



**THE DATASHEET OF
USV1H220MFD**



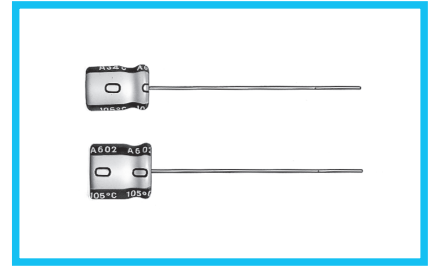
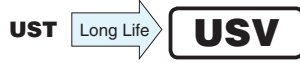
USV

7mmL, Long Life Assurance



Long Life

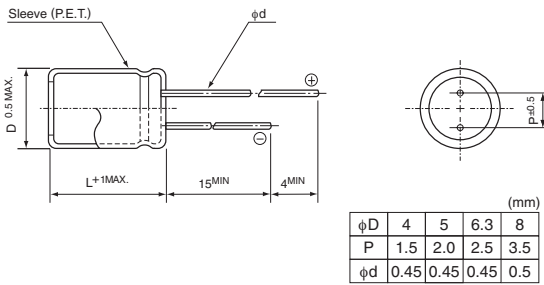
- Extended load life of 5000 hours at +105°C, with 7mm height.
- Compliant to the RoHS directive (2011/65/EU).



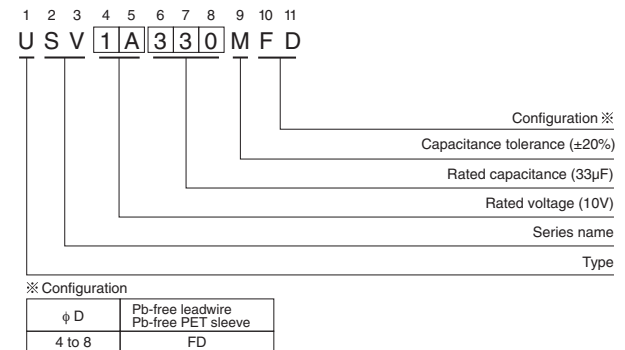
Specifications

| Item | Performance Characteristics | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|--|--------------------|--|-------|---|-----------------|---|----|--------------|-----------------|-----------------|------|------|------|------|---|---|-----------------|-----------------|---|---|---|---|---|
| Category Temperature Range | -40 to +105°C | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3 to 50V | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Capacitance Range | 1 to 220μF | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | ±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, Temperature : 20°C | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.24</td> <td>0.21</td> <td>0.18</td> <td>0.15</td> <td>0.13</td> <td>0.12</td> </tr> </table> | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | tan δ (MAX.) | 0.24 | 0.21 | 0.18 | 0.15 | 0.13 | 0.12 | | | | | | | | | |
| Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | | | |
| tan δ (MAX.) | 0.24 | 0.21 | 0.18 | 0.15 | 0.13 | 0.12 | | | | | | | | | | | | | | | | | | |
| Stability at Low Temperature | Measurement frequency : 120Hz | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Impedance ratio</td> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>ZT / Z20 (MAX.)</td> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> | Rated voltage (V) | | 6.3 | 10 | 16 | 25 | 35 | 50 | Impedance ratio | Z-25°C / Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 | ZT / Z20 (MAX.) | Z-40°C / Z+20°C | 8 | 6 | 4 | 3 | 3 |
| Rated voltage (V) | | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | | |
| Impedance ratio | Z-25°C / Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | |
| ZT / Z20 (MAX.) | Z-40°C / Z+20°C | 8 | 6 | 4 | 3 | 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 5000 hours at 105°C. | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±30% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>300% 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 ±30% of the initial capacitance value | tan δ | 300% or less than the initial specified value | Leakage current | Less than or equal to the initial specified value | | | | | | | | | | | | | | | | | |
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| tan δ | 300% 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 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. | | | | | | | | | | | | | | | | | | | | | | | |
| Marking | Printed with silver color letter on dark brown sleeve. | | | | | | | | | | | | | | | | | | | | | | | |

Radial Lead Type



Type numbering system (Example: 10V 33μF)



Dimensions

| Cap.(μF) | Code | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | |
|----------|------|---------|-----|---------|----|---------|-----|---------|----|---------|-------|--------------------------|-----------------|
| | | 0J | | 1A | | 1C | | 1E | | 1V | | 1H | |
| 1 | 010 | | | | | | | | | | | 4 × 7 | 10 |
| 2.2 | 2R2 | | | | | | | | | | | 4 × 7 | 19 |
| 3.3 | 3R3 | | | | | | | | | | | 4 × 7 | 24 |
| 4.7 | 4R7 | | | | | | | | | | 4 × 7 | 24 | 29 |
| 10 | 100 | | | | | 4 × 7 | 29 | 5 × 7 | 33 | 5 × 7 | 36 | 6.3 × 7 | 44 |
| 22 | 220 | 4 × 7 | 34 | 5 × 7 | 38 | 5 × 7 | 44 | 6.3 × 7 | 51 | 6.3 × 7 | 57 | 8 × 7 | 65 |
| 33 | 330 | 5 × 7 | 42 | 5 × 7 | 47 | 6.3 × 7 | 57 | 6.3 × 7 | 63 | 8 × 7 | 72 | | |
| 47 | 470 | 5 × 7 | 50 | 6.3 × 7 | 59 | 6.3 × 7 | 68 | 8 × 7 | 78 | | | | |
| 100 | 101 | 6.3 × 7 | 77 | 8 × 7 | 96 | 8 × 7 | 107 | | | | | | |
| 220 | 221 | 8 × 7 | 130 | | | | | | | | | Case size φD × L (mm) | Rated ripple |

Rated ripple current (mArms) at 105°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.

Looking for pricing, stock, or lifecycle information?

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- ⊖ [Nichicon](#) Information

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- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management