

**UUN** Chip Type, Bi-Polarized,  
Higher Capacitance Range



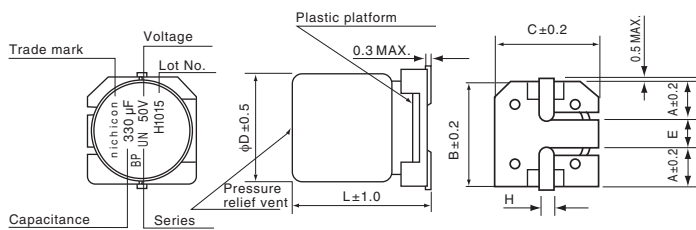
- Chip Type, higher capacitance in larger case sizes ( $\phi 12.5$ ,  $\phi 16$ ,  $\phi 18$ )
- Designed for surface mounting on high density PC board.
- Bi-polarized series for operations over wide temperature range of  $-55$  to  $+105^{\circ}\text{C}$ .
- Applicable to automatic mounting machine fed with carrier tape and tray.
- Compliant to the RoHS directive (2011/65/EU).



## Specifications

Item	Performance Characteristics																												
Category Temperature Range	$-55$ to $+105^{\circ}\text{C}$																												
Rated Voltage Range	6.3 to 100V																												
Rated Capacitance Range	22 to 3300 $\mu\text{F}$																												
Capacitance Tolerance	$\pm 20\%$ at 120Hz, $20^{\circ}\text{C}$																												
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 ( $\mu\text{A}$ ), whichever is greater.																												
Tangent of loss angle ( $\tan \delta$ )	Measurement frequency : 120Hz at $20^{\circ}\text{C}$																												
	<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> <td>63</td> <td>100</td> </tr> <tr> <td><math>\tan \delta</math> (MAX.)</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> </tr> </table> <p>For capacitance of more than 1000<math>\mu\text{F}</math>, add 0.02 for every increase of 1000<math>\mu\text{F}</math>.</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	$\tan \delta$ (MAX.)	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.09										
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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> <td>63</td> <td>100</td> </tr> <tr> <td rowspan="2">Impedance ratio ZT / Z20 (MAX.)</td> <td>Z<math>-25^{\circ}\text{C}</math> / Z<math>+20^{\circ}\text{C}</math></td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z<math>-40^{\circ}\text{C}</math> / Z<math>+20^{\circ}\text{C}</math></td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V)		6.3	10	16	25	35	50	63	100	Impedance ratio ZT / Z20 (MAX.)	Z $-25^{\circ}\text{C}$ / Z $+20^{\circ}\text{C}$	5	4	3	2	2	2	2	2	Z $-40^{\circ}\text{C}$ / Z $+20^{\circ}\text{C}$	10	8	6	4	3	3	3
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	Z $-40^{\circ}\text{C}$ / Z $+20^{\circ}\text{C}$	10	8	6	4	3	3	3	3																				
Endurance	The specifications listed at right shall be met when the capacitors are restored to $20^{\circ}\text{C}$ after the rated voltage is applied for 2000 hours at $105^{\circ}\text{C}$ with the polarity inverted every 250 hours.																												
		Capacitance change	Within $\pm 20\%$ of the initial capacitance value																										
		$\tan \delta$	200% or less than the initial specified value																										
Shelf Life	After storing the capacitors under no load at $105^{\circ}\text{C}$ for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at $20^{\circ}\text{C}$ , they shall meet the specified values for the endurance characteristics listed above.																												
		Leakage current	Less than or equal to the initial specified value																										
Marking	Black print on the case top.																												

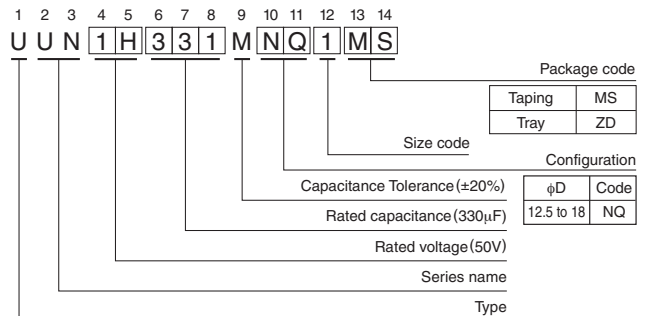
## Chip Type



(mm)

$\phi\text{D}$	12.5 $\times$ 13.5	12.5 $\times$ 16	16 $\times$ 16.5	16 $\times$ 21.5	18 $\times$ 16.5	18 $\times$ 21.5
A	4.8	4.8	5.4	5.4	6.4	6.4
B	13.6	13.6	17.1	17.1	19.1	19.1
C	13.6	13.6	17.1	17.1	19.1	19.1
E	4.0	4.0	6.3	6.3	6.3	6.3
L	13.5	16.0	16.5	21.5	16.5	21.5
H	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4

Type numbering system (Example : 50V 330 $\mu\text{F}$ )



※ The vibration structure-resistant product is also available upon request, please ask for details.

● Dimension table in next page.



## ■ Dimensions

(μF) Cap.	Code	V		6.3		10		16		25		35		50		63		100		
		0J		1A		1C		1E		1V		1H		1J		2A				
22	220																		12.5 × 13.5	100
33	330																		12.5 × 16	150
47	470													12.5 × 13.5	130	12.5 × 13.5	140	16 × 16.5	180	
100	101											12.5 × 13.5	180	12.5 × 16	230	16 × 16.5	270	18 × 21.5	310	
220	221								12.5 × 13.5	270	16 × 16.5	330	18 × 16.5	400	▲ 16 × 21.5	400	18 × 21.5	440		
330	331					12.5 × 13.5	310	16 × 16.5	370	18 × 16.5	450	▲ 16 × 21.5	450	18 × 21.5	540	▲ 18 × 21.5	590			
470	471	12.5 × 13.5	270	12.5 × 13.5	340	16 × 16.5	420	16 × 16.5	490	18 × 21.5	590	▲ 18 × 21.5	640							
1000	102	12.5 × 16	500	16 × 16.5	600	▲ 16 × 21.5	670	18 × 21.5	780											
2200	222	18 × 16.5	740	▲ 16 × 21.5	740	18 × 21.5	830													
3300	332	18 × 21.5	920																Case size φ D × L (mm)	Rated ripple

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

Rated ripple current (mArms) at 105°C 120Hz

## ● Frequency coefficient of rated ripple current

Cap.(μF)	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
22 to 47	0.75	1.00	1.35	1.57	2.00
100 to 470	0.80	1.00	1.23	1.34	1.50
1000 to 3300	0.85	1.00	1.10	1.13	1.15

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.

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