

# SURFACE MOUNT ALUMINUM ELECTROLYTIC

## NV Non-polar Series

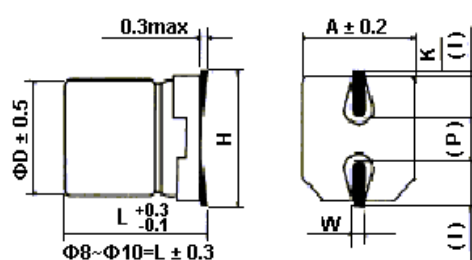
- Features : 105°C 2000 hours, Non-polarized, Low profile vertical chip, 5.5mm height ( $\leq \phi 6.3$ )
- Recommended Applications: Suitable for AV(TV, Video, Audio), Monitor/Computer, OA/HA/Communication, Reversed polarity circuit
- Corresponding product to RoHS



### Specifications

| Item                                               | Characteristics                                                                                                                                                                                                                                                                                                 |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------|----|----|----|----|----------------|-----|----|----|----|----|----|------------------|---|---|---|---|---|---|------------------|---|---|---|---|---|---|
| Operating Temperature Range                        | -40 ~ +105℃                                                                                                                                                                                                                                                                                                     |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Rated Voltage Range (WV)                           | 6.3 ~ 35VDC                                                                                                                                                                                                                                                                                                     |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Capacitance Range                                  | 1 ~ 47 μF                                                                                                                                                                                                                                                                                                       |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Capacitance Tolerance                              | ± 20 % at 120Hz , 20℃                                                                                                                                                                                                                                                                                           |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Leakage Current (MAX) (20℃)                        | I ≤ 0.01CV or 3(μA) , whichever is greater. (After rated voltage applied for 2 minutes )<br>I= Leakage Current ( μA) C= Nominal Capacitance ( μF) V= Rated Voltage (V)                                                                                                                                          |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Dissipation Factor (MAX)<br>(tan δ ) (120Hz ,20℃)  | Shown in the table of standard rating                                                                                                                                                                                                                                                                           |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Low Temperature Stability<br>Impedance Ratio (MAX) | <table><tr><td>WV<br/>Z(120HZ)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Z(-25℃) / Z(20℃)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃) / Z(20℃)</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td></tr></table> |     |                                           |    |    |    |    | WV<br>Z(120HZ) | 6.3 | 10 | 16 | 25 | 35 | 50 | Z(-25℃) / Z(20℃) | 4 | 3 | 2 | 2 | 2 | 2 | Z(-40℃) / Z(20℃) | 8 | 6 | 4 | 4 | 3 | 3 |
|                                                    | WV<br>Z(120HZ)                                                                                                                                                                                                                                                                                                  | 6.3 | 10                                        | 16 | 25 | 35 | 50 |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|                                                    | Z(-25℃) / Z(20℃)                                                                                                                                                                                                                                                                                                | 4   | 3                                         | 2  | 2  | 2  | 2  |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|                                                    | Z(-40℃) / Z(20℃)                                                                                                                                                                                                                                                                                                | 8   | 6                                         | 4  | 4  | 3  | 3  |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Endurance                                          | After applying rated voltage for 2000hrs at 105℃ ,<br>the capacitors shall meet the following requirements. (The polarity shall be reversed every 250 hours)                                                                                                                                                    |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|                                                    | Capacitance Change                                                                                                                                                                                                                                                                                              |     | Within ±20% of the initial value          |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|                                                    | Dissipation Factor                                                                                                                                                                                                                                                                                              |     | Not more than 200% of the specified value |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
|                                                    | Leakage Current                                                                                                                                                                                                                                                                                                 |     | Not more than the specified value         |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |
| Shelf Life                                         | After placed at 105℃ without voltage applied for 1000 hours,<br>the capacitor shall meet the same requirement as Endurance.                                                                                                                                                                                     |     |                                           |    |    |    |    |                |     |    |    |    |    |    |                  |   |   |   |   |   |   |                  |   |   |   |   |   |   |

### Diagram of Dimensions(mm)



( ) : Reference size

| $\phi D$ | L   | A   | H       | I   | W              | P             | K                   |
|----------|-----|-----|---------|-----|----------------|---------------|---------------------|
| 4.0      | 5.4 | 4.3 | 5.5 Max | 1.8 | 0.65 $\pm$ 0.1 | 1.0 $\pm$ 0.2 | 0.35 +0.15<br>-0.20 |
| 5.0      | 5.4 | 5.3 | 6.5 Max | 2.2 | 0.65 $\pm$ 0.1 | 1.5 $\pm$ 0.2 | 0.35 +0.15<br>-0.20 |
| 6.3      | 5.4 | 6.6 | 7.8 Max | 2.6 | 0.65 $\pm$ 0.1 | 1.8 $\pm$ 0.2 | 0.35 +0.15<br>-0.20 |

### Multiplier for Ripple Current

Frequency coefficient

| Frequency (Hz) | 60   | 120  | 1K   | 10K  |
|----------------|------|------|------|------|
| Coefficient    | 0.85 | 1.00 | 1.10 | 1.20 |

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**NV** Non-polar  
Series

## ■ Dimensions, Max Dissipation Factor, Max Permissible Ripple Current

| Capacitance<br>( $\mu$ F) | Rated (Surge) Voltage |               |        |         |               |        |         |               |        |         |               |        |
|---------------------------|-----------------------|---------------|--------|---------|---------------|--------|---------|---------------|--------|---------|---------------|--------|
|                           | 6.3(8)                |               |        | 10(13)  |               |        | 16(20)  |               |        | 25(32)  |               |        |
|                           | Size                  | $\tan \delta$ | Ripple | Size    | $\tan \delta$ | Ripple | Size    | $\tan \delta$ | Ripple | Size    | $\tan \delta$ | Ripple |
| 2.2                       |                       |               |        |         |               |        |         |               |        |         |               |        |
| 3.3                       |                       |               |        |         |               |        |         |               |        | 4x5.4   | 0.28          | 12     |
| 4.7                       |                       |               |        |         |               |        | 4x5.4   | 0.32          | 20     | 5x5.4   | 0.28          | 21     |
| 10                        |                       |               |        | 4x5.4   | 0.40          | 25     | 5x5.4   | 0.32          | 25     | 6.3x5.4 | 0.28          | 28     |
| 22                        | 5x5.4                 | 0.52          | 29     | 6.3x5.4 | 0.40          | 39     | 6.3x5.4 | 0.32          | 39     |         |               |        |
| 33                        | 6.3x5.4               | 0.52          | 43     | 6.3x5.4 | 0.40          | 43     |         |               |        |         |               |        |
| 47                        | 6.3x5.4               | 0.52          | 46     |         |               |        |         |               |        |         |               |        |

| Capacitance<br>( $\mu$ F) | Rated (Surge) Voltage |               |        |         |               |        |
|---------------------------|-----------------------|---------------|--------|---------|---------------|--------|
|                           | 35(44)                |               |        | 50(63)  |               |        |
|                           | Size                  | $\tan \delta$ | Ripple | Size    | $\tan \delta$ | Ripple |
| 1                         |                       |               |        | 4x5.4   | 0.24          | 10     |
| 2.2                       | 4x5.4                 | 0.24          | 12     | 5x5.4   | 0.24          | 16     |
| 3.3                       | 5x5.4                 | 0.24          | 21     | 5x5.4   | 0.24          | 21     |
| 4.7                       | 5x5.4                 | 0.24          | 22     | 6.3x5.4 | 0.24          | 31     |
| 10                        | 6.3x5.4               | 0.24          | 30     |         |               |        |

☆Size:  $D \phi \times L$ (mm). ☆ $\tan \delta$  :20℃,120Hz. ☆Ripple Current: 105℃,120Hz,(mA/rms).