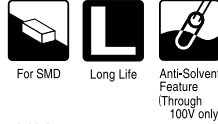


ALUMINUM ELECTROLYTIC CAPACITORS

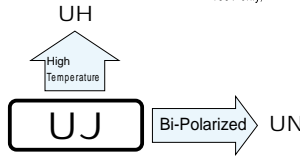


Chip Type, Higher Capacitance Range

series



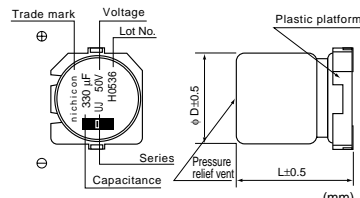
- Chip Type, higher capacitance in larger case sizes (φ12.5, φ16, φ18, φ20)
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape and tray.
- Adapted to the RoHS directive (2002/95/EC).



Specifications

Item	Performance Characteristics																
Category Temperature Range	-55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 450V)																
Rated Voltage Range	6.3 to 450V																
Rated Capacitance Range	3.3 to 6800μF																
Capacitance Tolerance	±20% at 120Hz, 20°C																
Leakage Current	Rated voltage (V)	6.3 to 100									160 to 450						
	—	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater. I = 0.04CV+100 (μA) max.(1 minute's)															
Tangent of loss angle (tan δ)	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160 to 250	400 · 450	120Hz					
	tan δ (MAX)	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.15	0.20	20°C					
Stability at Low Temperature	For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.																
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160 to 250	400 · 450	120Hz					
	Impedance ratio	Z-25°C / Z+20°C	5	4	3	2	2	2	2	2	3	6					
Endurance	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	10	8	6	4	3	3	3	3	6	10					
		The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 5000 hours at 105°C.															
Shelf Life	After storing the capacitors under no load at 105°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.																
	Black print on the case top.																
	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>tan δ</td> <td>200% or less of 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 ±20% of initial value	tan δ	200% or less of initial specified value	Leakage current
Capacitance change	Within ±20% of initial value																
tan δ	200% or less of initial specified value																
Leakage current	Less than or equal to the initial specified value																
Marking																	

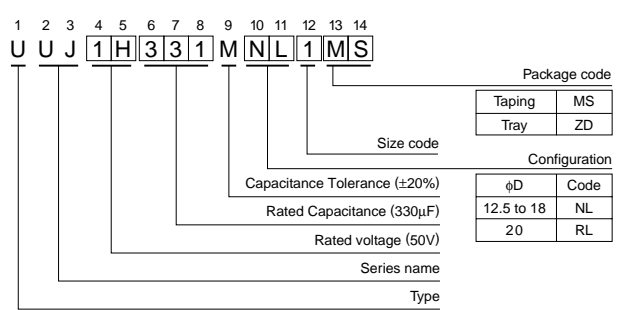
Chip Type



(mm)	φD	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.76) that is currently used on 10mm diameter and smaller parts, is also available upon request. In this case of the bent lead type, □ will be put at the 11th digit of type numbering system. Please ask for details.

Type numbering system (Example : 50V 330μF)



Dimensions

V (μF) Cap.	Code	6.3		10		16		25		35		50	
		0J		1A		1C		1E		1V		1H	
220	221									12.5 × 13.5	280	12.5 × 16	320
330	331							12.5 × 13.5	320	12.5 × 16	360	● 16 × 16.5	440
470	471							12.5 × 16	400	● 16 × 16.5	490	△ 18 × 16.5	550
1000	102	12.5 × 13.5	440	12.5 × 16	500	● 16 × 16.5	630	△ 18 × 16.5	700	△ 18 × 16.5	750	18 × 21.5	820
2200	222	● 16 × 16.5	750	● 16 × 16.5	810	△ 18 × 16.5	930	18 × 21.5	1050				
3300	332	△ 18 × 16.5	930	△ 18 × 16.5	1000	18 × 21.5	1150						
4700	472	★ 18 × 21.5	1100	18 × 21.5	1200								
6800	682	20 × 21.5	1350	20 × 21.5	1450								

V (μF) Cap.	Code	63		100		160		200		250		400		450	
		1J		2A		2C		2D		2E		2G		2W	
3.3	3R3													12.5 × 13.5	40
4.7	4R7									12.5 × 13.5	65	12.5 × 16	50	12.5 × 16	50
10	100							12.5 × 13.5	80	12.5 × 16	105	16 × 16.5	85	16 × 16.5	85
22	220							12.5 × 16	105	● 16 × 16.5	180	18 × 21.5	130	18 × 21.5	130
33	330					12.5 × 13.5	95	● 16 × 16.5	220	△ 18 × 16.5	230	20 × 21.5	160	20 × 21.5	160
47	470			12.5 × 13.5	160	● 16 × 16.5	260	△ 18 × 16.5	270	★ 18 × 21.5	280				
68	680	12.5 × 13.5	175	12.5 × 16	205	△ 18 × 16.5	320	★ 18 × 21.5	330	20 × 21.5	340				
100	101	12.5 × 16	225	● 16 × 16.5	285	★ 16 × 21.5	380	20 × 21.5	410						
220	221	● 16 × 16.5	385	△ 18 × 16.5	440										
330	331	△ 18 × 16.5	490	20 × 21.5	500										
470	471	18 × 21.5	590												

Size φ12.5 × 21 is available for capacitors marked "●". Size φ16 × 21.5L is available for capacitors marked "△". Size φ20 × 16.5L is available for capacitors marked "★".
 ※ In this case, □ will be put at 12th digit of type numbering system.

Rated Ripple (mArms) at 105°C 120Hz

Frequency coefficient of rated ripple current

V	Cap.(μF)	Frequency				
		50Hz	120Hz	300Hz	1kHz	10kHz or more
6.3 to 100	Less than 68	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 6800	0.85	1.00	1.10	1.13	1.15
160 to 450	3.3 to 100	0.80	1.00	1.25	1.40	1.60

- 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.