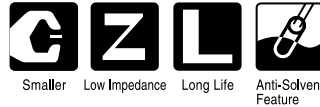


ALUMINUM ELECTROLYTIC CAPACITORS

HW series Miniature Sized, High Ripple Current, High Reliability

NEW

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



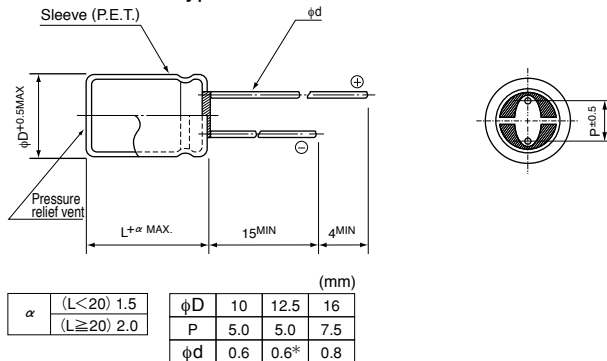
HW Long Life **HV**



Specifications

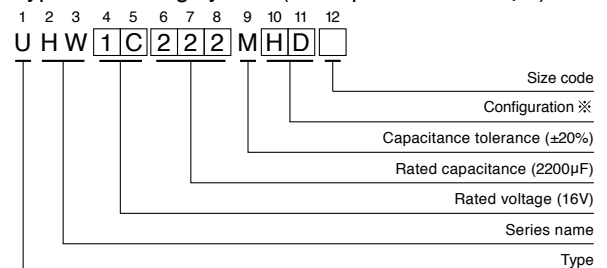
Item	Performance Characteristics								
Category Temperature Range	-40 to +105°C								
Rated Voltage Range	6.3 to 50V								
Rated Capacitance Range	220 to 15000µF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minute's application of rated voltage, current is more 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 ZT / Z20 (MAX.)	Z-25°C / Z+20°C	2	2	2	2	2		2
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
Marking								Leakage current	Less than or equal to the initial specified value
	Printed with white color letter on black sleeve.								

Radial Lead Type



* : 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 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

Design, Specifications are subject to change without notice.

ALUMINUM ELECTROLYTIC CAPACITORS

HW series

■ Dimensions

(μF) Cap.	Code	Item	V	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	V	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	
							▲10 × 16	0.030	0.090	2000	
1000	102	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	3575	
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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