

ALUMINUM ELECTROLYTIC CAPACITORS

HAX series

- Load life: 125°C 2000~5000hours.
壽命：125°C 2000~5000 小時
- HIGH QUALITY.
高品質
- Low Impedance at 100KHz with selected materials.
選材設計低阻抗品

HIGH TEMPERATURE
高溫
125°C

SPECIFICATIONS

Item 項目	Performance Characteristics 特性										
Operating Temperature Range 工作溫度範圍	-40°C~+125°C										
Rated Voltage Range 額定電壓範圍	6.3~100V										
Capacitance Range 靜電容量範圍	2.2~4700										
Capacitance Tolerance 靜電容量誤差	±20%(120Hz, 20°C)										
Leakage Current 洩漏電流	<p>I=0.01CV or 3 μA whichever is greater.(after 2 minutes) I=0.01CV or 3 μA 取較大值.(2分鐘後) I=Leakage Current(μA), C=Nominal Capacitance(μF), V=Rated Voltage(V) I=洩漏電流(μA), C=額定容量(μF), V=額定電壓(V)</p>										
Dissipation Factor (tan δ) 散逸因素 (損失角正切值)	When nominal capacitance is over 1000 μF, tan δ shall be added 0.02 to the listed value with increase of every 1000 μF, 額定容量超過 1000 μF 時，額定容量每增加 1000 μF，以下損失角增加 0.02.										
	Rated voltage (V) 額定電壓	6.3	10	16	25	35	50	63	80	100	20°C 120Hz
	Tan δ 損失角正切值	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.08	0.08	
Low Temperature Stability Impedance Ratio(MAX) 低溫特性阻抗比率	Rated Voltage(V) 額定電壓	6.3	10	16	25	35	50	63	80	100	(120Hz)
	Z(-25°C)/Z(+20°C)	3	3	2	2	2	2	2	2	2	
	Z(-40°C)/Z(+20°C)	6	6	4	3	3	3	3	3	3	

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Load Life 負荷壽命	After life test with rated ripple at conditions stated in the table below, the capacitors shall meet the following requirements. 依據以下壽命要求印加額定紋波電流後，電容需符合以下要求。			
	Leakage Current 洩漏電流	Not more than the specified value 不超出規格值	Case Dia	Life Time(hrs)
	Capacitance Change 容量變化率	Within $\pm 30\%$ of initial value. 初始值 $\pm 30\%$ 以內	$\varphi D \leq 8$	2000
	Dissipation Factor 散逸因素	Not more than 300% of the specified value 不超出規格值的 3 倍	$\varphi D = 10$ $\varphi D \geq 12$	2000 5000
Shelf Life 放置壽命	After leaving capacitors under no load at 125°C for 500 hours the capacitors shall meet the following requirements. 電容放置在 125°C 無印加電壓的情況下儲存 500 小時後，電容需符合以下要求。			
	Leakage Current 洩漏電流	Not more than the specified value 不超出規格值		
	Capacitance Change 容量變化率	Within $\pm 30\%$ of initial value. 初始值 $\pm 30\%$ 以內		
	Dissipation Factor 散逸因素	Not more than 300% of the specified value 不超出規格值的 3 倍		
Standard 參照標準	According to JIS C 5101 依據 JIS C 5101 標準			

Frequency coefficient

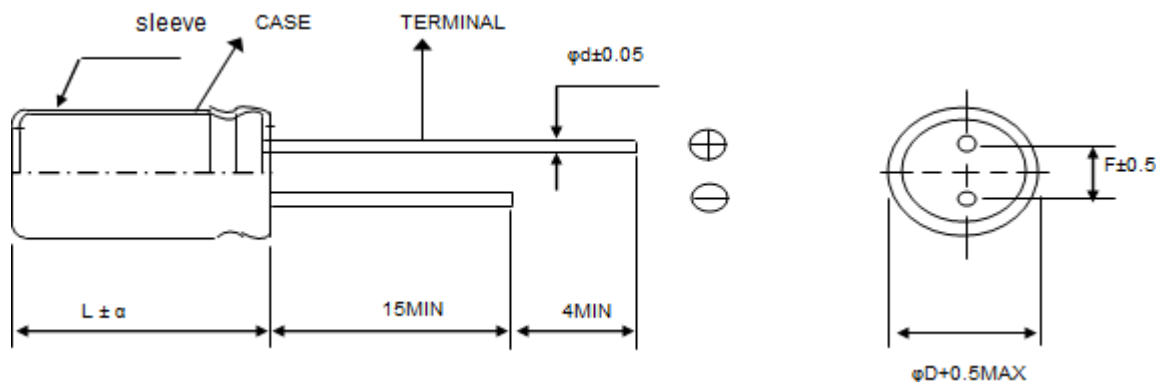
頻率系數

Frequency(Hz) Cap(uF)	60(50)	120	1k	10k	$\geq 100k$
3.3~4.7uF	0.33	0.40	0.60	0.80	1.00
10~22uF	0.45	0.55	0.75	0.90	1.00
33~330uF	0.60	0.70	0.85	0.95	1.00
470~1000uF	0.65	0.75	0.90	0.98	1.00
2200~4700uF	0.75	0.80	0.95	1.00	1.00

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DIMENSIONS 尺寸(mm)



ϕD	5	6.3	8	10	12/12.5/13	16	18
ϕd	0.5		0.6		0.8		
F	2.0	2.5	3.5	5.0		7.5	
α	$L \leq 19: \alpha = 1.5, \quad L \geq 20: \alpha = 2.0$						

STANDARD SIZE , RIPPLCURRENT,IMPEDANCE

尺寸,紋波電流及阻抗標準

Ripple Current (mA 125°C,100KHz) r.m.s

Rated voltage 6.3V (0J)			
Nominal capacitance (uF)	Size $\phi D \times L$ (mm)	Ripple Current (mA)	Impedance (ΩMAX)
			25°C,100KHz
100	5x11	150	0.350
220	6.3x11	220	0.300
330	8x11.5	300	0.250
470	6.3x12	300	0.250
	8x11.5	380	0.200
680	8x16	500	0.180
	10x12.5	650	0.140
1000	10x16	820	0.095
1500	10x20	990	0.070
2200	12.5x20	1240	0.054
3300	12.5x25	1500	0.040
4700	12.5x30	1855	0.036
	16x31.5	2100	0.030

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Rated voltage 10V (1A)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C, 100KHz
100	5x11	220	0.300
220	6.3x11	300	0.250
330	8x11.5	380	0.200
470	8x16	500	0.180
	10x12.5	650	0.140
680	8x20	550	0.160
	10x12.5	650	0.120
1000	10x20	990	0.070
2200	12.5x20	1480	0.045
3300	12.5x25	1757	0.038
4700	12.5x35	1855	0.036

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Rated voltage 16V (1C)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C, 100KHz
100	5x11	175	0.400
	6.3x11	200	0.320
220	8x11.5	350	0.250
	8x16	515	0.170
330	8x11.5	380	0.200
	8x16	532	0.170
390	8x11.5	380	0.200
470	8x11.5	450	0.200
	8x16	550	0.170
	8x20	600	0.170
470	10x12.5	650	0.140
680	10x16	905	0.092
	10x20	920	0.100
1000	10x20	990	0.070
	12.5x16	990	0.070
	12.5x20	1040	0.068
	12.5x25	1400	0.058
1500	10x20	1100	0.065
	12.5x20	1250	0.062
2200	12.5x25	1500	0.038
3300	12.5x30	1855	0.036

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Rated voltage 25V (1E)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ DxL(mm)		25°C, 100KHz
22	5x11	116	1.300
33	5x11	130	1.220
47	5x11	144	1.090
	6.3x11	177	0.830
56	5x11	170	0.880
68	6.3x11	200	0.400
100	6.3x11	245	0.320
150	8x11.5	300	0.320
220	8x11.5	380	0.200
330	8x11.5	560	0.180
	10x12.5	650	0.140
	10x16	700	0.130
470	8x20	900	0.090
	10x12.5	850	0.095
	10x16	900	0.090
	10x20	950	0.085
680	10x20	1050	0.070
1000	12.5x20	1200	0.050
1500	12.5x25	1500	0.040
2200	12.5x35	1855	0.035
3300	16x31.5	2155	0.030

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Rated voltage 35V (1V)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C ,100KHz
10	5 x11	120	1.250
22	5 x11	150	0.752
33	6.3 x11	155	0.880
47	6.3 x11	243	0.590
	8 x11.5	330	0.300
100	8 x11.5	380	0.200
	10 x12.5	420	0.165
150	6.3 x12	380	0.330
	8 x16	420	0.200
220	8 x16	700	0.120
	10 x12.5	650	0.140
	10 x16	770	0.105
330	10 x16	900	0.090
	10 x20	950	0.085
470	10 x20	990	0.070
	12.5 x16	1100	0.065
680	10 x20	1030	0.070
	12.5 x20	1270	0.055
1000	12.5 x25	1500	0.038
	12.5 x35	1629	0.038
1500	12.5 x35	1680	0.038
	16 x25	1800	0.036
	16 x31.5	1900	0.032
1800	12.5 x25	1720	0.036

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Rated voltage 50V (1H)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C,100KHz
2.2	5 x11	46	2.970
3.3	5 x11	55	2.970
	8 x11.5	75	1.250
4.7	5 x11	65	2.520
	6.3 x11	85	1.450
	8 x11.5	110	0.800
6.8	8 x11.5	175	0.700
10	5 x11	70	1.885
	6.3 x11	150	0.520
	8 x11.5	220	0.550
22	5 x11	73	1.568
	6.3 x 11	265	0.460
	8 x11.5	280	0.320
33	6.3 x11	300	0.320
	8 x11.5	330	0.270
47	6.3 x11	340	0.265
	8 x11.5	350	0.260
68	8 x11.5	400	0.200
100	8 x16	515	0.175
	10 x12.5	530	0.170
220	10 x16	650	0.140
	10 x20	780	0.120
330	10 x20	1130	0.090
	10 x28	1280	0.070
470	12.5 x25	1530	0.050
680	12.5 x30	1643	0.045
820	12.5 x35	1757	0.038
1000	13 x35	1900	0.038
	16 x31.5	1900	0.038
1500	16 x40	2100	0.030

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Rated voltage 63V (1J)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C, 100KHz
22	6.3 x11	265	1.950
33	8 x11.5	270	0.380
47	8 x11.5	300	0.450
	10 x12.5	400	0.260
82	8 x 20	420	0.360
	10 x12.5	445	0.135
100	10 x12.5	465	0.200
	10 x16	480	0.190
180	10 x16	800	0.150
	12.5 x16	850	0.130
220	12.5 x20	930	0.090
270	12.5 x20	950	0.090
330	10 x28	950	0.092
	12.5 x25	1100	0.080
	16 x25	1500	0.060
470	12.5 x25	1280	0.078
	16 x25	1628	0.055
	16 x31.5	1757	0.050
560	10 x35	1300	0.080
	12.5 x25	1420	0.075
820	16 x40	1900	0.038
1000	13 x38	1750	0.063
	18 x30	2150	0.047
1100	16 x30	2150	0.047
1500	18 x40	2455	0.042

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Rated voltage 80V (1K)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C, 100KHz
220	12.5 x25	1020	0.200
560	12.5 x35	1250	0.100

Rated voltage 100V (2A)			
Nominal capacitance (uF)	Size	Ripple Current (mA)	Impedance (Ω MAX)
	ϕ D×L(mm)		25°C, 100KHz
10	6.3 x11	150	1.950
22	10 x12.5	350	0.750
47	10 x16	520	0.420
100	12.5 x20	900	0.350
200	12.5 x25	1040	0.250
220	12.5 x25	1100	0.220