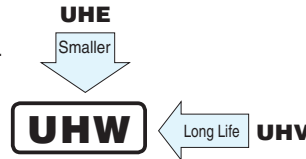


UHW

Miniature Sized, High Ripple Current, High Reliability



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

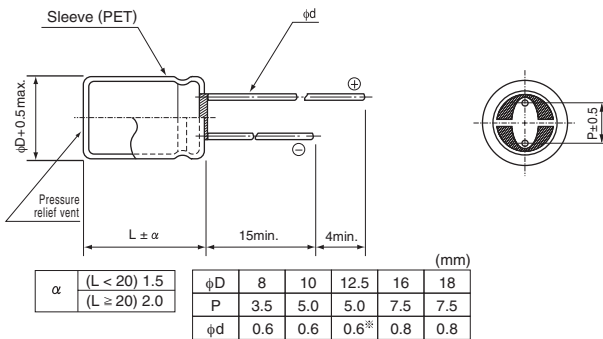


Specifications

Item	Performance Characteristics										
Category Temperature Range	-40 to +105°C										
Rated Voltage Range	6.3 to 100V										
Rated Capacitance Range	33 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	
		Z(-40°C) / Z(+20°C)	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	8×11.5		8×15, 8×20		φD ≥ 10					
	Rated voltage (V)	6.3V	8000 hours		9000 hours		10000 hours				
		10 to 50V	9000 hours		10000 hours		10000 hours				
		63 to 100V	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

※ I : Leakage Current (µA), C : Rated Capacitance (µF), V : Rated Voltage (V)



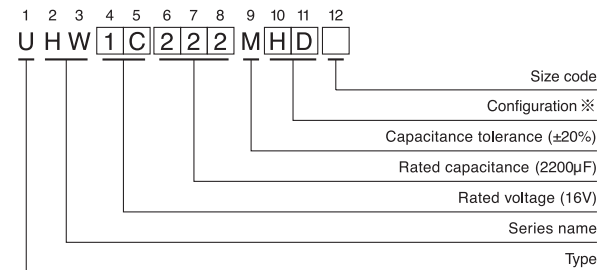
※In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm

- Please refer to the Guidelines for Aluminum Electrolytic Capacitors for end seal configuration information.

Frequency coefficient of rated ripple current

Cap. (µF)	Frequency	120Hz	1kHz	10kHz	100kHz or more
33		0.40	0.70	0.90	1.00
47 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

Type numbering system (Example : 16V 2200µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
8 - 10	PD
12.5 to 18	HD

• Dimension table in next page.

UHW

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mA _{rms}) (105°C/100kHz)	Part Number
					20°C/100kHz	-10°C/100kHz		
6.3 (0J)	820	8×11.5	0.21	51.66	0.10	0.36	1200	UHW0J821MPD
	1000	8×15	0.21	63	0.054	0.17	1600	UHW0J102MPD
	1200	10×12.5	0.21	75.6	0.048	0.15	1700	UHW0J122MPD
	1500	8×20	0.21	94.5	0.038	0.12	1960	UHW0J152MPD
	1800	10×16	0.21	113.4	0.030	0.090	2000	UHW0J182MPD
	2200	10×20	0.23	138.6	0.020	0.060	2500	UHW0J222MPD
	2700	10×20	0.23	170.1	0.020	0.060	2500	UHW0J272MPD
	3300	10×25	0.25	207.9	0.017	0.051	2900	UHW0J332MPD
	3900	12.5×20	0.25	245.7	0.017	0.051	2600	UHW0J392MHD
	4700	12.5×25	0.27	296.1	0.015	0.045	3200	UHW0J472MHD
	5600	12.5×30.5	0.29	352.8	0.012	0.036	3795	UHW0J562MHD
	5600	12.5×25	0.29	352.8	0.015	0.045	3200	UHW0J562MHD6
	6800	12.5×30.5	0.31	428.4	0.012	0.033	3795	UHW0J682MHD
	6800	16×20	0.31	428.4	0.015	0.045	3575	UHW0J682MHD6
	8200	16×25	0.35	516.6	0.013	0.039	3810	UHW0J822MHD
	10000	16×25	0.39	630	0.013	0.039	3810	UHW0J103MHD
12000	16×30.5	0.43	756	0.011	0.033	4000	UHW0J123MHD	
15000	16×35.5	0.49	945	0.010	0.030	4200	UHW0J153MHD	
10 (1A)	560	8×11.5	0.18	56	0.10	0.36	1200	UHW1A561MPD
	820	8×15	0.18	82	0.054	0.17	1600	UHW1A821MPD
	1000	10×12.5	0.18	100	0.048	0.15	1700	UHW1A102MPD
	1200	8×20	0.18	120	0.038	0.12	1960	UHW1A122MPD6
	1200	10×16	0.18	120	0.030	0.090	2000	UHW1A122MPD
	1500	10×16	0.18	150	0.030	0.090	2000	UHW1A152MPD
	1800	10×20	0.18	180	0.020	0.060	2500	UHW1A182MPD
	2200	10×25	0.20	220	0.017	0.051	2900	UHW1A222MPD
	2700	12.5×20	0.20	270	0.017	0.051	2600	UHW1A272MHD
	3300	12.5×20	0.22	330	0.017	0.051	2600	UHW1A332MHD
	3900	12.5×25	0.22	390	0.015	0.045	3200	UHW1A392MHD
	4700	12.5×30.5	0.24	470	0.012	0.036	3795	UHW1A472MHD
	4700	16×20	0.24	470	0.015	0.045	3575	UHW1A472MHD6
	5600	12.5×35.5	0.26	560	0.011	0.033	4120	UHW1A562MHD
	5600	16×25	0.26	560	0.013	0.039	3810	UHW1A562MHD6
	6800	16×25	0.28	680	0.013	0.039	3810	UHW1A682MHD
8200	16×30.5	0.32	820	0.011	0.033	4000	UHW1A822MHD	
10000	16×30.5	0.36	1000	0.011	0.033	4000	UHW1A103MHD	
12000	16×35.5	0.40	1200	0.010	0.030	4200	UHW1A123MHD	
16 (1C)	470	8×11.5	0.15	75.2	0.10	0.36	1200	UHW1C471MPD
	560	8×15	0.15	89.6	0.054	0.17	1600	UHW1C561MPD
	680	10×12.5	0.15	108.8	0.048	0.15	1700	UHW1C681MPD
	820	8×20	0.15	131.2	0.038	0.12	1960	UHW1C821MPD6
	820	10×16	0.15	131.2	0.030	0.090	2000	UHW1C821MPD
	1000	8×20	0.15	160	0.038	0.12	1960	UHW1C102MPD6
	1000	10×16	0.15	160	0.030	0.090	2000	UHW1C102MPD
	1200	10×20	0.15	192	0.020	0.060	2500	UHW1C122MPD

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).
 If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UHW

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/100kHz	-10°C/100kHz		
16 (1C)	1200	10×16	0.15	192	0.030	0.090	2000	UHW1C122MPD6
	1500	10×20	0.15	240	0.020	0.060	2500	UHW1C152MPD
	1800	10×25	0.15	288	0.017	0.051	2900	UHW1C182MPD
	2200	12.5×20	0.17	352	0.017	0.051	2600	UHW1C222MHD
	2700	12.5×25	0.17	432	0.015	0.045	3200	UHW1C272MHD
	3300	12.5×25	0.19	528	0.015	0.045	3200	UHW1C332MHD
	3300	16×20	0.19	528	0.015	0.045	3575	UHW1C332MHD6
	3900	12.5×30.5	0.19	624	0.012	0.036	3795	UHW1C392MHD
	3900	16×20	0.19	624	0.015	0.045	3575	UHW1C392MHD6
	4700	12.5×35.5	0.21	752	0.011	0.033	4120	UHW1C472MHD
	4700	16×25	0.21	752	0.013	0.039	3810	UHW1C472MHD6
	5600	16×25	0.23	896	0.013	0.039	3810	UHW1C562MHD
	6800	16×30.5	0.25	1088	0.011	0.033	4000	UHW1C682MHD
	8200	16×35.5	0.29	1312	0.010	0.030	4200	UHW1C822MHD
25 (1E)	330	8×11.5	0.13	82.5	0.10	0.36	1200	UHW1E331MPD
	390	8×15	0.13	97.5	0.054	0.17	1600	UHW1E391MPD
	470	10×12.5	0.13	117.5	0.048	0.15	1700	UHW1E471MPD
	560	8×20	0.13	140	0.038	0.12	1960	UHW1E561MPD
	680	10×16	0.13	170	0.030	0.090	2000	UHW1E681MPD
	820	10×20	0.13	205	0.020	0.060	2500	UHW1E821MPD
	820	10×16	0.13	205	0.030	0.090	2000	UHW1E821MPD6
	1000	10×20	0.13	250	0.020	0.060	2500	UHW1E102MPD
	1200	10×25	0.13	300	0.017	0.051	2900	UHW1E122MPD
	1500	12.5×20	0.13	375	0.017	0.051	2600	UHW1E152MHD
	1800	12.5×25	0.13	450	0.015	0.045	3200	UHW1E182MHD
	2200	12.5×25	0.15	550	0.015	0.045	3200	UHW1E222MHD
	2200	16×20	0.15	550	0.015	0.045	3575	UHW1E222MHD6
	2700	12.5×30.5	0.15	675	0.012	0.036	3795	UHW1E272MHD
	2700	16×20	0.15	675	0.015	0.045	3575	UHW1E272MHD6
	3300	12.5×35.5	0.17	825	0.011	0.033	4120	UHW1E332MHD
	3300	16×25	0.17	825	0.013	0.039	3810	UHW1E332MHD6
	3900	16×25	0.17	975	0.013	0.039	3810	UHW1E392MHD
4700	16×30.5	0.19	1175	0.011	0.033	4000	UHW1E472MHD	
5600	16×35.5	0.21	1400	0.010	0.030	4200	UHW1E562MHD	
35 (1V)	180	8×11.5	0.11	63	0.10	0.36	1200	UHW1V181MPD
	220	8×15	0.11	77	0.054	0.17	1600	UHW1V221MPD
	270	8×15	0.11	94.5	0.054	0.17	1600	UHW1V271MPD
	270	10×12.5	0.11	94.5	0.048	0.15	1700	UHW1V271MPD6
	330	10×12.5	0.11	115.5	0.048	0.15	1700	UHW1V331MPD
	390	8×20	0.11	136.5	0.038	0.12	1960	UHW1V391MPD6
	390	10×16	0.11	136.5	0.030	0.090	2000	UHW1V391MPD
	470	10×16	0.11	164.5	0.030	0.090	2000	UHW1V471MPD
	560	10×20	0.11	196	0.020	0.060	2500	UHW1V561MPD
	680	10×25	0.11	238	0.017	0.051	2900	UHW1V681MPD
	680	10×20	0.11	238	0.020	0.060	2500	UHW1V681MPD6

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).
 If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UHW

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
35 (1V)	820	10 \times 25	0.11	287	0.017	0.051	2900	UHW1V821MPD
	820	12.5 \times 20	0.11	287	0.017	0.051	2600	UHW1V821MHD6
	1000	12.5 \times 20	0.11	350	0.017	0.051	2600	UHW1V102MHD
	1200	12.5 \times 25	0.11	420	0.015	0.045	3200	UHW1V122MHD
	1500	16 \times 20	0.11	525	0.015	0.045	3575	UHW1V152MHD
	1800	12.5 \times 30.5	0.11	630	0.012	0.036	3795	UHW1V182MHD
	1800	16 \times 25	0.11	630	0.013	0.039	3810	UHW1V182MHD6
	2200	12.5 \times 35.5	0.13	770	0.011	0.033	4120	UHW1V222MHD
	2200	16 \times 25	0.13	770	0.013	0.039	3810	UHW1V222MHD6
	3300	16 \times 30.5	0.15	1155	0.011	0.033	4000	UHW1V332MHD
	3900	16 \times 35.5	0.15	1365	0.010	0.030	4200	UHW1V392MHD
50 (1H)	100	8 \times 11.5	0.10	50	0.10	0.36	1200	UHW1H101MPD
	120	8 \times 11.5	0.10	60	0.10	0.36	1200	UHW1H121MPD
	150	8 \times 15	0.10	75	0.054	0.17	1600	UHW1H151MPD
	180	10 \times 12.5	0.10	90	0.048	0.15	1700	UHW1H181MPD
	220	10 \times 12.5	0.10	110	0.048	0.15	1700	UHW1H221MPD6
	220	10 \times 16	0.10	110	0.042	0.126	1650	UHW1H221MPD
	270	8 \times 20	0.10	135	0.038	0.12	1960	UHW1H271MPD6
	270	10 \times 20	0.10	135	0.030	0.090	2060	UHW1H271MPD
	330	10 \times 20	0.10	165	0.030	0.090	2060	UHW1H331MPD
	390	10 \times 25	0.10	195	0.028	0.084	2420	UHW1H391MPD
	390	10 \times 20	0.10	195	0.030	0.090	2060	UHW1H391MPD6
	470	10 \times 25	0.10	235	0.028	0.084	2420	UHW1H471MPD
	470	12.5 \times 20	0.10	235	0.027	0.081	2300	UHW1H471MHD6
	560	12.5 \times 20	0.10	280	0.027	0.081	2300	UHW1H561MHD
	680	12.5 \times 25	0.10	340	0.023	0.069	2800	UHW1H681MHD
	820	12.5 \times 25	0.10	410	0.023	0.069	2800	UHW1H821MHD
	820	16 \times 20	0.10	410	0.023	0.069	3070	UHW1H821MHD6
	1000	12.5 \times 30.5	0.10	500	0.020	0.060	3500	UHW1H102MHD
	1000	16 \times 25	0.10	500	0.021	0.063	3270	UHW1H102MHD6
	1200	16 \times 25	0.10	600	0.021	0.063	3270	UHW1H122MHD
	1500	12.5 \times 35.5	0.10	750	0.019	0.057	3810	UHW1H152MHD
1500	16 \times 25	0.10	750	0.021	0.063	3270	UHW1H152MHD6	
1800	16 \times 30.5	0.10	900	0.019	0.057	3430	UHW1H182MHD	
2200	16 \times 30.5	0.12	1100	0.019	0.057	3430	UHW1H222MHD	
2700	16 \times 35.5	0.12	1350	0.018	0.054	3600	UHW1H272MHD	
63 (1J)	68	8 \times 11.5	0.09	42.84	0.29	1.30	950	UHW1J680MPD
	82	8 \times 11.5	0.09	51.66	0.29	1.30	950	UHW1J820MPD
	100	8 \times 15	0.09	63	0.20	0.90	1230	UHW1J101MPD
	120	8 \times 15	0.09	75.6	0.20	0.90	1230	UHW1J121MPD
	120	10 \times 12.5	0.09	75.6	0.17	0.66	1280	UHW1J121MPD6
	150	8 \times 20	0.09	94.5	0.16	0.66	1580	UHW1J151MPD
	150	10 \times 12.5	0.09	94.5	0.17	0.66	1280	UHW1J151MPD6
	180	8 \times 20	0.09	113.4	0.16	0.66	1580	UHW1J181MPD6
180	10 \times 16	0.09	113.4	0.115	0.47	1200	UHW1J181MPD	

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).

If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UHW

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mA rms) (105°C/100kHz)	Part Number
					20°C/100kHz	-10°C/100kHz		
63 (1J)	270	10×20	0.09	170.1	0.088	0.34	1570	UHW1J271MPD
	330	10×25	0.09	207.9	0.072	0.28	1990	UHW1J331MPD
	390	10×30.5	0.09	245.7	0.063	0.18	2050	UHW1J391MPD
	390	12.5×20	0.09	245.7	0.065	0.18	1990	UHW1J391MHD6
	560	12.5×25	0.09	352.8	0.049	0.14	2460	UHW1J561MHD
	680	12.5×30.5	0.09	428.4	0.044	0.13	2760	UHW1J681MHD
	680	16×20	0.09	428.4	0.050	0.15	2380	UHW1J681MHD6
	820	12.5×35.5	0.09	516.6	0.038	0.11	3040	UHW1J821MHD
	820	18×20	0.09	516.6	0.047	0.14	2460	UHW1J821MHD6
	1000	12.5×40	0.09	630	0.033	0.095	3100	UHW1J102MHD
	1000	16×25	0.09	630	0.040	0.12	2890	UHW1J102MHD6
	1200	16×30.5	0.09	756	0.025	0.072	2930	UHW1J122MHD
	1200	18×25	0.09	756	0.038	0.11	2930	UHW1J122MHD6
	1500	16×35.5	0.09	945	0.023	0.066	3100	UHW1J152MHD
	1500	18×30.5	0.09	945	0.024	0.069	3100	UHW1J152MHD6
	1800	16×40	0.09	1134	0.021	0.060	3510	UHW1J182MHD
	1800	18×35.5	0.09	1134	0.022	0.063	3510	UHW1J182MHD6
	2200	18×40	0.11	1386	0.020	0.057	3860	UHW1J222MHD
80 (1K)	47	8×11.5	0.09	37.6	0.29	1.30	950	UHW1K470MPD
	68	8×15	0.09	54.4	0.20	0.90	1230	UHW1K680MPD
	82	10×12.5	0.09	65.6	0.17	0.66	1280	UHW1K820MPD
	100	8×20	0.09	80	0.16	0.66	1580	UHW1K101MPD
	120	10×16	0.09	96	0.115	0.47	1040	UHW1K121MPD
	180	10×20	0.09	144	0.088	0.34	1430	UHW1K181MPD
	180	12.5×15	0.09	144	0.115	0.47	1430	UHW1K181MHD6
	220	10×25	0.09	176	0.072	0.28	1620	UHW1K221MPD
	270	10×30.5	0.09	216	0.063	0.18	1750	UHW1K271MPD
	270	12.5×20	0.09	216	0.065	0.18	1750	UHW1K271MHD6
	390	12.5×25	0.09	312	0.049	0.14	2210	UHW1K391MHD
	470	12.5×30.5	0.09	376	0.044	0.13	2400	UHW1K471MHD
	470	16×20	0.09	376	0.050	0.15	1950	UHW1K471MHD6
	560	12.5×35.5	0.09	448	0.038	0.11	2600	UHW1K561MHD
	560	18×20	0.09	448	0.047	0.14	2270	UHW1K561MHD6
	680	12.5×40	0.09	544	0.033	0.095	2860	UHW1K681MHD
	680	16×25	0.09	544	0.040	0.12	2430	UHW1K681MHD6
	820	16×30.5	0.09	656	0.033	0.095	2640	UHW1K821MHD
	820	18×25	0.09	656	0.038	0.11	2500	UHW1K821MHD6
	1000	16×35.5	0.09	800	0.030	0.086	2860	UHW1K102MHD
	1200	16×40	0.09	960	0.028	0.081	3510	UHW1K122MHD
	1200	18×30.5	0.09	960	0.031	0.090	2860	UHW1K122MHD6
	1500	18×35.5	0.09	1200	0.028	0.081	3510	UHW1K152MHD
	1800	18×40	0.09	1440	0.027	0.076	3860	UHW1K182MHD

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UHW

■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
100 (2A)	33	8 \times 11.5	0.08	33	0.29	1.30	950	UHW2A330MPD
	47	8 \times 15	0.08	47	0.20	0.90	1230	UHW2A470MPD
	56	10 \times 12.5	0.08	56	0.17	0.66	1280	UHW2A560MPD
	68	8 \times 20	0.08	68	0.16	0.66	1580	UHW2A680MPD
	82	10 \times 16	0.08	82	0.115	0.47	1040	UHW2A820MPD
	100	10 \times 20	0.08	100	0.088	0.34	1430	UHW2A101MPD
	100	12.5 \times 15	0.08	100	0.115	0.47	1430	UHW2A101MHD6
	120	10 \times 25	0.08	120	0.072	0.28	1620	UHW2A121MPD
	180	12.5 \times 20	0.08	180	0.065	0.18	1750	UHW2A181MHD
	220	12.5 \times 25	0.08	220	0.049	0.14	2210	UHW2A221MHD
	270	12.5 \times 30.5	0.08	270	0.044	0.13	2400	UHW2A271MHD
	270	16 \times 20	0.08	270	0.050	0.15	1950	UHW2A271MHD6
	390	12.5 \times 35.5	0.08	390	0.038	0.11	2600	UHW2A391MHD
	390	16 \times 25	0.08	390	0.040	0.12	2430	UHW2A391MHD6
	390	18 \times 20	0.08	390	0.047	0.14	2270	UHW2A391MHD3
	470	12.5 \times 40	0.08	470	0.033	0.095	2860	UHW2A471MHD
	470	18 \times 25	0.08	470	0.038	0.11	2500	UHW2A471MHD6
	560	16 \times 30.5	0.08	560	0.033	0.095	2640	UHW2A561MHD
	680	16 \times 35.5	0.08	680	0.030	0.086	2860	UHW2A681MHD
	680	18 \times 30.5	0.08	680	0.031	0.090	2860	UHW2A681MHD6
820	16 \times 40	0.08	820	0.028	0.081	3510	UHW2A821MHD	
820	18 \times 35.5	0.08	820	0.028	0.081	3510	UHW2A821MHD6	
1000	18 \times 40	0.08	1000	0.027	0.076	3860	UHW2A102MHD	

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- For formed lead or taped product specifications and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.