

# ALUMINUM ELECTROLYTIC CAPACITORS

**UN** series Chip Type, Bi-Polarized, Higher Capacitance Range



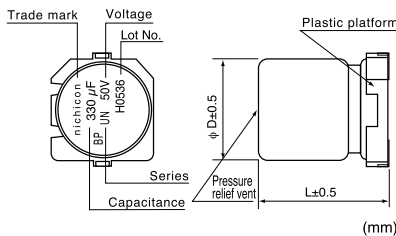
- Chip Type, higher capacitance in larger case sizes ( $\phi 12.5$ ,  $\phi 16$ ,  $\phi 18$ ,  $\phi 20$ )
- Designed for surface mounting on high density PC board.
- Bi-polarized series for operations over wide temperature range of  $-55 \sim +105^\circ\text{C}$ .
- Applicable to automatic mounting machine using carrier tape and tray.
- Adapted to the RoHS directive (2002/95/EC).



## Specifications

Item	Performance Characteristics									
Category Temperature Range	$-55 \sim +105^\circ\text{C}$									
Rated Voltage Range	6.3 ~ 100V									
Rated Capacitance Range	22 ~ 3300 $\mu\text{F}$									
Capacitance Tolerance	$\pm 20\%$ at 120Hz, $20^\circ\text{C}$									
Leakage Current	After 1 minutes' application of rated voltage, leakage current is not more than $0.03\text{CV}$ or $4 (\mu\text{A})$ , whichever is greater.									
tan $\delta$	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz $20^\circ\text{C}$
	tan $\delta$ (MAX)	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.09	
For capacitance of more than $1000\mu\text{F}$ , add 0.02 for every increase of $1000\mu\text{F}$ .										
Stability at Low Temperature	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz
	Impedance ratio ZT / Z20 (MAX.)	Z- $25^\circ\text{C}$ / Z+ $20^\circ\text{C}$	5	4	3	2	2	2	2	
Z- $40^\circ\text{C}$ / Z+ $20^\circ\text{C}$										
Endurance	After 2000 hours' application of rated voltage at $105^\circ\text{C}$ with the polarity inverted every 250 hours, capacitors meet the characteristic requirements listed at right.									
	Capacitance change	Within $\pm 20\%$ of initial value								
	tan $\delta$	200% or less of initial specified value								
Shelf Life	After storing the capacitors under no load at $105^\circ\text{C}$ for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at $20^\circ\text{C}$ , they will meet the specified value for endurance characteristics listed above.									
	Leakage current									
Marking	Black print on the case top.									

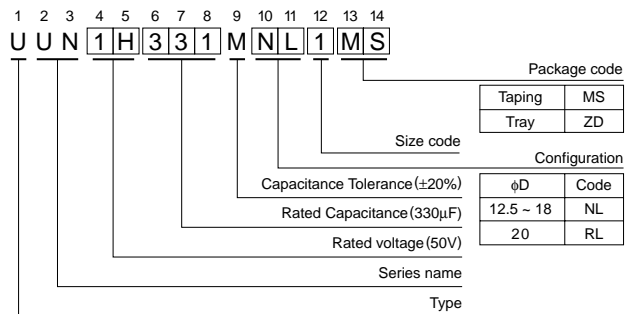
## Chip Type



$\phi D$	12.5	16	18	20
A	4.0	4.5	5.0	5.0
B	13.6	17.1	19.1	21.1
C	16.0	19.5	21.5	23.5
E	8.0	10.5	11.5	13.5
H	2.5	3.75	3.75	3.75

The lead terminal structure : The same bent lead type (refer to p.60) that is currently used on 10mm diameter and smaller parts, is also available upon request.  
In this case of the bent lead type, [C] will be put at the 11th digit of type numbering system. Please ask for details.

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



## Dimensions

Cap. ( $\mu\text{F}$ )	Code	V 6.3		10		16		25		35		50		63		100			
		Code	0J	1A	1C	1E	1V	1H	1J	2A									
22	220																12.5 x 13.5	100	
33	330																	12.5 x 16	150
47	470											12.5 x 13.5	130	12.5 x 13.5	140		16 x 16.5	180	
100	101									12.5 x 13.5	180	12.5 x 16	230	16 x 16.5	270		18 x 21.5	310	
220	221						12.5 x 13.5	270	16 x 16.5	330	18 x 16.5	400	18 x 21.5	440					
330	331				12.5 x 13.5	310	16 x 16.5	370	18 x 16.5	450	18 x 21.5	540	20 x 21.5	590					
470	471	12.5 x 13.5	270	12.5 x 13.5	340	16 x 16.5	420	16 x 16.5	490	18 x 21.5	590	20 x 21.5	640						
1000	102	12.5 x 16	500	16 x 16.5	600	18 x 16.5	670	18 x 21.5	780										
2200	222	18 x 16.5	740	18 x 21.5	830														
3300	332	18 x 21.5	920																

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

Rated Ripple (mArms) at  $105^\circ\text{C}$  120Hz

## Frequency coefficient of rated ripple current

Cap. ( $\mu\text{F}$ )	Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz~
~ 47		0.75	1.00	1.35	1.57	2.00
100 ~ 470		0.80	1.00	1.23	1.34	1.50
1000 ~ 3300		0.85	1.00	1.10	1.13	1.15

- Taping specifications are given in page 24.
- Recommended land size, soldering by reflow are given in page 25, 26.
- Please refer to page 3 for the minimum order quantity.