HH Series

- Endurance with ripple current:130℃ 1000~4000 hours
- For electronic ballast of CFL,for power supply
- RoHS2.0 Compliant

◆规格表 Specifications

项目Items	特性参数Characteristics	
使用温度范围 Category Temperture Range	-40 ~ +130℃ (10 ~ 100V.DC)	-25~+130℃ (200~400V.DC)
额定工作电压范围 Rated Voltage Range	10 ~ 400V.DC	
静电容量允许偏差 Capacitance Tolerance	±20%(M) (at 20℃,120Hz)	
漏电流 Leakage Current	10 ~ 100V.DC I≤0.01CV or 3μA, 二者取最小值（施加额定工作电压2分钟后） Whichever is smaller （After 2 minutes application of rated voltage ）	200 、 400V.DC I≤0.02CV+10(μA) （施加额定工作电压2分钟后）（After 2 minute application of rated voltage ）
	Note: I=Max.leakage current (μA), C=Nominal capacitance(μF), V=Rated voltage(V) (at 20℃)	

损耗角正切值tanδ Dissipation Factor	Rated voltage(V)	10	16	25	35	50	63	100	200	400
	tanδ(Max.)	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.15	0.20

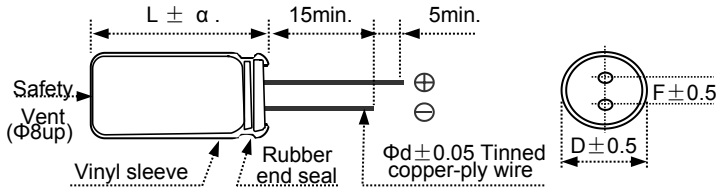
标称容量超过1000μF,则每增加1000μF, 损耗角正切值增加0.02
When nominal capacitance exceeds 1000μF,add 0.02 to the value above for each 1000μF increase. (at 20℃,120Hz)

低温特性 LOW Temperature Characteristics (Max.Impedance Ratio)	阻抗比值不得超过下表中列出的值 The impedance ratio shall not exceed the values listed in the below table. (at 120Hz)									
	Rated voltage(V)	10	16	25	35	50	63	100	200	400
	Z(-25℃)/Z(+20℃)	3	2	2	2	2	2	2	3	6
	Z(-40℃)/Z(+20℃)	6	4	3	3	3	3	3	—	—

耐久性 Endurance	在130℃环境中，不超过额定电压的范围内叠加最大允许纹波电流，连续加载右表时间，经恢复到20℃后，电容器满足以下各项要求。 The following specifications shall be satisfied when the capacitors are restored to 20℃ after applied within maximum allowable ripple current and not over rated voltage range for the time in the table at 130℃			wv (v)	ΦD	时间hrs
	Rated voltage	10 ~ 100V.DC	200&400V.DC	10 ~ 100	Φ8&10	2,000
	capacitance change	≦±30% of the initial value	≦±25% of the initial value		≥Φ13	4,000
	D.F.(tanδ)	≦300% of the initial specifie	≦200% of the initial specified	200&400	Φ6.3	1,000
	Leakage current	≦The initial specified value	≦The initial specified value		Φ8&10	2,000

高温储存特性 Shelf Life	在130℃环境中，不施加电压条件下储存1000小时(200~400V为500小时），经恢复到20℃后，电容器满足以下各项要求。 The following specifications shall be satisfied when the capacitors are restored at 20℃ after exposing them for 1000 hours at 130℃（500hours to 200~400V ） without voltage applied.		
	Rated voltage	10 ~ 100V.DC	200&400V.DC
	capacitance change	≦±30% of the initial value	≦±20% of the initial value
	D.F.(tanδ)	≦300% of the initial specified value	≦200% of the initial specified value
	Leakage current	≦The initial specified value	≦200% of the initial specified value

◆ 尺寸图（单位：mm）DIMENSIONS (Unit:mm)



ΦD	6.3	8	10	13	16	18
F	2.5	3.5	5	5	7.5	7.5
Φd	0.5	0.5	0.6	0.6	0.8	0.8

α	(L<20) 1.5
	(L≥20) 2.0

◆ 纹波电流补正系数 Rated Ripple Current Coefficient

● 频率系数 Frequency Coefficient

Rated Voltage(V)	Frequency(Hz) / Capacitance(μF)	60（50）	120	1K	10K	100K
10~100	1 ~ 4.7	0.35	0.42	0.60	0.80	1.00
	10 ~ 33	0.45	0.55	0.75	0.90	1.00
	47 ~ 330	0.60	0.70	0.85	0.95	1.00
	470 ~1500	0.65	0.75	0.90	0.98	1.00
	2200 ~ 4700	0.75	0.80	0.95	1.00	1.00
200~400	1 ~ 5.6	\	0.20	0.40	0.80	1.00
	6.8 ~ 15	\	0.30	0.60	0.90	1.00
	22 ~ 33	\	0.50	0.80	0.90	1.00

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◆ 标准品一览表Standard Ratings

WV(V) / cap.(μF)	10(1A)		16(1C)		25(1E)		35(1V)	
	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)
220					8×12	329	10×13	503
330	8×12	359	8×12	359	10×13	520	10×16	700
470	10×13	620	10×13	620	10×16	800	10×20	960
1,000	10×20	960	10×20	960	13×20	1,100	13×25	1,430
2,200	13×25	1,430	13×25	1,430	16×32	2,300	16×36	2,550
3,300	16×26	1,903	16×32	2,300	16×36	2,550	18×36	2,800
4,700	16×32	2,300	16×36	2,550				

WV(V) / cap.(μF)	50(1H)		63(1J)		100(2A)	
	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)
1	8×12	36				
2.2	8×12	51				
3.3	8×12	71				
4.7	8×12	100			8×12	100
10	8×12	200			8×12	200
22	8×12	260			8×12	220
33	8×12	300	8×12	250	10×13	260
47	8×12	326	10×13	400	10×16	430
100	10×13	449	10×16	520	13×20	670
220	10×20	820	13×20	890	16×26	1,103
330	13×20	1,000	13×25	1,127	16×32	1,300
470	13×25	1,200	16×26	1,400	18×32	1,600
1000	16×32	1,800	16×32	1,850		
1500	18×36	2,350	18×40	2,570		
2200	18×40	2,700				

WV(V) / cap.(μF)	200(2D)		400(2G)	
	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)	Case size ΦD×L(mm)	Maximum allowable ripple current at130℃/100kHz (mA.r.m.s)
1			6.3×11	60
			8×12	65
1.5			8×12	75
			8×16	80
1.8			8×12	75
			8×16	85
2.2			8×12	75
			8×16	90
			8×20	110
2.7			8×16	95
			8×20	115
3.3			8×16	100
			8×20	120
4.7	6.3×11	100	8×20	120
	8×12	120	10×16	125
5.6	8×12	130	10×16	130
	8×16	180	10×20	145
6.8	8×12	130	10×20	150
	8×16	180		
10	8×16	200		
	8×20	240		
15	8×16	200		
	8×20	240		
22	8×20	240		
	10×16	240		
33	10×20	320		

※铝电解电容器由于在纹波电流叠加时自我发热、温度上升而老化，中心温度每升温5℃寿命减少一半。要想保持长寿命请在使用过程中降低纹波电流。
The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise.When long life performance is required in actyal use,the rms ripple current has to be reduced.