

# ALUMINUM ELECTROLYTIC CAPACITORS

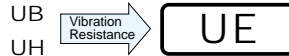


Chip Type, Vibration Resistance

series



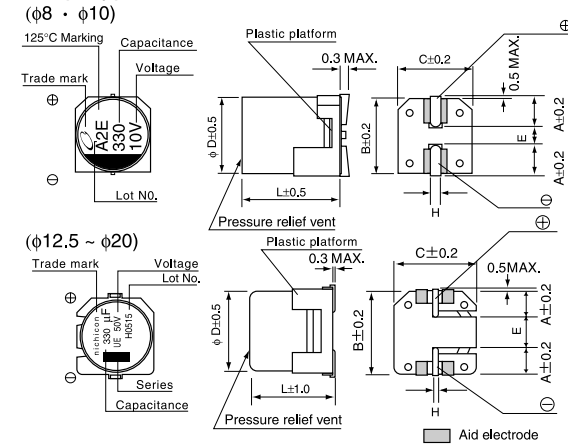
- Chip type with load life of 2000 ~ 5000 hours at 125°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Adapted to the RoHS directive (2002/95/EC).



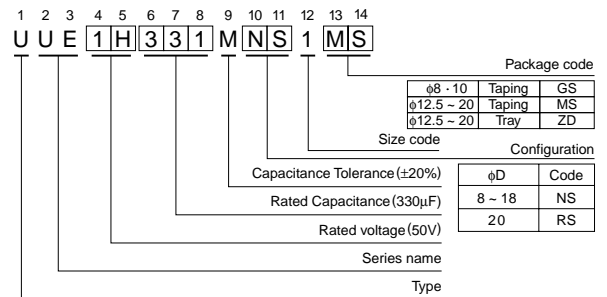
## Specifications

Item	Performance Characteristics							
Category Temperature Range	-55 ~ +125°C (φ12.5 ~ 20) -40 ~ +125°C (φ8, φ10)							
Rated Voltage Range	10 ~ 50V							
Rated Capacitance Range	33 ~ 4700μF							
Capacitance Tolerance	±20% at 120Hz, 20°C							
Leakage Current	After 1 minutes' application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.							
tan δ	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.							
	Rated voltage (V)		10	16	25	35	50	120Hz
	tan δ (MAX)	φ8 · φ10	0.26	0.20	0.16	0.14	0.14	20°C
φ12.5 ~ φ20		0.22	0.18	0.16	0.14	0.12		
Stability at Low Temperature	Rated voltage (V)		10	16	25	35	50	120Hz
	Impedance ratio Z-40°C / Z+20°C (MAX)	φ8 · φ10	10	8	6	4	4	
		φ12.5 ~ φ20	8	6	4	3	3	
Endurance	After 5000 hours' (φ8·φ10: 2000 hours) application of rated voltage at 125°C, capacitors meet the characteristic requirements listed at right.							
	Capacitance change		Within ±30% of initial value					
tan δ		300% or less of initial specified value						
Leakage current		Initial specified value or less						
Shelf Life	After storing the capacitors under no load at 125°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.							
Marking	Black print on the case top.							

## Chip Type



## Type numbering system (Example : 50V 330μF)



φD	8	10	12.5	16	18	20
A	2.9	3.2	4.8	5.4	6.4	6.2
B	8.3	10.3	13.6	17.1	19.1	21.1
C	8.3	10.3	13.6	17.1	19.1	21.1
E	3.1	4.5	4.0	6.3	6.3	8.8
H	1.1~1.5	1.1~1.5	1.0~1.4	1.0~1.4	1.0~1.4	1.3~1.7

## Dimensions

Cap. (μF)	Code	V 10		V 16		V 25		V 35		V 50	
		1A		1C		1E		1V		1H	
33	330									8×10	90
47	470									10×10	130
100	101			8×10	140	8×10	140	8×10	100	12.5×13.5	500
220	221	8×10	140	10×10	190	10×10	190	12.5×13.5	550	16×16.5	850
330	331	10×10	190	12.5×13.5	750	12.5×13.5	750	16×16.5	1000	16×16.5	850
470	471	12.5×13.5	750	12.5×13.5	750	16×16.5	1000	16×16.5	1000	18×16.5	950
680	681	12.5×16	900	16×16.5	1000	18×16.5	1200	18×16.5	1200		
						▲16×21.5	1200				
1000	102	12.5×16	900	18×16.5	1200	18×21.5	1550	20×21.5	1400		
2200	222	18×16.5	1200	18×16.5	1200						
		▲16×21.5	1200								
3300	332	18×16.5	1200								
4700	472	18×21.5	1550							Case size φD × L (mm)	Rated ripple

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

Rated Ripple (mArms) at 125°C 100kHz

## Frequency coefficient of rated ripple current

φD	Cap. (μF)	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz~
φ8 · φ10	33 ~ 330	0.47	0.67	0.78	0.91	1.00
φ12.5 ~ φ20	100 ~ 680	0.53	0.67	0.82	0.89	1.00
	1000 ~ 4700	0.74	0.87	0.96	0.98	1.00

- 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.