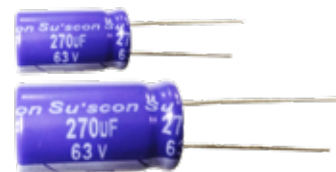


# HFN series

- Anhydrous product.
- Low impedance at High frequency range.
- High ripple current resistance, 105°C 4000 hours~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小時~8000小時長壽命產品。



## SPECIFICATIONS

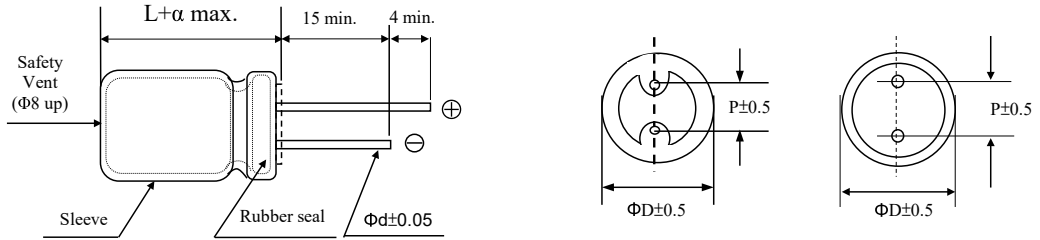
Items 項目	Characteristics 特性								
Capacitance Tolerance 靜電容量誤差	± 20%(120Hz,20°C)								
Operating Temperature Range 適用溫度範圍	-55 ~ +105°C				-40 ~ +105°C				
Rated Voltage Range 額定電壓範圍	6.3 ~ 50VDC				63 ~ 100VDC				
Leakage Current 洩漏電流	I ≤ 0.01CV or 3 (μA) which is greater. ( After 2 minutes application 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	4000	4000	5000	6000	7000	8000	8000
	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 1,000hours 105°C without voltage applied. Before the measurement. The Capacitance shall be preconditioned by applying voltage according to them 4.1 of JIS C 5101-4.								
	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	AEC-Q200、IEC 60384-4(JIS C5101-4)								

## 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

# HFN series

**DIMENSIONS(mm)**



ΦD	5	6.3	8	10	12.5	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

$\alpha$	(L < 20) 1.5
	(L ≥ 20) 2.0

**STANDARD RATINGS**

DxL(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	1.10	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	8x11.5	0.150	0.290	650	
330		6.3x11	0.270	0.550	295	6.3x15	0.200	0.390	400	8x11.5	0.140	0.260	660	8x16	0.110	0.220	750	
390														10x12.5	0.110	0.220	770	
470		6.3x15	0.200	0.400	400	8x11.5	0.140	0.260	650	8x20	0.100	0.200	740	8x20	0.096	0.180	820	
560										10x12.5	0.100	0.200	770	10x16	0.085	0.170	1,060	
680		8x11.5	0.140	0.280	655	8x16	0.100	0.200	830	8x20	0.091	0.180	830	10x20	0.067	0.130	1,230	
820		10x12.5	0.100	0.200	860	10x12.5	0.100	0.200	860	10x16	0.077	0.150	1,070	10x25	0.057	0.110	1,450	
1000		8x16	0.100	0.210	830	8x20	0.091	0.170	1,010	10x20	0.061	0.120	1,270	10x30	0.048	0.092	1,720	
1200		10x16	0.077	0.150	1,250	10x16	0.077	0.150	1,250	10x25	0.053	0.100	1,450	12.5x20	0.048	0.097	1,670	
1500		10x20	0.059	0.120	1,420	10x20	0.061	0.120	1,420	10x30	0.043	0.085	1,700	12.5x25	0.040	0.076	1,960	
1800						10x30	0.043	0.085	1,930	12.5x20	0.045	0.087	1,670	12.5x30	0.033	0.064	2,320	
2200		10x25	0.052	0.100	1,640	12.5x20	0.045	0.088	1,650	12.5x25	0.036	0.069	1,970	12.5x35	0.025	0.051	2,520	
2700		10x30	0.045	0.086	1,930					12.5x30	0.030	0.058	2,330	12.5x40	0.020	0.041	2,860	
3300		12.5x20	0.044	0.086	1,650	12.5x25	0.036	0.069	1,960	12.5x35	0.028	0.051	2,520	16x26	0.025	0.051	2,570	
3900		12.5x25	0.036	0.069	1,960	12.5x30	0.030	0.058	2,320	12.5x40	0.022	0.041	2,880	16x31.5	0.022	0.045	3,020	
4700		12.5x30	0.030	0.058	2,320	12.5x35	0.025	0.052	2,520	16x26	0.028	0.051	2,570	18x25	0.023	0.047	2,750	
5600		12.5x35	0.026	0.051	2,520	12.5x40	0.022	0.041	2,880	16x31.5	0.023	0.045	3,020	16x40	0.018	0.036	3,720	
6300						16x26	0.020	0.052	2,570	18x25	0.025	0.047	2,750	18x35.5	0.018	0.037	3,690	
6800		12.5x40	0.022	0.041	2,880	16x36	0.022	0.041	3,160	18x35.5	0.021	0.039	3,670	18x40	0.018	0.036	3,810	
8200		16x26	0.028	0.051	2,570	16x36	0.022	0.041	3,150	16x40	0.020	0.036	3,720					
10000		16x31.5	0.024	0.045	3,020	18x31.5	0.022	0.043	3,340	18x40	0.020	0.035	3,810					
12000		16x40	0.020	0.036	3,720	18x40	0.020	0.036	3,810									
15000		18x31.5	0.022	0.042	3,340													
18000		18x35.5	0.021	0.037	3,670													
		18x40	0.020	0.036	3,810													

HFN

# HFN series

**STANDARD RATINGS**

DxL(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	8x11.5	0.720	2.110	250	
27														10x12.5	0.640	1.850	350	
33	5x11	0.850	1.740	185										8x16	0.480	1.300	320	
														10x16	0.450	1.200	460	
39										6.3x15	0.990	2.310	340	8x20	0.370	0.990	450	
47						6.3x11	0.720	1.490	270									
56	6.3x11	0.300	0.820	300										10x20	0.360	0.940	580	
68						6.3x15	0.520	1.060	370	8x11.5	0.570	1.230	410	10x25	0.270	0.700	760	
100	6.3x15	0.280	0.720	410		8x11.5	0.350	0.710	490	8x16	0.430	1.080	540	10x30	0.210	0.570	910	
										10x12.5	0.420	0.850	550	12.5x20	0.210	0.570	840	
120						8x16	0.270	0.530	640									
						10x12.5	0.250	0.530	630	10x16	0.320	0.630	620	12.5x25	0.160	0.430	1,010	
150	8x11.5	0.150	0.280	625						8x20	0.350	0.850	690					
180						8x20	0.200	0.400	740									
						10x16	0.220	0.420	860	10x20	0.240	0.480	890	12.5x30	0.130	0.360	1,220	
220	8x16	0.110	0.220	740										12.5x35	0.120	0.330	1,420	
	10x12.5	0.110	0.210	770	10x20	0.150	0.300	1,060	10x25	0.220	0.430	1,060	16x26	0.110	0.310	1,400		
270	8x20	0.099	0.200	820										12.5x40	0.083	0.240	1,600	
330	10x16	0.085	0.170	1,060	10x25	0.130	0.250	1,260	10x30	0.150	0.300	1,310	16x31.5	0.079	0.240	1,740		
										12.5x20	0.140	0.290	1,290	18x25	0.096	0.270	1,610	
390						10x30	0.095	0.19	1,520					16x36	0.074	0.200	1,950	
						12.5x20	0.100	0.200	1,490	12.5x25	0.120	0.240	1,730	18x31.5	0.082	0.230	1,820	
470	10x20	0.067	0.130	1,230						12.5x30	0.095	0.190	2,100	16x40	0.060	0.160	2,100	
560	10x25	0.057	0.110	1,450	12.5x25	0.078	0.150	1,850						18x35.5	0.074	0.200	2,150	
680	10x30	0.048	0.092	1,700						12.5x35	0.081	0.160	2,280					
	12.5x20	0.050	0.096	1,670	12.5x30	0.068	0.130	2,230		16x26	0.087	0.170	2,170	18x40	0.060	0.160	2,250	
820										12.5x40	0.075	0.140	2,570					
					12.5x35	0.060	0.110	2,300		16x31.5	0.075	0.146	2,680					
										18x25	0.075	0.150	2,690					
1000	12.5x25	0.040	0.076	1,960	12.5x40	0.053	0.100	2,510		16x36	0.063	0.120	2,780					
					16x26	0.062	0.120	2,250										
1200	12.5x30	0.033	0.064	2,320	16x31.5	0.050	0.096	2,710		16x36	0.054	0.100	2,860					
					18x25	0.051	0.099	2,610		18x31.5	0.059	0.110	2,960					
1500	12.5x35	0.031	0.056	2,520	16x36	0.047	0.087	2,810		18x35.5	0.054	0.100	3,120					
1800	12.5x40	0.023	0.045	2,880	16x40	0.038	0.075	3,210										
	16x26	0.031	0.057	2,570	18x31.5	0.047	0.087	3,010		18x40	0.047	0.087	3,220					
2200	16x31.5	0.025	0.050	3,020														
	18x25	0.028	0.052	2,750	18x35.5	0.042	0.080	3,110										
2700	16x36	0.024	0.044	3,160														
	18x31.5	0.025	0.047	3,340	18x40	0.038	0.071	3,410										
3300	16x40	0.022	0.040	3,720														
	18x35.5	0.023	0.041	3,690														
3900	18x40	0.022	0.040	3,810														

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