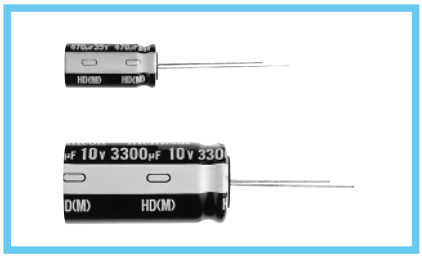
ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

HD High Ripple Low Impedance series

Smaller | Low Impedance | Anti-Solvent Feature

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

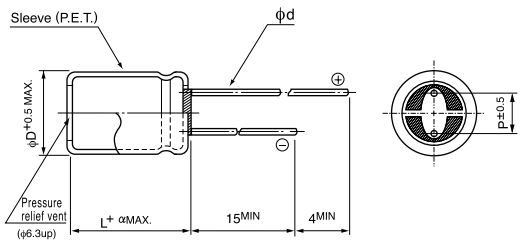


HC ← Low Impedance — HD — Smaller → HV

■Specifications

Item	Performance Characteristics							
Category Temperature Range	−40 ~ +105˚C							
Rated Voltage Range	6.3 ~ 50V							
Rated Capacitance Range	22 ~ 6800μF							
Capacitance Tolerance	±20% at 120Hz, 20˚C							
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.							
tan δ	Rated voltage (V)	6.3	10	16	25	35	50	120Hz 20˚C
	tan δ (MAX.)	0.22	0.19	0.16	0.14	0.12	0.10	
	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	120Hz
	Impedance ratio ZT / Z20 (MAX.) Z−25˚C / Z+20˚C	2	2	2	2	2	2	
	Impedance ratio ZT / Z20 (MAX.) Z−40˚C / Z+20˚C	3	3	3	3	3	3	
Endurance	After an application of D.C. bias voltage plus the rated ripple current for 5000 hours (φD ≦ 6.3 : 2000 hours, φD=8 : 3000 hours, φD=10 : 4000 hours) at 105˚C the peak voltage shall not exceed the rated D.C. voltage, capacitors meet the characteristic requirements listed below.							
	Capacitance change	Within ± 25% of initial value						
	tan δ	200% or less of initial specified value						
	Leakage current	Initial specified value or less						
Marking	Printed with white color letter on black sleeve.							

■Radial Lead Type



α	
	(L < 20) 1.5
	(L ≥ 20) 2.0

(mm)

φD	5	6.3	8	10	12.5	16
P	2.0	2.5	3.5	5.0	5.0	7.5
φd	0.5	0.5	0.6	0.6	※0.6	0.8

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

• Please refer to page 21 about the end seal configulation.

Type numbering system (Example : 10V 3300μF)

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

- 12: Size code
- 10 11: Configuration※
- 9: Capacitance tolerance (±20%)
- 6 7 8: Rated Capacitance (3300μF)
- 4 5: Rated voltage (10V)
- 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 · 16	HD

Please refer to page 21, 22, 23 about the formed or taped product spec.
Please refer to page 3 for the minimum order quantity.

● Dimension table in next page.

HD series

■Standard ratings

Cap.(μF) \ V (Code) / Item / Code	6.3 (0J)				10 (1A)			
	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C / 100kHz	Impedance (Ω) MAX. −10˚C / 100kHz	Rated ripple (mArms) 105˚C / 100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C / 100kHz	Impedance (Ω) MAX. −10˚C / 100kHz	Rated ripple (mArms) 105˚C / 100kHz
100 101					5 × 11	0.30	1.0	250
150 151	5 × 11	0.30	1.0	250				
220 221					6.3 × 11	0.13	0.41	405
330 331	6.3 × 11	0.13	0.41	405				
470 471					8 × 11.5	0.072	0.22	760
560 561	8 × 11.5	0.072	0.22	760				
680 681					8 × 15	0.056	0.17	995
					▲10 × 12.5	0.053	0.16	1030
820 821	8 × 15	0.056	0.17	995				
1000 102	10 × 12.5	0.053	0.16	1030	8 × 20	0.041	0.13	1250
					▲10 × 16	0.038	0.12	1430
1200 122	8 × 20	0.041	0.13	1250	10 × 20	0.023	0.069	1820
	▲10 × 16	0.038	0.12	1430				
1500 152	10 × 20	0.023	0.069	1820	10 × 25	0.022	0.066	2150
2200 222	10 × 25	0.022	0.066	2150	12.5 × 20	0.021	0.053	2360
3300 332	12.5 × 20	0.021	0.053	2360	12.5 × 25	0.018	0.045	2770
3900 392	12.5 × 25	0.018	0.045	2770	12.5 × 31.5	0.016	0.041	3290
					▲16 × 20	0.018	0.045	3140
4700 472	12.5 × 31.5	0.016	0.041	3290	12.5 × 35.5	0.015	0.039	3400
5600 562	12.5 × 35.5	0.015	0.039	3400	16 × 25	0.016	0.043	3460
	▲16 × 20	0.018	0.045	3140				
6800 682	16 × 25	0.016	0.043	3460				

Cap. (μF) \ V (Code) / Item / Code	16 (1C)				25 (1E)			
	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C / 100kHz	Impedance (Ω) MAX. −10˚C / 100kHz	Rated ripple (mArms) 105˚C / 100kHz	Case size φD × L (mm)	Impedance (Ω) MAX. 20˚C / 100kHz	Impedance (Ω) MAX. −10˚C / 100kHz	Rated ripple (mArms) 105˚C / 100kHz
47 470					5 × 11	0.30	1.0	250
56 560	5 × 11	0.30	1.0	250				
100 101					6.3 × 11	0.13	0.41	405
120 121	6.3 × 11	0.13	0.41	405				
220 221					8 × 11.5	0.072	0.22	760
330 331	8 × 11.5	0.072	0.22	760	8 × 15	0.056	0.17	995
					▲10 × 12.5	0.053	0.16	1030
470 471	8 × 15	0.056	0.17	995	8 × 20	0.041	0.13	1250
	▲10 × 12.5	0.053	0.16	1030	▲10 × 16	0.038	0.12	1430
680 681	8 × 20	0.041	0.13	1250	10 × 20	0.023	0.069	1820
	▲10 × 16	0.038	0.12	1430				
820 821					10 × 25	0.022	0.066	2150
1000 102	10 × 20	0.023	0.069	1820	12.5 × 20	0.021	0.053	2360
1200 122	10 × 25	0.022	0.066	2150				
1500 152	12.5 × 20	0.021	0.053	2360	12.5 × 25	0.018	0.045	2770
1800 182					12.5 × 31.5	0.016	0.041	3290
					▲16 × 20	0.018	0.045	3140
2200 222	12.5 × 25	0.018	0.045	2770	12.5 × 35.5	0.015	0.039	3400
2700 272	12.5 × 31.5	0.016	0.041	3290	16 × 25	0.016	0.043	3460
	▲16 × 20	0.018	0.045	3140				
3300 332	12.5 × 35.5	0.015	0.039	3400				
3900 392	16 × 25	0.016	0.043	3460				

▲ : In this case, 6 will be put at 12th digit of type numbering system.

HD series

■Standard ratings

Cap.(μF) \ V (Code) / Item / Code		35 (1V)				50 (1H)			
		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	
22	220					5 × 11	0.34	1.18	238
33	330	5 × 11	0.30	1.0	250				
56	560	6.3 × 11	0.13	0.41	405	6.3 × 11	0.14	0.50	385
100	101					8 × 11.5	0.074	0.22	724
120	121					8 × 15	0.061	0.18	950
150	151	8 × 11.5	0.072	0.22	760	10 × 12.5	0.061	0.18	979
180	181					8 × 20	0.046	0.14	1190
220	221	8 × 15	0.056	0.17	995	10 × 16	0.042	0.12	1370
		▲10 × 12.5	0.053	0.16	1030				
270	271	8 × 20	0.041	0.13	1250	10 × 20	0.030	0.090	1580
330	331	10 × 16	0.038	0.12	1430	10 × 25	0.028	0.085	1870
470	471	10 × 20	0.023	0.069	1820	12.5 × 20	0.027	0.068	2050
560	561	10 × 25	0.022	0.066	2150	12.5 × 25	0.023	0.059	2410
680	681	12.5 × 20	0.021	0.053	2360	12.5 × 31.5	0.021	0.052	2860
820	821					12.5 × 35.5	0.019	0.051	2960
						▲16 × 20	0.023	0.059	2730
1000	102	12.5 × 25	0.018	0.045	2770	16 × 25	0.021	0.056	3010
1200	122	12.5 × 31.5	0.016	0.041	3290				
		▲16 × 20	0.018	0.045	3140				
1500	152	12.5 × 35.5	0.015	0.039	3400				
1800	182	16 × 25	0.016	0.043	3460				

▲ : In this case, 6 will be put at 12th digit of type numbering system.

●Frequency coefficient of rated ripple current

Cap.(μF) \ Frequency	50Hz	120Hz	1kHz	10kHz	100kHz
22 ~ 33	0.45	0.55	0.75	0.90	1.00
39 ~ 330	0.60	0.70	0.85	0.95	1.00
390 ~ 1000	0.65	0.75	0.90	0.98	1.00
1200 ~ 6800	0.75	0.80	0.95	1.00	1.00