038             | 2760   |      |
|                  |     |          |      |                             |                    |                   |  | ▲16 × 20                    | 0.026              | 0.052             | 2330   | ▲18 × 20                    | 0.025              | 0.050             | 2640   |      |
| 5600             | 562 |          |      | 12.5 × 31.5                 | 0.018              | 0.036             | 2720   | 12.5 × 35.5                 | 0.016              | 0.032             | 2940   | 16 × 31.5                   | 0.017              | 0.035             | 2810   |      |
|                  |     |          |      | ▲16 × 20                    | 0.026              | 0.052             | 2330   |                             |                    |                   |  | ▲18 × 25                    | 0.018              | 0.036             | 2850   |      |
| 6800             | 682 |          |      | 12.5 × 35.5                 | 0.016              | 0.032             | 2940   | 16 × 25                     | 0.019              | 0.038             | 2760   | 18 × 25                     | 0.018              | 0.036             | 2850   |      |
| 8200             | 822 |          |      | 16 × 25                     | 0.019              | 0.038             | 2760   | 16 × 31.5                   | 0.017              | 0.034             | 2810   |                             |                    |                   |  |      |
|                  |     |          |      | ▲18 × 20                    | 0.025              | 0.050             | 2640   | ▲18 × 25                    | 0.018              | 0.036             | 2850   |                             |                    |                   |  |      |
| 10000            | 103 |          |      | 16 × 31.5                   | 0.017              | 0.034             | 2810   |                             |                    |                   |  |                             |                    |                   |  |      |
|                  |     |          |      | ▲18 × 25                    | 0.018              | 0.036             | 2850   |                             |                    |                   |  |                             |                    |                   |  |      |

| Cap.(μF)<br>Code |     | V (Code) | Item | 25 (1E)                     |                    |                   | 35 (1V)                                      |                             |                    |                   |  |
|------------------|-----|----------|------|-----------------------------|--------------------|-------------------|--|-----------------------------|--------------------|-------------------|--|
|                  |     |          |      | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |                   | Rated<br>ripple<br>(mArms)<br>105°C / 100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |                   | Rated<br>ripple<br>(mArms)<br>105°C / 100kHz |
|                  |     |          |      |                             | 20°C /<br>100kHz   | -10°C /<br>100kHz |  |                             | 20°C /<br>100kHz   | -10°C /<br>100kHz |  |
| 180              | 181 |          |      |                             |                    |                   | 8 × 11.5                                     | 0.090                       | 0.180              | 630               |  |
| 270              | 271 |          |      | 8 × 11.5                    | 0.090              | 0.180             | 630  | 8 × 15                      | 0.062              | 0.124             | 860  |
|                  |     |          |      |                             |                    |                   | ▲10 × 12.5                                   | 0.063                       | 0.126              | 900               |  |
| 330              | 331 |          |      | 8 × 11.5                    | 0.090              | 0.180             | 630  |                             |                    |                   |  |
| 390              | 391 |          |      | 8 × 15                      | 0.062              | 0.124             | 860  | 8 × 20                      | 0.044              | 0.088             | 1220   |
|                  |     |          |      |                             |                    |                   | ▲10 × 16                                     | 0.049                       | 0.098              | 1240              |  |
| 470              | 471 |          |      | 8 × 15                      | 0.062              | 0.124             | 860  |                             |                    |                   |  |
|                  |     |          |      | ▲10 × 12.5                  | 0.063              | 0.126             | 900  |                             |                    |                   |  |
| 560              | 561 |          |      | 8 × 20                      | 0.044              | 0.088             | 1220   | 10 × 20                     | 0.035              | 0.070             | 1490   |
|                  |     |          |      | ▲10 × 16                    | 0.049              | 0.098             | 1240   |                             |                    |                   |  |
| 680              | 681 |          |      | 10 × 16                     | 0.049              | 0.098             | 1240   | 10 × 25                     | 0.033              | 0.066             | 1680   |
| 820              | 821 |          |      | 10 × 20                     | 0.035              | 0.070             | 1490   | 12.5 × 20                   | 0.029              | 0.058             | 1890   |
| 1000             | 102 |          |      | 10 × 25                     | 0.033              | 0.066             | 1680   | 12.5 × 20                   | 0.029              | 0.058             | 1890   |
|                  |     |          |      | ●12.5 × 20                  | 0.029              | 0.058             | 1890   |                             |                    |                   |  |
| 1200             | 122 |          |      | 12.5 × 20                   | 0.029              | 0.058             | 1890   | 12.5 × 25                   | 0.022              | 0.044             | 2280   |
| 1500             | 152 |          |      |                             |                    |                   |  | 12.5 × 31.5                 | 0.018              | 0.036             | 2720   |
|                  |     |          |      |                             |                    |                   |  | ▲16 × 20                    | 0.026              | 0.052             | 2330   |
| 1800             | 182 |          |      | 12.5 × 25                   | 0.022              | 0.044             | 2280   | 12.5 × 35.5                 | 0.016              | 0.032             | 2940   |
|                  |     |          |      |                             |                    |                   |  | ▲16 × 20                    | 0.026              | 0.052             | 2330   |
| 2200             | 222 |          |      | 12.5 × 31.5                 | 0.018              | 0.036             | 2720   | 16 × 25                     | 0.019              | 0.038             | 2760   |
|                  |     |          |      | ▲16 × 20                    | 0.026              | 0.052             | 2330   | ▲18 × 20                    | 0.025              | 0.050             | 2640   |
| 2700             | 272 |          |      | 12.5 × 35.5                 | 0.016              | 0.032             | 2940   | 16 × 31.5                   | 0.017              | 0.035             | 2810   |
|                  |     |          |      |                             |                    |                   |  | ▲18 × 25                    | 0.018              | 0.036             | 2850   |
| 3300             | 332 |          |      | 16 × 25                     | 0.019              | 0.038             | 2760   | 18 × 31.5                   | 0.016              | 0.032             | 2910   |
|                  |     |          |      | ▲18 × 20                    | 0.025              | 0.050             | 2640   |                             |                    |                   |  |
| 4700             | 472 |          |      | 18 × 25                     | 0.018              | 0.036             | 2850   |                             |                    |                   |  |

▲ : In this case, [6] will be put at 12th digit of type numbering system.

● : In this case, [3] will be put at 12th digit of type numbering system.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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