

HFN series

- Anhydrous product.
- Low impedance at High frequency range.
- High ripple current resistance, 105°C 4000~8000 hours long life.
- RoHS Compliance
- 無水系產品。
- 高頻低阻抗。
- 耐高紋波電流、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	-55 ~ +105°C				-40 ~ +105°C				
Rated Voltage Range 額定電壓範圍	6.3 ~ 50VDC				63 ~ 100VDC				
Leakage Current 洩漏電流	I ≤ 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)	Rated Voltage(V)	6.3	10	16	25	35	50	63~80	100
	tan δ(Max)	0.24	0.20	0.16	0.15	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 Impedance Ratio(Max) 阻抗比率(最大值)	Measurement Frequency: 120Hz.								
	Rated Voltage(V)	6.3	10	16	25	35	50	63	100
	Z(-25°C)/Z(20°C)	4	3	2	2	2	2	2	2
	Z(-40°C)/Z(20°C)	-	-	-	-	-	-	3	3
	Z(-55°C)/Z(20°C)	8	6	4	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	13	16	18
		hours	4,000	4,000	5,000	6,000	7,000	8,000	8,000
	Capacitance Change	within ±25% 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 ±25% 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)								

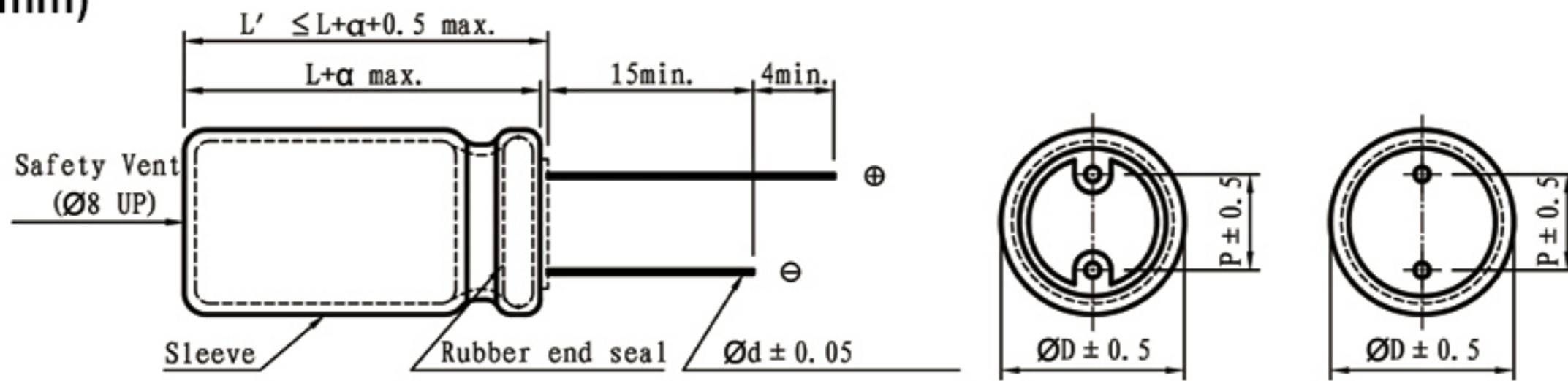
Frequency Coefficient of Permissible Ripple Current

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)



φ D	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φ d	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	0.550	1.100	170	5x11	0.600	1.210	175	
100						5x11	0.550	1.100	170	6.3x11	0.290	0.550	295	6.3x11	0.310	0.610	295	
150		5x11	0.550	1.100	170									6.3x15	0.220	0.430	420	
220						6.3x11	0.270	0.550	295	6.3x15	0.190	0.400	410	8x12	0.150	0.290	650	
330		6.3x11	0.270	0.550	295	6.3x15	0.200	0.390	400	8x12	0.140	0.260	660	8x16	0.110	0.220	750	
390														10x13	0.110	0.220	770	
470		6.3x15	0.200	0.400	400	8x12	0.140	0.260	650	8x20	0.091	0.180	830	8x20	0.096	0.180	820	
560										8x16	0.100	0.200	740	10x16	0.085	0.170	1060	
680		8x12	0.140	0.280	655	8x16	0.100	0.200	830	10x13	0.100	0.200	770	10x16	0.077	0.150	1070	
820		10x13	0.100	0.200	860	10x13	0.100	0.200	860	10x16	0.077	0.150	1070	10x20	0.067	0.130	1230	
1000		8x16	0.100	0.210	830	8x20	0.091	0.170	1010	10x20	0.061	0.120	1270	10x25	0.057	0.110	1450	
1200		10x16	0.077	0.150	1250	10x16	0.077	0.150	1250	10x20	0.061	0.120	1420	10x25	0.061	0.120	1420	
1500		10x20	0.059	0.120	1420	10x20	0.061	0.120	1420	10x25	0.052	0.100	1640	10x25	0.053	0.100	1450	
1800						10x30	0.043	0.085	1930	10x30	0.043	0.085	1700	10x30	0.043	0.085	1700	
2200		10x25	0.052	0.100	1640	13x21	0.045	0.088	1650	13x21	0.045	0.088	1650	13x21	0.045	0.088	1650	
2700		10x30	0.045	0.086	1930					13x30	0.030	0.058	2330	13x30	0.030	0.058	2330	
3300		13x21	0.044	0.086	1650	13x25	0.036	0.069	1960	13x35	0.028	0.051	2520	13x35	0.028	0.051	2520	
3900		13x25	0.036	0.069	1960	13x30	0.030	0.058	2320	13x40	0.022	0.041	2880	13x40	0.022	0.041	2880	
4700		13x30	0.030	0.058	2320	13x35	0.025	0.052	2520	16x26	0.028	0.051	2570	16x26	0.028	0.051	2570	
5600		13x35	0.026	0.051	2520	13x40	0.022	0.041	2880	18x32	0.023	0.045	3020	18x32	0.023	0.045	3020	
6300						16x26	0.020	0.052	2570	18x25	0.025	0.047	2750	18x25	0.025	0.047	2750	
6800		13x40	0.022	0.041	2880	16x32	0.023	0.045	3020	16x36	0.022	0.041	3150	16x36	0.022	0.041	3150	
8200		16x26	0.028	0.051	2570	18x25	0.025	0.047	2750	18x32	0.022	0.043	3340	18x32	0.022	0.043	3340	
10000		16x32	0.024	0.045	3020	16x36	0.022	0.041	3150	18x35	0.021	0.039	3670	18x35	0.021	0.039	3670	
12000		18x25	0.025	0.047	2750	18x32	0.022	0.043	3340	18x35	0.021	0.037	3670	18x35	0.021	0.037	3670	
15000		16x40	0.020	0.036	3720	18x40	0.020	0.036	3810	18x40	0.020	0.035	3810	18x40	0.020	0.035	3810	
18000		18x32	0.022	0.042	3340	18x40	0.020	0.036	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	2.640	6.860	90	
12										5x11	2.970	6.600	145	6.3x11	1.580	4.090	120	
18														6.3x15	0.820	2.380	200	
22						5x11	1.490	2.970	165	6.3x11	1.650	3.300	250	8x12	0.720	2.110	250	
27														10x13	0.640	1.850	350	
33	5x11	0.850	1.740	185										8x16	0.480	1.300	320	
39														10x16	0.450	1.200	460	
47										6.3x15	0.990	2.310	340	8x20	0.370	0.990	450	
56	6.3x11	0.300	0.820	300										10x20	0.360	0.940	580	
68						6.3x15	0.520	1.060	370	8x12	0.570	1.230	410	10x25	0.270	0.700	760	
100	6.3x15	0.280	0.720	410	8x12	0.350	0.710	490	8x16	0.430	1.080	540	10x30	0.210	0.570	910		
										10x13	0.420	0.850	550	13x21	0.210	0.570	840	
120						8x16	0.270	0.530	640	10x16	0.320	0.630	620	13x25	0.160	0.430	1010	
						10x13	0.250	0.530	630									
150	8x12	0.150	0.280	625						8x20	0.350	0.850	690					
180						8x20	0.200	0.400	740	10x20	0.240	0.480	890	13x30	0.130	0.360	1220	
						10x16	0.220	0.420	860									
220	8x16	0.110	0.220	740	10x20	0.150	0.300	1060	10x25	0.220	0.430	1060	13x35	0.120	0.330	1420		
	10x13	0.110	0.210	770									16x26	0.110	0.310	1400		
270	8x20	0.099	0.200	820									13x40	0.083	0.240	1600		
330	10x16	0.085	0.170	1060	10x25	0.130	0.250	1260	10x30	0.150	0.300	1310	16x32	0.079	0.240	1740		
										13x21	0.140	0.290	1290	18x25	0.096	0.270	1610	
390						10x30	0.095	0.190	1520	13x25	0.120	0.240	1730	16x36	0.074	0.200	1950	
						13x21	0.100	0.200	1490					18x32	0.082	0.230	1820	
470	10x20	0.067	0.130	1230						13x30	0.095	0.190	2100	16x40	0.060	0.160	2100	
560	10x25	0.057	0.110	1450	13x25	0.078	0.150	1850					18x35	0.074	0.200	2150		
680	10x30	0.048	0.092	1700	13x30	0.068	0.130	2230	13x35	0.081	0.160	2280	18x40	0.060	0.160	2250		
	13x21	0.050	0.096	1670						16x26	0.087	0.170	2170					
820						13x35	0.060	0.110	2300	13x40	0.075	0.140	2570					
										16x32	0.075	0.146	2680					
										18x25	0.075	0.150	2690					
1000	13x25	0.040	0.076	1960	13x40	0.053	0.100	2510	16x36	0.063	0.120	2780						
					16x26	0.062	0.120	2250										
1200	13x30	0.033	0.064	2320	16x32	0.050	0.096	2710	16x36	0.054	0.100	2860						
					18x25	0.051	0.099	2610	18x32	0.059	0.110	2960						
1500	13x35	0.031	0.056	2520	16x36	0.047	0.087	2810	18x35	0.054	0.100	3120						
1800	13x40	0.023	0.045	2880	16x40	0.038	0.075	3210	18x40	0.047	0.087	3220						
	16x26	0.031	0.057	2570	18x32	0.047	0.087	3010										
2200	16x32	0.025	0.050	3020	18x35	0.042	0.080	3110										
	18x25	0.028	0.052	2750														
2700	16x36	0.024	0.044	3160	18x40	0.038	0.071	3410										
	18x32	0.025	0.047	3340														
3300	16x40	0.022	0.040	3720														
	18x35	0.023	0.041	3690														
3900	18x40	0.022	0.040	3810														

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