

ALUMINUM ELECTROLYTIC CAPACITORS

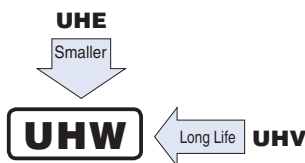
UHW

Miniature Sized, High Ripple Current, High Reliability



Expanded

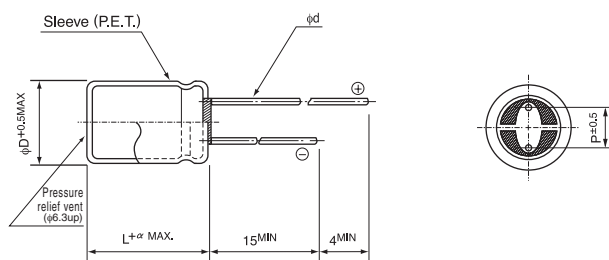
- Lower impedance at high frequency range.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics											
Category Temperature Range	-40 to +105°C											
Rated Voltage Range	6.3 to 100V											
Rated Capacitance Range	8.2 to 15000µF											
Capacitance Tolerance	±20% at 120Hz, 20°C											
Leakage Current	After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01CV (µA)											
Tangent of loss angle (tan δ)	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	120Hz 20°C	
	tan δ (MAX.)	0.21	0.18	0.15	0.13	0.11	0.10	0.09	0.09	0.08		
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	80	100	120Hz	
	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	2	2	2	2	2	2	2	2		2
		Z-40°C / Z+20°C	φD ≤ 6.3	5	5	4	4	4	4	3		3
		φ ≥ 8	3	3	3	3	3	3	3	3		
Endurance	The following specifications shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied at 105°C, the peak voltage shall not exceed the rated voltage.											
	Case size		φD ≤ 6.3	8×11.5	8×15, 8×20	φD ≥ 10						
	Rated voltage (V)	6.3V	6000 hours	8000 hours	9000 hours	10000 hours						
		10 to 50V	7000 hours	9000 hours	10000 hours	10000 hours						
		63 to 100V	8000 hours	10000 hours	11000 hours	12000 hours						
	Capacitance change	Within ±25% of the initial capacitance value (6.3V 10V : ±30%)										
tan δ	200% or less than the initial specified value											
Leakage current	Less than or equal to the initial specified value											
Marking	Printed with white color letter on black sleeve.											

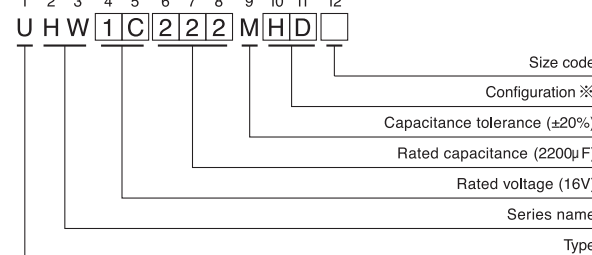
Radial Lead Type



α	(mm)									
	(L < 20)	1.5	φD	5	6.3	8	10	12.5	16	18
(L ≥ 20)	2.0	P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	
		φd	0.5	0.5	0.6	0.6	0.6*	0.8	0.8	

*In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm

Type numbering system (Example : 16V 2200µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 - 10	PD
12.5 to 18	HD

Frequency coefficient of rated ripple current

Cap. (µF)	Frequency	120Hz	1kHz	10kHz	10kHz or more
8.2 to 33		0.40	0.70	0.90	1.00
39 to 180		0.40	0.75	0.90	1.00
220 to 560		0.50	0.85	0.94	1.00
680 to 1800		0.60	0.87	0.95	1.00
2200 to 3900		0.75	0.90	0.95	1.00
4700 to 15000		0.85	0.95	0.98	1.00

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ALUMINUM ELECTROLYTIC CAPACITORS

UHW

■ Dimensions

Cap.(μF)	Code	V (Code)	Item	6.3 (0J)			10 (1A)				
				Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz
					20°C /100kHz	-10°C /100kHz			20°C /100kHz	-10°C /100kHz	
150	151						5 × 11	0.47	1.50	450	
220	221		5 × 11	0.47	1.50	450					
330	331						6.3 × 11	0.20	0.66	700	
470	471		6.3 × 11	0.20	0.66	700					
560	561						8 × 11.5	0.10	0.36	1200	
680	681										
820	821		8 × 11.5	0.10	0.36	1200	8 × 15	0.054	0.17	1600	
1000	102		8 × 15	0.054	0.17	1600	10 × 12.5	0.048	0.15	1700	
1200	122		10 × 12.5	0.048	0.15	1700	▲8 × 20	0.038	0.12	1960	
							10 × 16	0.030	0.090	2000	
1500	152		8 × 20	0.038	0.12	1960	10 × 16	0.030	0.090	2000	
1800	182		10 × 16	0.030	0.090	2000	10 × 20	0.020	0.060	2500	
2200	222		10 × 20	0.020	0.060	2500	10 × 25	0.017	0.051	2900	
2700	272		10 × 20	0.020	0.060	2500	12.5 × 20	0.017	0.051	2600	
3300	332		10 × 25	0.017	0.051	2900	12.5 × 20	0.017	0.051	2600	
3900	392		12.5 × 20	0.017	0.051	2600	12.5 × 25	0.015	0.045	3200	
4700	472		12.5 × 25	0.015	0.045	3200	12.5 × 31.5	0.012	0.036	3795	
							▲16 × 20	0.015	0.045	3575	
5600	562		12.5 × 31.5	0.012	0.036	3795	12.5 × 35.5	0.011	0.033	4120	
			▲12.5 × 25	0.015	0.045	3200	▲16 × 25	0.013	0.039	3810	
6800	682		12.5 × 31.5	0.011	0.033	3795	16 × 25	0.013	0.039	3810	
			▲16 × 20	0.015	0.045	3575					
8200	822		16 × 25	0.013	0.039	3810	16 × 31.5	0.011	0.033	4000	
10000	103		16 × 25	0.013	0.039	3810	16 × 31.5	0.011	0.033	4000	
12000	123		16 × 31.5	0.011	0.033	4000	16 × 35.5	0.010	0.030	4200	
15000	153		16 × 35.5	0.010	0.030	4200					

Cap.(μF)	Code	V (Code)	Item	16 (1C)			25 (1E)				
				Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz
					20°C /100kHz	-10°C /100kHz			20°C /100kHz	-10°C /100kHz	
68	680						5 × 11	0.47	1.50	450	
120	121		5 × 11	0.47	1.50	450					
150	151						6.3 × 11	0.20	0.66	700	
180	181						6.3 × 11	0.20	0.66	700	
270	271		6.3 × 11	0.20	0.66	700					
330	331						8 × 11.5	0.10	0.36	1200	
390	391						8 × 15	0.054	0.17	1600	
470	471		8 × 11.5	0.10	0.36	1200	10 × 12.5	0.048	0.15	1700	
560	561		8 × 15	0.054	0.17	1600	8 × 20	0.038	0.12	1960	
680	681		10 × 12.5	0.048	0.15	1700	10 × 16	0.030	0.090	2000	
820	821		▲8 × 20	0.038	0.12	1960	10 × 20	0.020	0.060	2500	
			10 × 16	0.030	0.090	2000	▲10 × 16	0.030	0.090	2000	
1000	102		▲8 × 20	0.038	0.12	1960	10 × 20	0.020	0.060	2500	
			10 × 16	0.030	0.090	2000					
1200	122		10 × 20	0.020	0.060	2500	10 × 25	0.017	0.051	2900	
			▲10 × 16	0.030	0.090	2000					
1500	152		10 × 20	0.020	0.060	2500	12.5 × 20	0.017	0.051	2600	
1800	182		10 × 25	0.017	0.051	2900	12.5 × 25	0.015	0.045	3200	
2200	222		12.5 × 20	0.017	0.051	2600	12.5 × 25	0.015	0.045	3200	
							▲16 × 20	0.015	0.045	3575	
2700	272		12.5 × 25	0.015	0.045	3200	12.5 × 31.5	0.012	0.036	3795	
							▲16 × 20	0.015	0.045	3575	
3300	332		12.5 × 25	0.015	0.045	3200	12.5 × 35.5	0.011	0.033	4120	
			▲16 × 20	0.015	0.045	3575	▲16 × 25	0.013	0.039	3810	
3900	392		12.5 × 31.5	0.012	0.036	3795	16 × 25	0.013	0.039	3810	
			▲16 × 20	0.015	0.045	3575					
4700	472		12.5 × 35.5	0.011	0.033	4120	16 × 31.5	0.011	0.033	4000	
			▲16 × 25	0.013	0.039	3810					
5600	562		16 × 25	0.013	0.039	3810	16 × 35.5	0.010	0.030	4200	
6800	682		16 × 31.5	0.011	0.033	4000					
8200	822		16 × 35.5	0.010	0.030	4200					

▲ : In this case, 6 will be put at 12th digit of type numbering system.

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ALUMINUM ELECTROLYTIC CAPACITORS

UHW

■ Dimensions

Cap.(μF)	Code	V (Code)	Item	35 (1V)			50 (1H)				
				Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz
					20°C /100kHz	-10°C /100kHz			20°C /100kHz	-10°C /100kHz	
27		270					5 × 11	0.47	1.50	450	
47		470	5 × 11	0.47	1.50	450					
56		560					6.3 × 11	0.20	0.66	700	
100		101	6.3 × 11	0.20	0.66	700	8 × 11.5	0.10	0.36	1200	
120		121					8 × 11.5	0.10	0.36	1200	
150		151					8 × 15	0.054	0.17	1600	
180		181	8 × 11.5	0.10	0.36	1200	10 × 12.5	0.048	0.15	1700	
220		221	8 × 15	0.054	0.17	1600	▲10 × 12.5	0.048	0.15	1700	
							10 × 16	0.042	0.126	1650	
270		271	8 × 15	0.054	0.17	1600	▲8 × 20	0.038	0.12	1960	
			▲10 × 12.5	0.048	0.15	1700	10 × 20	0.030	0.090	2060	
330		331	10 × 12.5	0.048	0.15	1700	10 × 20	0.030	0.090	2060	
390		391	▲8 × 20	0.038	0.12	1960	10 × 25	0.028	0.084	2420	
			10 × 16	0.030	0.090	2000	▲10 × 20	0.030	0.090	2060	
470		471	10 × 16	0.030	0.090	2000	10 × 25	0.028	0.084	2420	
							▲12.5 × 20	0.027	0.081	2300	
560		561	10 × 20	0.020	0.060	2500	12.5 × 20	0.027	0.081	2300	
680		681	10 × 25	0.017	0.051	2900	12.5 × 25	0.023	0.069	2800	
			▲10 × 20	0.020	0.060	2500					
820		821	10 × 25	0.017	0.051	2900	12.5 × 25	0.023	0.069	2800	
			▲12.5 × 20	0.017	0.051	2600	▲16 × 20	0.023	0.069	3070	
1000		102	12.5 × 20	0.017	0.051	2600	12.5 × 31.5	0.020	0.060	3500	
							▲16 × 25	0.021	0.063	3270	
1200		122	12.5 × 25	0.015	0.045	3200	16 × 25	0.021	0.063	3270	
1500		152	16 × 20	0.015	0.045	3575	12.5 × 35.5	0.019	0.057	3810	
							▲16 × 25	0.021	0.063	3270	
1800		182	12.5 × 31.5	0.012	0.036	3795	16 × 31.5	0.019	0.057	3430	
			▲16 × 25	0.013	0.039	3810					
2200		222	12.5 × 35.5	0.011	0.033	4120	16 × 31.5	0.019	0.057	3430	
			▲16 × 25	0.013	0.039	3810					
2700		272					16 × 35.5	0.018	0.054	3600	
3300		332	16 × 31.5	0.011	0.033	4000					
3900		392	16 × 35.5	0.010	0.030	4200					

▲: In this case, 6 will be put at 12th digit of type numbering system.

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ALUMINUM ELECTROLYTIC CAPACITORS

UHW

■Dimensions

V (Code)		63 (1J)				80 (1K)				
Cap.(μF)	Code	Item	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz
				20°C /100kHz	-10°C /100kHz			20°C /100kHz	-10°C /100kHz	
12	120						5 × 11	1.20	5.40	310
18	180		5 × 11	1.20	5.40	310				
27	270						6.3 × 11	0.46	2.10	500
39	390		6.3 × 11	0.46	2.10	500				
47	470		6.3 × 11	0.46	2.10	500	8 × 11.5	0.29	1.30	950
68	680		8 × 11.5	0.29	1.30	950	8 × 15	0.20	0.90	1230
82	820		8 × 11.5	0.29	1.30	950	10 × 12.5	0.17	0.66	1280
100	101		8 × 15	0.20	0.90	1230	8 × 20	0.16	0.66	1580
120	121		8 × 15	0.20	0.90	1230	10 × 16	0.115	0.47	1040
		▲10 × 12.5	0.17	0.66	1280					
150	151		8 × 20	0.16	0.66	1580				
		▲10 × 12.5	0.17	0.66	1280					
180	181		▲8 × 20	0.16	0.66	1580	10 × 20	0.088	0.34	1430
		10 × 16	0.115	0.47	1200	▲12.5 × 15	0.115	0.47	1430	
220	221					10 × 25	0.072	0.28	1620	
270	271		10 × 20	0.088	0.34	1570	10 × 31.5	0.063	0.18	1750
							▲12.5 × 20	0.065	0.18	1750
330	331		10 × 25	0.072	0.28	1990				
390	391		10 × 31.5	0.063	0.18	2050				
		▲12.5 × 20	0.065	0.18	1990	12.5 × 25	0.049	0.14	2210	
470	471						12.5 × 31.5	0.044	0.13	2400
							▲16 × 20	0.050	0.15	1950
560	561		12.5 × 25	0.049	0.14	2460	12.5 × 35.5	0.038	0.11	2600
							▲18 × 20	0.047	0.14	2270
680	681		12.5 × 31.5	0.044	0.13	2760	12.5 × 40	0.033	0.095	2860
		▲16 × 20	0.050	0.15	2380	▲16 × 25	0.040	0.12	2430	
820	821		12.5 × 35.5	0.038	0.11	3040	16 × 31.5	0.033	0.095	2640
		▲18 × 20	0.047	0.14	2460	▲18 × 25	0.038	0.11	2500	
1000	102		12.5 × 40	0.033	0.095	3100	16 × 35.5	0.030	0.086	2860
		▲16 × 25	0.040	0.12	2890					
1200	122		16 × 31.5	0.025	0.072	2930	16 × 40	0.028	0.081	3510
		▲18 × 25	0.038	0.11	2930	▲18 × 31.5	0.031	0.090	2860	
1500	152		16 × 35.5	0.023	0.066	3100	18 × 35.5	0.028	0.081	3510
		▲18 × 31.5	0.024	0.069	3100					
1800	182		16 × 40	0.021	0.060	3510	18 × 40	0.027	0.076	3860
		▲18 × 35.5	0.022	0.063	3510					
2200	222		18 × 40	0.020	0.057	3860				

V (Code)		100 (2A)				
Cap.(μF)	Code	Item	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C /100kHz
				20°C /100kHz	-10°C /100kHz	
8.2	8R2		5 × 11	1.20	5.40	310
18	180		6.3 × 11	0.46	2.10	500
33	330		8 × 11.5	0.29	1.30	950
47	470		8 × 15	0.20	0.90	1230
56	560		10 × 12.5	0.17	0.66	1280
68	680		8 × 20	0.16	0.66	1580
82	820		10 × 16	0.115	0.47	1040
100	101		10 × 20	0.088	0.34	1430
		▲12.5 × 15	0.115	0.47	1430	
120	121		10 × 25	0.072	0.28	1620
180	181		12.5 × 20	0.065	0.18	1750
220	221		12.5 × 25	0.049	0.14	2210
270	271		12.5 × 31.5	0.044	0.13	2400
		▲16 × 20	0.050	0.15	1950	
390	391		12.5 × 35.5	0.038	0.11	2600
		▲16 × 25	0.040	0.12	2430	
470	471		▲18 × 20	0.047	0.14	2270
		12.5 × 40	0.033	0.095	2860	
560	561		▲18 × 25	0.038	0.11	2500
		16 × 31.5	0.033	0.095	2640	
680	681		16 × 35.5	0.030	0.086	2860
		▲18 × 31.5	0.031	0.090	2860	
820	821		16 × 40	0.028	0.081	3510
		▲18 × 35.5	0.028	0.081	3510	
1000	102		18 × 40	0.027	0.076	3860

▲ : In this case, 6 will be put at 12th digit of type numbering system.
● : In this case, 3 will be put at 12th digit of type numbering system.

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