

HF series

- Ultra Low impedance at High frequency range.
- High ripple current, 105°C 4000~8000hours long life.
- RoHS Compliance
- 高頻低阻抗。
- 高紋波電流、105°C 4000~8000小時長壽命產品。



SPECIFICATIONS

Items 項目	Characteristics 特性									
Capacitance Tolerance 靜電容量誤差	± 20%(120Hz,20°C)									
Operating Temperature Range 適用溫度範圍	-40 ~ +105°C									
Rated Voltage Range 額定電壓範圍	6.3 ~ 100VDC									
Leakage Current 洩漏電流	$I \leq 0.01CV$ or 3 (μA) which is greater.(After 2 minutes application of DC rated voltage, at 20 °C)									
Dissipation Factor 散逸因素(tan δ)	Measurement Frequency:120Hz. Temperature: 20°C									
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	
	tan δ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	
When nominal capacitance over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF.										
Low Temperature Stability 低溫特性	Measurement Frequency: 120Hz.									
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100	
	Impedance Ratio(Max) 阻抗比率(最大值)	Z(-25°C)/Z(20°C)	4	3	2	2	2	2	2	2
	Z(-40°C)/Z(20°C)	8	6	4	3	3	3	3	3	
Load Life 負荷壽命	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for varied hours according to varied ϕ [please refer to below sheet] at 105°C.									
	Time	ϕ	5	6.3	8	10	12.5~13	14.5~16	18	
		hours	4000	4000	5000	6000	7000	8000	8000	
	Capacitance Change	within ±20% of Initial Value								
	tan δ	200% or less of Initial Specified Value								
	Leakage Current	Initial Specified Value or less								
Shelf Life 放置壽命	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.									
	Capacitance Change	within ±20% of Initial Value								
	tan δ	200% or less of Initial Specified Value								
	Leakage Current	Initial Specified Value or less								
Standards 參照標準	JIS C 5101-4 (IEC 60384)									

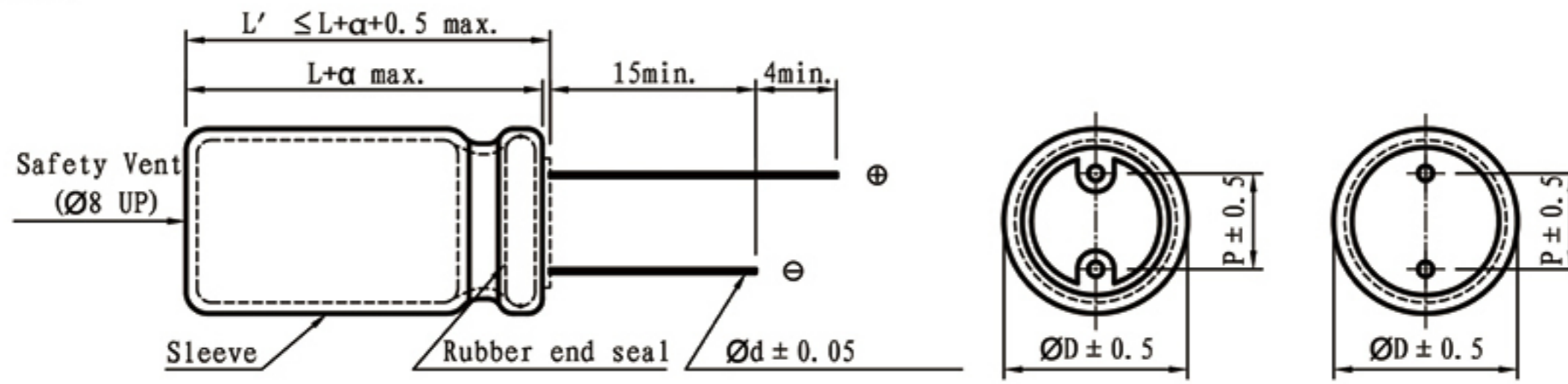
Frequency Coefficient of Permissible Ripple Current

Capacitance (μF)	Frequency (Hz)			
	120	1K	10K	100K
5.6 ~ 180	0.40	0.75	0.90	1.00
220 ~ 560	0.50	0.85	0.94	1.00
680 ~ 1800	0.60	0.87	0.95	1.00
2200 ~ 3900	0.75	0.90	0.95	1.00
4700 ~ 18000	0.85	0.95	0.98	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°C rise. When long life performance is required in actual use , the rms ripple current has to be reduced.

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DIMENSIONS(mm)



ϕD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5	0.5	0.5	0.6	0.6	0.8	0.8

STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105°C 100KHz ; IMP (Ω max)at 20°C,-10°C 100KHz.

Cap (μF)	V	6.3				10				16				25				
		Item	D x L	IMP		R.C.	D x L	IMP		R.C.	D x L	IMP		R.C.	D x L	IMP		R.C.
				20°C	-10°C			20°C	-10°C			20°C	-10°C			20°C	-10°C	
47										5x11	0.500	1.000	170	5x11	0.490	1.000	175	
100						5x11	0.500	1.000	170	6.3x11	0.250	0.500	295	6.3x11	0.250	0.500	295	
150		5x11	0.500	1.000	170									6.3x15	0.180	0.350	420	
220						6.3x11	0.240	0.500	295	6.3x15	0.170	0.360	410	8x12	0.120	0.240	650	
330		6.3x11	0.240	0.500	295	6.3x15	0.180	0.350	400	8x12	0.120	0.230	660	8x16	0.090	0.180	750	
390														10x13	0.090	0.180	770	
470		6.3x15	0.180	0.360	400	8x12	0.120	0.230	650	8x16	0.089	0.180	740	8x20	0.079	0.150	820	
560										10x13	0.090	0.180	770	10x16	0.067	0.136	1060	
680		8x12	0.120	0.240	655	8x16	0.090	0.180	830	8x20	0.080	0.160	830	10x16	0.067	0.136	1070	
820		10x13	0.091	0.180	860	10x13	0.090	0.180	860	10x16	0.067	0.136	1070	10x20	0.052	0.104	1230	
1000		8x16	0.091	0.190	830	8x20	0.080	0.150	1010	10x20	0.052	0.103	1270	10x25	0.045	0.090	1450	
1200		10x16	0.067	0.136	1250	10x16	0.067	0.136	1250	10x20	0.052	0.103	1420	10x25	0.045	0.090	1450	
1500		8x20	0.082	0.170	1060	10x20	0.052	0.103	1420	10x25	0.045	0.090	1450	10x30	0.036	0.074	1700	
1800		10x16	0.067	0.136	1250	10x20	0.052	0.103	1420	10x25	0.045	0.090	1450	13x21	0.038	0.076	1670	
2200		10x20	0.051	0.103	1420	10x25	0.044	0.090	1640	10x30	0.036	0.074	1700	13x25	0.030	0.060	1960	
2700		10x25	0.044	0.090	1640	10x30	0.036	0.074	1930	13x21	0.038	0.077	1650	13x30	0.024	0.050	2320	
3300		13x21	0.037	0.075	1650	13x21	0.038	0.077	1650	13x25	0.030	0.060	1960	16x22	0.029	0.068	2220	
3900		13x25	0.030	0.060	1960	13x25	0.030	0.060	1960	13x30	0.024	0.050	2330	13x35	0.022	0.043	2520	
4700		13x30	0.024	0.050	2320	13x30	0.024	0.050	2320	16x22	0.028	0.058	2220	16x26	0.027	0.056	2500	
5600		13x35	0.021	0.043	2520	13x35	0.022	0.043	2520	16x26	0.022	0.044	2570	16x32	0.019	0.038	3020	
6300		16x22	0.028	0.057	2230	16x22	0.028	0.058	2230	16x32	0.018	0.038	3020	18x25	0.020	0.040	2750	
6800		18x20	0.027	0.055	2490	16x32	0.018	0.038	3020	18x25	0.020	0.040	2750	18x25	0.020	0.040	2750	
8200		16x32	0.019	0.038	3020	16x36	0.017	0.034	3150	18x32	0.017	0.036	3340	16x40	0.015	0.030	3720	
10000		18x32	0.017	0.035	3340	18x32	0.017	0.036	3340	18x35	0.016	0.032	3670	18x35	0.016	0.031	3690	
12000		16x40	0.015	0.030	3720	18x35	0.016	0.031	3670	18x40	0.015	0.030	3810	18x40	0.015	0.030	3810	
15000		18x35	0.016	0.031	3670	18x40	0.015	0.030	3810									
18000		18x40	0.015	0.030	3810													

※ 13mm may be replaced by 12.5mm upon customer's request.

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D×L(mm) ; R.C.(mA rms) at 105°C 100KHz ; IMP (Ω max)at 20°C,-10°C 100KHz.

Cap (μF)	V	35				50				63				100				
		Item	D x L	IMP		R.C.	D x L	IMP		R.C.	D x L	IMP		R.C.	D x L	IMP		R.C.
				20°C	-10°C			20°C	-10°C			20°C	-10°C			20°C	-10°C	
5.6														5x11	2.000	5.200	90	
12										5x11	1.800	4.000	145	6.3x11	1.200	3.100	120	
18														6.3x15	0.620	1.800	200	
22						5x11	0.900	1.800	165	6.3x11	1.000	2.000	250	8x12	0.540	1.600	250	
27														10x13	0.480	1.400	350	
33		5x11	0.490	1.000	185									8x16	0.74	2.000	320	
39										6.3x15	0.600	1.400	340	10x16	0.62	1.650	460	
47						6.3x11	0.440	0.900	270					8x20	0.280	0.750	450	
56		6.3x11	0.250	0.500	300									10x20	0.270	0.710	580	
68						6.3x15	0.310	0.620	370	8x12	0.340	0.740	410	10x25	0.200	0.530	760	
100		6.3x15	0.170	0.360	410	8x12	0.210	0.430	490	8x16	0.260	0.650	540	10x30	0.160	0.430	910	
										10x13	0.254	0.510	550	13x21	0.160	0.430	840	
120						8x16	0.160	0.320	640	10x16	0.190	0.380	620	13x25	0.120	0.320	1010	
						10x13	0.150	0.320	630									
150		8x12	0.120	0.230	625					8x20	0.210	0.510	690	13x21	0.250	0.650	950	
180						8x20	0.120	0.240	740	10x20	0.144	0.290	890	13x30	0.130	0.360	1220	
						10x16	0.130	0.250	860					16x22	0.120	0.320	1200	
220		8x16	0.090	0.180	740	10x20	0.087	0.180	1060	10x25	0.130	0.260	1060	13x35	0.088	0.250	1420	
		10x13	0.090	0.170	770									16x26	0.082	0.230	1400	
270		8x20	0.079	0.160	820									13x40	0.060	0.180	1600	
														18x20	0.085	0.240	1400	
330		10x16	0.067	0.136	1060	10x25	0.073	0.150	1260	10x30	0.090	0.180	1310	16x32	0.059	0.180	1740	
										13x21	0.084	0.170	1290	18x25	0.070	0.200	1610	
390						10x30	0.054	0.110	1520	13x25	0.070	0.140	1730	16x36	0.053	0.150	1950	
						13x21	0.058	0.120	1490					18x32	0.059	0.170	1820	
470		10x20	0.052	0.103	1230					13x30	0.054	0.110	2100	16x40	0.056	0.160	2100	
										16x22	0.058	0.120	1780					
560		10x25	0.044	0.090	1450	13x25	0.044	0.087	1850					18x35	0.053	0.150	2150	
680		10x30	0.037	0.073	1700	13x30	0.038	0.078	2230	13x35	0.046	0.093	2280	18x40	0.042	0.120	2300	
		13x21	0.038	0.076	1670	16x22	0.047	0.095	1850	16x26	0.050	0.100	2170					
										18x20	0.054	0.110	2300					
820						13x35	0.033	0.065	2300	13x40	0.042	0.084	2570					
						18x20	0.042	0.083	1990	16x32	0.042	0.085	2680					
										18x25	0.042	0.085	2690					
1000		13x25	0.030	0.060	1960	13x40	0.029	0.058	2510	16x36	0.035	0.071	2780					
						16x26	0.034	0.068	2250									
1200		13x30	0.024	0.050	2320	16x32	0.027	0.055	2710	16x36	0.030	0.060	2860					
		16x22	0.028	0.057	2220	18x25	0.028	0.057	2610	18x32	0.032	0.064	2960					
1500		13x35	0.022	0.043	2520	16x36	0.025	0.050	2810	18x35	0.030	0.060	3120					
1800		13x40	0.016	0.034	2880	16x40	0.020	0.042	3210	18x40	0.025	0.050	3220					
		16x26	0.022	0.044	2570													
		18x20	0.027	0.055	2510	18x32	0.025	0.050	3010									
2200		16x32	0.018	0.038	3020	18x35	0.022	0.045	3110									
		18x25	0.020	0.040	2750													
2700		16x36	0.017	0.033	3160	18x40	0.020	0.040	3410									
		18x32	0.018	0.036	3340													
3300		16x40	0.015	0.030	3720													
		18x35	0.016	0.031	3690													
3900		18x40	0.015	0.030	3810													

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