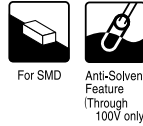
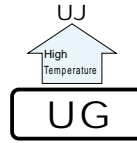


ALUMINUM ELECTROLYTIC CAPACITORS

UG series Chip Type, Higher Capacitance Range



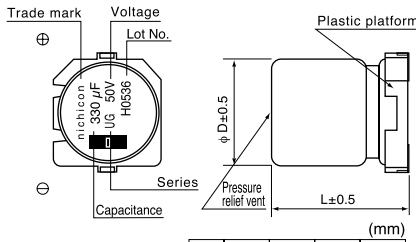
- Chip Type, higher capacitance in larger case sizes (φ12.5, φ16, φ18, φ20)
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape and tray.
- Adapted to the RoHS directive (2002/95/EC).



Specifications

Item	Performance Characteristics													
Category Temperature Range	-40 ~ +85°C													
Rated Voltage Range	6.3 ~ 450V													
Rated Capacitance Range	4.7 ~ 10000μF													
Capacitance Tolerance	±20% at 120Hz, 20°C													
Leakage Current	Rated voltage (V)			6.3 ~ 100						160 ~ 450				
	—			After 1 minutes' 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)	
tan δ	Rated voltage (V)			6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	120Hz 20°C
	tan δ (MAX)			0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.20	0.25	
For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.														
Stability at Low Temperature	Rated voltage (V)			6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	120Hz
	Impedance ratio Z _{-25°C} / Z _{+20°C}			5	4	3	2	2	2	2	2	3	6	
ZT / Z20 (MAX.)			Z _{-40°C} / Z _{+20°C}			12	10	8	5	4	3	3	6	10
Endurance	After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.													
	Capacitance change		Within ±20% of initial value											
tan δ		200% or less of initial specified value												
Leakage current		Initial specified value or less												
Shelf Life	After storing the capacitors under no load at 85°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.													

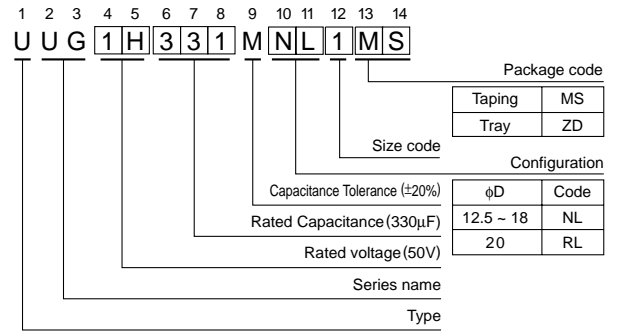
Chip Type



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.60) 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	450	
330	331												12.5 × 13.5	520	
470	471												● 16 × 16.5	740	
1000	102							12.5 × 13.5	550	12.5 × 13.5	580	● 16 × 16.5	1000	18 × 21.5	1150
2200	222	12.5 × 16	890	12.5 × 16	960	● 16 × 16.5	1150	△ 18 × 16.5	1350	18 × 21.5	1550				
3300	332	● 16 × 16.5	1200	16 × 16.5	1300	△ 18 × 16.5	1450	18 × 21.5	1700						
4700	472	16 × 16.5	1400	△ 18 × 16.5	1500	18 × 21.5	1750								
6800	682	△ 18 × 16.5	1650	18 × 21.5	1850										
10000	103	18 × 21.5	2000	20 × 21.5	2200										

V (μF) Cap.	Code	63		100		160		200		250		400		450	
		1J		2A		2C		2D		2E		2G		2W	
4.7	4R7									12.5 × 13.5	150	● 16 × 16.5	140	● 16 × 16.5	140
10	100									12.5 × 13.5	235	12.5 × 16	240	△ 18 × 16.5	280
22	220									12.5 × 16	310	● 16 × 16.5	340	18 × 21.5	350
33	330									● 16 × 16.5	415	△ 18 × 16.5	415	20 × 21.5	430
47	470									△ 18 × 16.5	415	★ 18 × 21.5	490		
68	680									12.5 × 16	370	● 16 × 16.5	500	△ 18 × 16.5	505
100	101	12.5 × 13.5	370	12.5 × 16	440	△ 18 × 16.5	590	18 × 21.5	590						
220	221	12.5 × 16	580	△ 18 × 16.5	665										
330	331	● 16 × 16.5	680	18 × 21.5	825										
470	471	△ 18 × 16.5	850												

Size φ12.5x21 is available for capacitors marked, "●". Size φ16x21.5L is available for capacitors marked, "△". Size φ20x16.5L is available for capacitors marks, "★".

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

Rated Ripple (mArms) at 85°C 120Hz

Frequency coefficient of rated ripple current

V	Cap.(μF)	Frequency				
		50Hz	120Hz	300Hz	1kHz	10kHz~
6.3 ~ 100	~ 68	0.75	1.00	1.35	1.57	2.00
	100 ~ 470	0.80	1.00	1.23	1.34	1.50
	1000 ~ 10000	0.85	1.00	1.10	1.13	1.15
160 ~ 450	4.7 ~ 100	0.80	1.00	1.25	1.40	1.60

- 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.