

UHW

Miniature Sized, High Ripple Current,
High Reliability



Smaller



Low Impedance



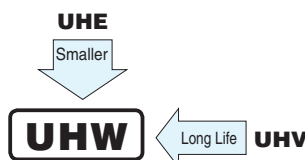
Long Life



Anti-Solvent Feature

Expanded

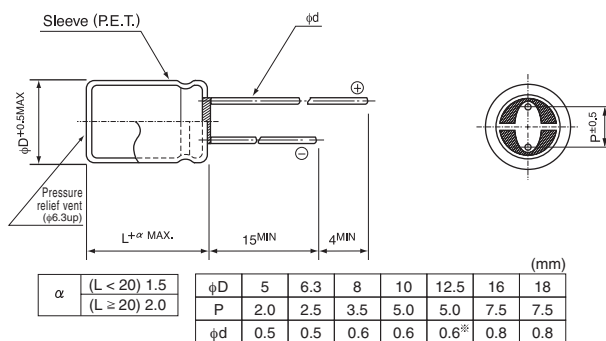
- Lower impedance at high frequency range.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU).



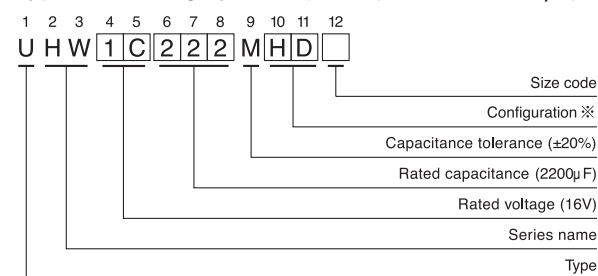
Specifications

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	
	tan δ (MAX.)		0.21	0.18	0.15	0.13	0.11	0.10	0.09	0.09	0.08	20°C	
	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		3
			φ ≥ 8	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



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

- Please refer to page 20 about the end seal configuration.

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

Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

- Dimension table in next page.

UHW

■ Dimensions

V (Code) Cap.(μF) 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					

V (Code) Cap.(μF) 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	3576	
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.

UHW

■ Dimensions

Cap.(μF) Code		V (Code) Item	35 (1V)				50 (1H)			
			Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105℃ /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105℃ /100kHz
				20℃ /100kHz	−10℃ /100kHz			20℃ /100kHz	−10℃ /100kHz	
27	270									
47	470	5 × 11	0.47	1.50	450	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.

UHW

■ Dimensions

Cap.(μF)	Code	Item	63 (1J)				80 (1K)			
			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 × 25	0.040	0.12	2890	16 × 35.5	0.030	0.086	2860
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 × 31.5	0.024	0.069	3100	18 × 35.5	0.028	0.081	3510
1800	182		16 × 40	0.021	0.060	3510				
			▲18 × 35.5	0.022	0.063	3510	18 × 40	0.027	0.076	3860
2200	222		18 × 40	0.020	0.057	3860				

Cap.(μF)	Code	Item	100 (2A)			
			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
			●18 × 20	0.047	0.14	2270
470	471		12.5 × 40	0.033	0.095	2860
			▲18 × 25	0.038	0.11	2500
560	561		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.