

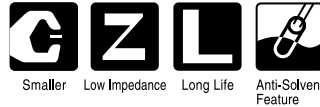
ALUMINUM ELECTROLYTIC CAPACITORS

HW

Miniature Sized, High Ripple Current, High Reliability
series

NEW

- Lower impedance at high frequency range.
- smaller case size and high ripple current.
- Compliant to the RoHS directive(2002/95/EC).



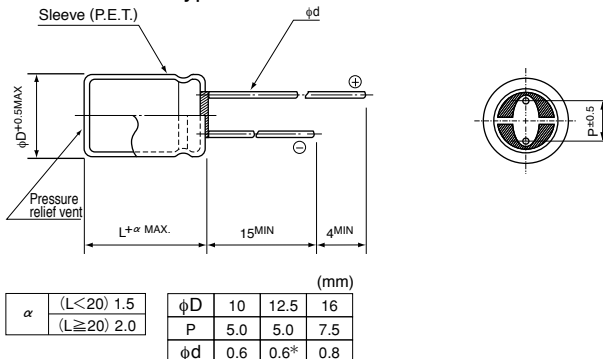
HW Long Life **HV**



Specifications

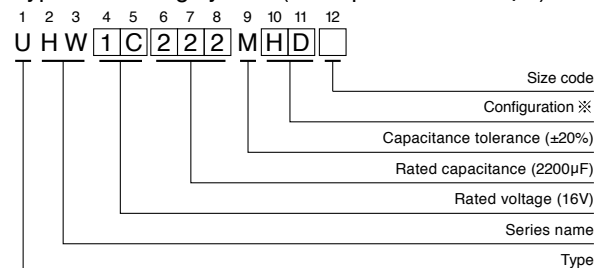
Item	Performance Characteristics								
Category Temperature Range	− 40 to +105°C								
Rated Voltage Range	6.3 to 50V								
Rated Capacitance Range	220 to 15000μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minute's application of rated voltage, current is more than $I = 0.01CV$								
Tangent of loss angle (tan δ)	Rated voltage (V)	6.3	10	16	25	35	50	Measurement frequency : 120Hz, Temperature : 20°C	
	tan δ (MAX.)	0.21	0.18	0.15	0.13	0.11	0.10		
Stability at Low Temperature	Rated voltage (V)		6.3	10	16	25	35	50	Measurement frequency : 120Hz
	Impedance ratio	Z−25°C / Z+20°C	2	2	2	2	2	2	
	ZT / Z20 (MAX.)	Z−40°C / Z+20°C	3	3	3	3	3	3	
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 10000 hours at 105°C, the peak voltage shall not exceed the rated voltage.				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



* : In case L > 25 for the $\phi 12.5$ dia. Unit, lead dia. $\phi d = 0.8 \text{ mm}$.

Type numbering system (Example : 16V 2200µF)



※ Configuration

ϕD	Pb-free lead finishing Pb-free PET sleeve
10	PD
12.5 to 16	HD

Frequency coefficient of rated ripple current

Cap.(µF)	Frequency	120Hz	1kHz	10kHz	100kHz or more
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

HW series

■ Dimensions

(μF) Cap.	Code	Item	6.3 (0J)				10 (1A)			
			Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz
				20°C / 100kHz	-10°C / 100kHz			20°C / 100kHz	-10°C / 100kHz	
1200	122						10 × 16	0.030	0.090	2000
1500	152						10 × 16	0.030	0.090	2000
1800	182		10 × 16	0.030	0.090	2000	10 × 20	0.019	0.057	2500
2200	222		10 × 20	0.019	0.057	2500	10 × 25	0.017	0.051	2900
2700	272		10 × 20	0.019	0.057	2500	12.5 × 20	0.016	0.048	2600
3300	332		10 × 25	0.017	0.051	2900	12.5 × 20	0.016	0.048	2600
3900	392		12.5 × 20	0.016	0.048	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	0.014	0.042	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	0.014	0.042	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				

(μF) Cap.	Code	Item	16 (1C)				25 (1E)			
			Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz
				20°C / 100kHz	-10°C / 100kHz			20°C / 100kHz	-10°C / 100kHz	
680	681						10 × 16	0.030	0.090	2000
820	821		10 × 16	0.030	0.090	2000	10 × 20	0.019	0.057	2500
1000	102		10 × 16	0.030	0.090	2000	▲10 × 16	0.030	0.090	2000
							10 × 20	0.019	0.057	2500
1200	122		10 × 20	0.019	0.057	2500	10 × 25	0.017	0.051	2900
			▲10 × 16	0.030	0.090	2000				
1500	152		10 × 20	0.019	0.057	2500	12.5 × 20	0.016	0.048	2600
1800	182		10 × 25	0.017	0.051	2900	12.5 × 25	0.015	0.045	3200
2200	222		12.5 × 20	0.016	0.048	2600	12.5 × 25	0.015	0.045	3200
							▲16 × 20	0.014	0.042	3575
2700	272		12.5 × 25	0.015	0.045	3200	12.5 × 31.5	0.012	0.036	3795
							▲16 × 20	0.014	0.042	3576
3300	332		12.5 × 25	0.015	0.045	3200	12.5 × 35.5	0.011	0.033	4120
			▲16 × 20	0.014	0.042	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	0.014	0.042	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

HW series

■ Dimensions

(μF) Cap.	Code	Item	V							
			35 (1V)				50 (1H)			
			Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz	Case size φ D × L (mm)	Impedance (Ω) MAX.		Rated ripple (mArms) 105°C / 100kHz
				20°C / 100kHz	-10°C / 100kHz			20°C / 100kHz	-10°C / 100kHz	
220	221						10 × 16	0.042	0.126	1650
270	271						10 × 20	0.030	0.090	2060
330	331						10 × 20	0.030	0.090	2060
390	391	10 × 16		0.030	0.090	2000	10 × 25	0.028	0.084	2420
							▲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		0.019	0.057	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		0.019	0.057	2500				
820	821	10 × 25		0.017	0.051	2900	12.5 × 25	0.023	0.069	2800
		▲12.5 × 20		0.016	0.048	2600	▲16 × 20	0.023	0.069	3070
1000	102	12.5 × 20		0.016	0.048	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		0.014	0.042	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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NICHICON CORPORATION