nichicon

UHW

Miniature Sized, High Ripple Current, High Reliability

Smaller | Low Impedance | Long Life | Anti-Solvent Feature

- Lower impedance at high frequency range.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

UHE (Smaller) → UHW → (Long Life) UHV

■Specifications

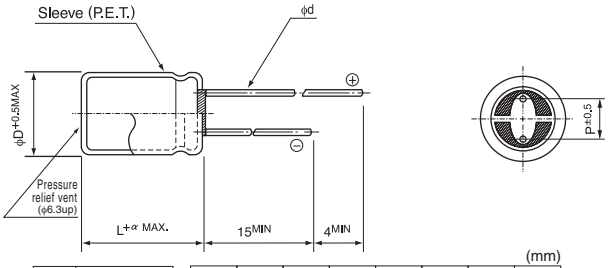
Item	Performance Characteristics										
Category Temperature Range	−40 to +105˚C										
Rated Voltage Range	6.3 to 100V										
Rated Capacitance Range	8.2 to 15000μF										
Capacitance Tolerance	±20% at 120Hz, 20˚C										
Leakage Current	After 2 minutes' application of rated voltage at 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 (MAX.) Z−25˚C / Z+20˚C	2	2	2	2	2	2	2	2	2	
	Impedance ratio (MAX.) Z−40˚C / Z+20˚C, φD ≦ 6.3	5	5	4	4	4	4	3	3	3	
	Impedance ratio (MAX.) Z−40˚C / Z+20˚C, 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



(mm)

α	
	(L < 20) 1.5
	(L ≧ 20) 2.0

φD	5	6.3	8	10	12.5	16	18
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

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

Type numbering system (Example : 16V 2200μF)

1	2	3	4	5	6	7	8	9	10	11	12
U	H	W	1	C	2	2	2	M	H	D	

- 12: Size code
- 10 11: Configuration ※
- 9: Capacitance tolerance (±20%)
- 6 7 8: Rated capacitance (2200μF)
- 4 5: Rated voltage (16V)
- 3: Series name
- 1 2: Type

※ 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

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

Cap.(μF) \ V (Code) / Item / Code		6.3 (0J)				10 (1A)			
		Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /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	0.012	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) \ V (Code) / Item / Code		16 (1C)				25 (1E)			
		Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /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.

UHW

■Dimensions

Cap.(μF)	Code (V (Code) / Item)	35 (1V) Case size φD × L (mm)	35 (1V) Impedance (Ω) MAX. 20℃ /100kHz	35 (1V) Impedance (Ω) MAX. −10℃ /100kHz	35 (1V) Rated ripple (mArms) 105℃ /100kHz	50 (1H) Case size φD × L (mm)	50 (1H) Impedance (Ω) MAX. 20℃ /100kHz	50 (1H) Impedance (Ω) MAX. −10℃ /100kHz	50 (1H) Rated ripple (mArms) 105℃ /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.

UHW

■Dimensions

Cap.(μF) \ V (Code) / Item / Code		63 (1J)				80 (1K)			
		Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /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 × 25	0.049	0.14	2210
		▲12.5 × 20	0.065	0.18	1990				
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				

Cap.(μF) \ V (Code) / Item / Code		100 (2A)			
		Case size φD × L (mm)	Impedance (Ω) MAX. 20℃ /100kHz	Impedance (Ω) MAX. −10℃ /100kHz	Rated ripple (mArms) 105℃ /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.