

## USA

7mmL, For General Purposes

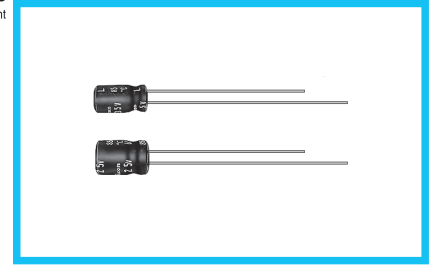
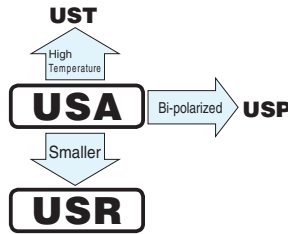
## USR

7mmL, High CV



- Standard miniature series with 7mm height.
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).

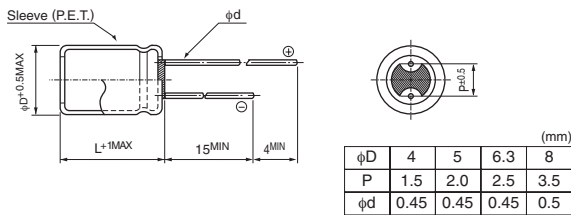
- Higher CV series with 7mm height.



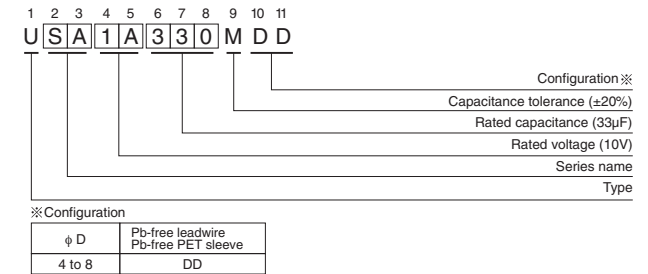
### Specifications

| Item                          | USA  |                 |      |      | USR  |      |      |      |                    |  |       |   |                 |   |
|-------------------------------|--|-----------------|------|------|--|------|------|------|--------------------|--|-------|---|-----------------|---|
| Category Temperature Range    | -40 to +85°C   |                 |      |      | -40 to +85°C   |      |      |      |                    |  |       |   |                 |   |
| Rated Voltage Range           | 6.3 to 50V   |                 |      |      | 4 to 50V   |      |      |      |                    |  |       |   |                 |   |
| Rated Capacitance Range       | 1 to 220μF   |                 |      |      | 1 to 470μF   |      |      |      |                    |  |       |   |                 |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C  |                 |      |      | ±20% at 120Hz, 20°C  |      |      |      |                    |  |       |   |                 |   |
| Leakage Current               | After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.  |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C  |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
|                               | Rated voltage (V)  | 4               | 6.3  | 10   | 16   | 25   | 35   | 50   |                    |  |       |   |                 |   |
|                               | tan δ (MAX.)   | 0.35            | 0.24 | 0.20 | 0.16   | 0.14 | 0.12 | 0.10 |                    |  |       |   |                 |   |
| Stability at Low Temperature  | Measurement frequency : 120Hz  |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
|                               | Rated voltage (V)  | 4               | 6.3  | 10   | 16   | 25   | 35   | 50   |                    |  |       |   |                 |   |
|                               | Impedance ratio  | Z-25°C / Z+20°C | 6    | 4    | 3  | 2    | 2    | 2    |                    |  |       |   |                 |   |
|                               | (MAX.)   | Z-40°C / Z+20°C | 12   | 8    | 6  | 4    | 3    | 3    |                    |  |       |   |                 |   |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.  |                 |      |      | <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> |      |      |      | Capacitance change | Within ±20% of the initial capacitance value | tan δ | 200% or less than the initial specified value | Leakage current | Less than or equal to the initial specified value |
| Capacitance change            | Within ±20% of the initial capacitance value   |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
| tan δ                         | 200% or less than the initial specified value  |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
| Leakage current               | Less than or equal to the initial specified value  |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
| Shelf Life                    | After storing the capacitors under no load at 85°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. |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |
| Marking                       | Printed with white color letter on black sleeve.   |                 |      |      |  |      |      |      |                    |  |       |   |                 |   |

### Radial Lead Type



### Type numbering system (Example : USA : 10V 33μF)



### Dimensions

| Cap. (μF) | V(Code)<br>Type·Series<br>Code | 4 (0G)  |         | 6.3 (0J) |         | 10 (1A) |         | 16 (1C) |         | 25 (1E) |         | 35 (1V) |         | 50 (1H) |         |
|-----------|--------------------------------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|           |                                | USR     | USA     | USR      | USA     | USR     | USA     | USR     | USA     | USR     | USA     | USR     | USA     | USR     |         |
| 1         | 010                            |         |         |          |         |         |         |         |         |         |         |         |         | 4 × 7   | 4 × 7   |
|           |                                |         |         |          |         |         |         |         |         |         |         |         |         | 10      | 10      |
| 2.2       | 2R2                            |         |         |          |         |         |         |         |         |         |         |         |         | 4 × 7   | 4 × 7   |
|           |                                |         |         |          |         |         |         |         |         |         |         |         |         | 19      | 19      |
| 3.3       | 3R3                            |         |         |          |         |         |         |         |         |         |         |         |         | 4 × 7   | 4 × 7   |
|           |                                |         |         |          |         |         |         |         |         |         |         |         |         | 24      | 24      |
| 4.7       | 4R7                            |         |         |          |         |         |         |         |         |         |         | 4 × 7   | 4 × 7   | 5 × 7   | 4 × 7   |
|           |                                |         |         |          |         |         |         |         |         |         |         | 24      | 24      | 29      | 28      |
| 10        | 100                            |         |         |          |         |         | 4 × 7   | 4 × 7   | 5 × 7   | 4 × 7   | 5 × 7   | 4 × 7   | 6.3 × 7 | 5 × 7   | 5 × 7   |
|           |                                |         |         |          |         |         | 28      | 28      | 33      | 28      | 36      | 31      | 44      | 38      | 38      |
| 22        | 220                            |         | 4 × 7   | 4 × 7    | 5 × 7   | 4 × 7   | 5 × 7   | 4 × 7   | 6.3 × 7 | 5 × 7   | 6.3 × 7 | 5 × 7   | 8 × 7   | 6.3 × 7 | 6.3 × 7 |
|           |                                |         | 34      | 34       | 38      | 35      | 44      | 39      | 51      | 48      | 57      | 52      | 65      | 58      | 58      |
| 33        | 330                            | 4 × 7   | 5 × 7   | 4 × 7    | 5 × 7   | 4 × 7   | 6.3 × 7 | 5 × 7   | 6.3 × 7 | 5 × 7   | 8 × 7   | 6.3 × 7 |         | 8 × 7   | 8 × 7   |
|           |                                | 33      | 42      | 40       | 47      | 43      | 57      | 55      | 63      | 58      | 72      | 65      |         | 75      | 75      |
| 47        | 470                            | 4 × 7   | 5 × 7   | 4 × 7    | 6.3 × 7 | 5 × 7   | 6.3 × 7 | 5 × 7   | 8 × 7   | 6.3 × 7 |         | 8 × 7   |         |         |         |
|           |                                | 39      | 50      | 48       | 59      | 59      | 68      | 65      | 78      | 71      |         | 85      |         |         |         |
| 100       | 101                            | 5 × 7   | 6.3 × 7 | 5 × 7    | 8 × 7   | 6.3 × 7 | 8 × 7   | 6.3 × 7 |         | 8 × 7   |         |         |         |         |         |
|           |                                | 65      | 77      | 78       | 96      | 87      | 107     | 98      |         | 115     |         |         |         |         |         |
| 220       | 221                            | 6.3 × 7 | 8 × 7   | 6.3 × 7  |         | 8 × 7   |         | 8 × 7   |         |         |         |         |         |         |         |
|           |                                | 110     | 130     | 120      |         | 145     |         | 150     |         |         |         |         |         |         |         |
| 330       | 331                            | 8 × 7   |         | 8 × 7    |         |         |         |         |         |         |         |         |         |         |         |
|           |                                | 165     |         | 180      |         |         |         |         |         |         |         |         |         |         |         |
| 470       | 471                            | 8 × 7   |         |          |         |         |         |         |         |         |         |         |         |         |         |
|           |                                | 240     |         |          |         |         |         |         |         |         |         |         |         |         |         |

Rated ripple current (mA rms) at 85°C 120Hz

### Frequency coefficient of rated ripple current

| Frequency   | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|-------------|-------|--------|--------|-------|----------------|
| Coefficient | 0.70  | 1.00   | 1.17   | 1.36  | 1.50           |

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



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

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- 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.);

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- Подбор аналогов;
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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.