Nichicon UCD1C331MNL1GS alternative

HFZ series long life aluminium electrolytic capacitors

SMD 16volts 330uF AEC-Q200

Features:

Extra lower impedance with temperature range -55~+105°C
Load life of 2000~5000 hours
Impedance 5~25% less than HKZ series
RoHS & REACH compliant, Halogen-free

SPECIFICATIONS

Items	Characteristics
Operation Temperature Range	-55 ~ +105°C
Voltage Range	6.3 ~ 100V
Capacitance Range	3.3 ~ 8200μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Leakage Current	Leakage current ≤0.01CV or 3μA (∅4~∅10), whichever is greater (after 2 minutes application of rated voltage at 20°C) Leakage current ≤0.03CV or 4μA (∅12.5~∅18), whichever is greater (after 1 minute application of rated voltage at 20°C) C: Nominal capacitance (μF) , V: Rated voltage (V)

Dissipation Factor (tan δ)

Measurement frequency：120Hz, Temperature：20°C

Rated Voltage (V)		6.3	10	16	25	35	50	63~80	100
tan δ (max.)	∅4~∅10	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.07
	∅12.5~∅18	0.26	0.19	0.18	0.16	0.14	0.10	0.08	0.07

Stability at Low Temperature

Measurement frequency：120Hz

Rated Voltage (V)		6.3 ~ 16	25 ~ 100
Impedance Ratio ZT/Z20 (max.)	Z(-25°C) / Z(20°C)	2	2
	Z(-40°C) / Z(20°C)	3	3
	Z(-55°C) / Z(20°C)	4	3

Load Life

After 5000 hrs. (2000 hrs. for ∅4~∅6.3×5.8) application of the rated voltage at 105°C, they meet the characteristics listed below.

Capacitance Change	Within ±30% of initial value
Dissipation Factor	200% or less of initial specified value
Leakage Current	initial specified value or less

Shelf Life

After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above.

Resistance to Soldering Heat

After reflow soldering and restored at room temperature, they meet the characteristics listed below.

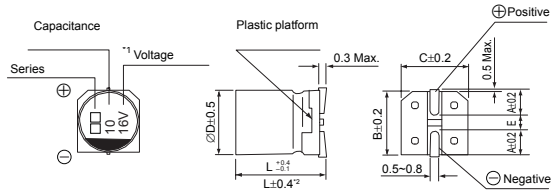
Capacitance Change	Within ±10% of initial value
Dissipation Factor	initial specified value or less
Leakage Current	initial specified value or less

Marking

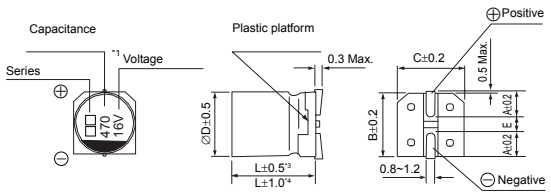
Black print on the case top.

DRAWING (Unit: mm)

(∅4~∅6.3×7.7)



(∅8×10.5~∅18)



*1. Voltage mark for 6.3V is [6V]
*2. Applicable to ∅6.3×7.7
*3. Applicable to ∅8×10.5~∅10
*4. Applicable to ∅12.5~∅18

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DIMENSIONS (Unit: mm)

ØD x L	4 x 5.8	5 x 5.8	6.3 x 5.8	6.3 x 7.7	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5	18 x 16.5	18 x 18.5
A	2.0	2.2	2.6	2.6	3.0	3.3	3.3	4.9	4.9	5.8	6.2	6.2
B	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0	19.0	19.0
C	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0	19.0	19.0
E ± 0.2	1.0	1.4	1.9	1.9	3.1	4.7	4.7	4.7	4.7	6.4	6.4	6.4
L	5.8	5.8	5.8	7.7	10.5	10.5	13.5	13.5	16.0	16.5	16.5	18.5

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV / Code / µF		6.3			10			16		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
10	106							4 × 5.8	1.35	90
15	156							4 × 5.8	1.35	90
22	226	4 × 5.8	1.35	90	4 × 5.8	1.35	90	5 × 5.8	0.76	160
33	336	5 × 5.8 (4 × 5.8)	0.76 (1.35)	160 (90)	5 × 5.8	0.76	160	6.3 × 5.8	0.44	240
47	476	5 × 5.8 (4 × 5.8)	0.76 (1.35)	160 (90)	6.3 × 5.8	0.44	240	6.3 × 5.8 (5 × 5.8)	0.44 (0.76)	240 (160)
56	566	5 × 5.8	0.76	160	6.3 × 5.8	0.44	240	6.3 × 5.8	0.44	240
68	686	6.3 × 5.8	0.44	240	6.3 × 5.8	0.44	240	6.3 × 7.7 (6.3 × 5.8)	0.34 (0.44)	300 (240)
100	107	6.3 × 5.8	0.44	240	6.3 × 7.7	0.34	300	6.3 × 7.7 (6.3 × 5.8)	0.34 (0.44)	300 (240)
150	157	6.3 × 5.8	0.44	240	6.3 × 7.7	0.34	300	6.3 × 7.7	0.34	300
220	227	6.3 × 7.7 (6.3 × 5.8)	0.34 (0.44)	300 (240)	6.3 × 7.7	0.34	300	8 × 10.5 (6.3 × 7.7)	0.17 (0.34)	600 (300)
330	337	8 × 10.5	0.17	600	10 × 10.5 (8 × 10.5)	0.09 (0.17)	850 (600)	10 × 10.5 (8 × 10.5)	0.08 (0.17)	850 (600)
470	477	8 × 10.5	0.17	600	10 × 10.5 (8 × 10.5)	0.09 (0.17)	850 (600)	10 × 10.5 (8 × 10.5)	0.09 (0.17)	850 (600)
680	687	10 × 10.5 (8 × 10.5)	0.09 (0.17)	850 (600)	10 × 10.5	0.09	850	10 × 13.5 (10 × 10.5)	0.07 (0.09)	950 (850)
1000	108	10 × 10.5 (8 x 10.5)	0.09 (0.17)	850 (600)	10 × 13.5 (10 × 10.5)	0.07 (0.09)	950 (850)	12.5 × 16 (12.5 × 13.5)	0.055 (0.06)	1200 (1100)
1500	158	10 × 13.5	0.09	950	12.5 × 13.5	0.06	1100	16 × 16.5	0.05	1450
2200	228	12.5 × 13.5	0.06	1100	12.5 × 16	0.055	1200	16 × 16.5	0.05	1450
3300	338	12.5 × 16	0.055	1200	16 × 16.5	0.05	1260	16 × 16.5	0.05	1450
4700	478	16 × 16.5	0.05	1450	16 × 16.5	0.05	1450	18 × 16.5	0.048	1500
6800	688	18 × 16.5	0.048	1500	18 × 16.5	0.048	1500			
8200	828	18 × 16.5	0.048	1500						

WV / Code / µF		25			35			50		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
4.7	475				4 × 5.8	1.35	90	5 × 5.8	1.52	85
10	106	4 × 5.8	1.35	90	5 × 5.8	0.76	160	6.3 × 5.8 (5 × 5.8)	0.88 (1.35)	165 (115)
15	156	5 × 5.8	0.76	160	5 × 5.8	0.76	160	6.3 × 5.8	0.88	165
22	226	6.3 × 5.8 (5 × 5.8)	0.44 (0.76)	240 (160)	6.3 × 5.8	0.44	240	6.3 × 7.7 (6.3 × 5.8)	0.68 (0.88)	195 (165)
33	336	6.3 × 5.8	0.44	240	6.3 × 5.8	0.44	240	6.3 × 7.7	0.68	195
47	476	6.3 × 7.7 (6.3 × 5.8)	0.34 (0.44)	300 (240)	6.3 × 7.7 (6.3 × 5.8)	0.34 (0.88)	300 (165)	8 × 10.5 (6.3 × 7.7)	0.34 (0.68)	350 (195)
56	566	6.3 × 7.7	0.34	300	6.3 × 7.7	0.34	300	8 × 10.5	0.34	350
68	686	6.3 × 7.7	0.34	300	8 × 10.5	0.17	600	8 × 10.5	0.34	350
100	107	8 × 10.5 (6.3 × 7.7)	0.17 (0.34)	600 (300)	8 × 10.5	0.17	600	10 × 10.5 (8 × 10.5)	0.18 (0.34)	670 (350)
150	157	8 × 10.5 (6.3 × 7.7)	0.16 (0.34)	600 (300)	10 × 10.5	0.09	850	10 × 13.5 (10 × 10.5)	0.14 (0.18)	780 (670)
220	227	8 × 10.5	0.17	600	10 × 10.5 (8 × 10.5)	0.09 (0.16)	850 (600)	(10 × 13.5) (10 × 10.5)	(0.14) (0.26)	(780) (750)
330	337	10 × 10.5 (8 × 10.5)	0.09 (0.17)	850 (600)	(10 × 13.5) (10 × 10.5)	(0.07) (0.10)	(950) (850)	12.5×13.5	0.12	900
470	477	10 × 13.5 (10 × 10.5)	0.07 (0.09)	950 (850)	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	0.06 (0.07) (0.10)	1100 (1000) (950)	16 × 16.5 (12.5 × 16) (12.5 × 13.5)	0.08 (0.10) (0.08)	1250 (1050) (1100)
680	687	12.5 × 13.5	0.06	1100	12.5 × 16 (12.5 × 13.5)	0.055 (0.06)	1200 (1100)	16 × 16.5	0.073	1250
1000	108	16 × 16.5 (12.5 × 16) (12.5 × 13.5)	0.05 (0.055) (0.06)	1450 (1200) (1100)	16 × 16.5	0.05	1450	18 × 16.5	0.073	1250
1500	158	16 × 16.5	0.05	1450	18 × 16.5	0.048	1500	18 × 16.5	0.066	1500
2200	228	16 × 16.5	0.05	1450	18 × 18.5	0.038	1750			
3300	338	18 × 16.5 (18 × 18.5)	0.048 (0.048)	1500 (1500)						

•Case size ∅D×L(mm), Impedance (Ω) at 20°C, 100KHz, Ripple current (mA rms) at 105°C, 100KHz

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV / Code / μF		63			80			100		
		Case size	Impedance	Ripple current	Case size	Impedance	Ripple current	Case size	Impedance	Ripple current
3.3	335				5 × 5.8	5.0	25			
4.7	475	5 × 5.8	3.0	50	6.3 × 5.8	3.0	40			
10	106	6.3 × 7.7 (6.3 × 5.8)	1.2 (1.5)	120 (80)	6.3 × 7.7	2.4	60	8 × 10.5	1.3	130
22	226	8 × 10.5 (6.3 × 7.7)	0.65 (1.2)	250 (120)	8 × 10.5	1.3	130	10 × 10.5 (8 × 10.5)	0.7 (1.3)	200 (160)
33	336	8 × 10.5	0.65	250	10 × 10.5	0.7	200	10 × 13.5	0.7	200
47	476	10 × 10.5 (8 × 10.5)	0.5 (0.65)	300 (250)	10 × 13.5	0.45	300	12.5 × 13.5	0.32	500
68	686	12.5 × 13.5 (10 × 10.5)	0.16 (0.5)	800 (300)	12.5 × 13.5	0.32	500	12.5 × 13.5	0.32	500
100	107	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	0.16 (0.25) (0.5)	800 (400) (300)	12.5 × 13.5 (10 × 13.5)	0.32 (0.18)	500 (750)	16 × 16.5 (12.5 × 16) (12.5 × 13.5)	0.17 (0.26) (0.32)	795 (550) (500)
150	157	12.5 × 13.5 (10 × 13.5)	0.16 (0.25)	800 (650)	12.5 × 13.5	0.32	500	12.5 × 16	0.26	550
220	227	12.5 × 13.5	0.16	800	12.5 × 16 (12.5 × 13.5)	0.26 (0.12)	550 (900)	18 × 16.5	0.15	850
330	337	16 × 16.5	0.082	900	16 × 16.5	0.17	795	18 × 16.5	0.15	850
470	477	16 × 16.5	0.082	900	18 × 16.5	0.15	850	18 × 18.5	0.15	950
680	687	18 × 16.5	0.08	1150	18 × 18.5	0.15	950			
1000	108	18 × 18.5	0.06	1250						

•Case size ∅D×L(mm), Impedance (Ω) at 20°C, 100KHz, Ripple current (mA rms) at 105°C, 100KHz

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	∅4 ~ ∅10	4.7 ~ 68μF	0.35	0.50	0.64	0.83	1.00
		100 ~ 1500μF	0.40	0.55	0.70	0.85	1.00
	∅12.5 ~ ∅18	~ 68μF	0.40	0.55	0.70	0.85	1.00
		100 ~ 680μF	0.45	0.65	0.80	0.90	1.00
		1000 ~ 4700μF	0.65	0.85	0.95	1.00	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5~10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

◆ How to order

HFZ	106	M	0035	0405	R	-
↓	↓	↓	↓	↓	↓	↓
Type	Capacitance code	Tolerance	Rated Voltage	Size Code	Package	Additional characters may be added for special requirements
HFZ	pF Code: 1st two digits represent significant figures 3rd digit represents mulitplier (number of zeros to follow) 106 = 10uF 107 = 100uF	M: +/-20%	Code 0035: 35VDC For DC Voltage 0006: 6.3VDC 0035: 35VDC 0100: 100VDC	Code 0405: Size 4x5.8mm Size for V-chip E-cap 0405: Size 4x5.8mm 1010: Size 10x10.5mm 1818: Size 18x18.5mm	R: Tape & Reel	

Note: Specification is subject to change without further notice. For more details and updates, please visit our website.