

ALUMINUM ELECTROLYTIC CAPACITORS



UN series

Chip Type, Bi-Polarized, Higher Capacitance Range



- Chip Type, higher capacitance in larger case sizes ($\phi 12.5$, $\phi 16$, $\phi 18$, $\phi 20$)
- 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 (2002/95/EC).

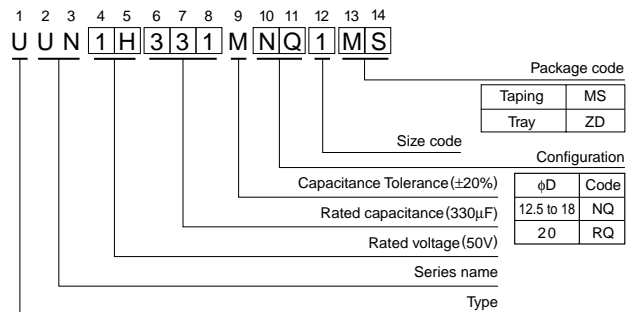
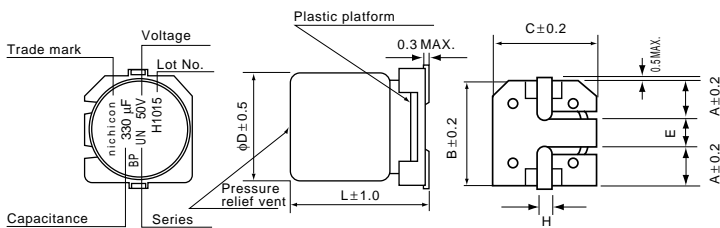


Specifications

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 μF																												
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C																												
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.																												
Tangent of loss angle ($\tan \delta$)	Measurement frequency : 120Hz at 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> <td>63</td> <td>100</td> </tr> <tr> <td>$\tan \delta$ (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 1000μF, add 0.02 for every increase of 1000μF.</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-25°C / Z$+20^\circ\text{C}$</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-40°C / Z$+20^\circ\text{C}$</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°C / Z $+20^\circ\text{C}$	5	4	3	2	2	2	2	2	Z -40°C / Z $+20^\circ\text{C}$	10	8	6	4	3	3	3
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Endurance	<p>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 105°C with the polarity inverted every 250 hours.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within $\pm 20\%$ of the initial capacitance value</td> </tr> <tr> <td>$\tan \delta$</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 $\pm 20\%$ of the initial capacitance value	$\tan \delta$	200% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value																						
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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	Black print on the case top.																												

Chip Type

Type numbering system (Example : 50V 330 μF)



(mm)

ϕD	12.5x13.5	12.5x16	16x16.5	16x21.5	18x16.5	18x21.5	20x21.5
A	4.8	4.8	5.4	5.4	6.4	6.4	6.2
B	13.6	13.6	17.1	17.1	19.1	19.1	21.1
C	13.6	13.6	17.1	17.1	19.1	19.1	21.1
E	4.0	4.0	6.3	6.3	6.3	6.3	8.8
L	13.5	16.0	16.5	21.5	16.5	21.5	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	1.3 to 1.7

● 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	2B	2C	2D	2E	2F	2G	2H	2I	2J	2K	2L			
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	18 × 21.5	440							
330	331					12.5 × 13.5	310	16 × 16.5	370	18 × 16.5	450	18 × 21.5	540	20 × 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	20 × 21.5	640										
1000	102	12.5 × 16	500	16 × 16.5	600	18 × 16.5	670	18 × 21.5	780														
2200	222	18 × 16.5	740	18 × 21.5	830																		
3300	332	▲ 16 × 21.5	740																				
		18 × 21.5	920																				
																						Case size φD × 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)	Frequency	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.