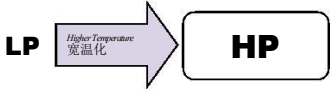


HP Series

SNAP-IN TERMINAL TYPE, WIDE TEMPERATURE RANGE

导箔型，宽温品

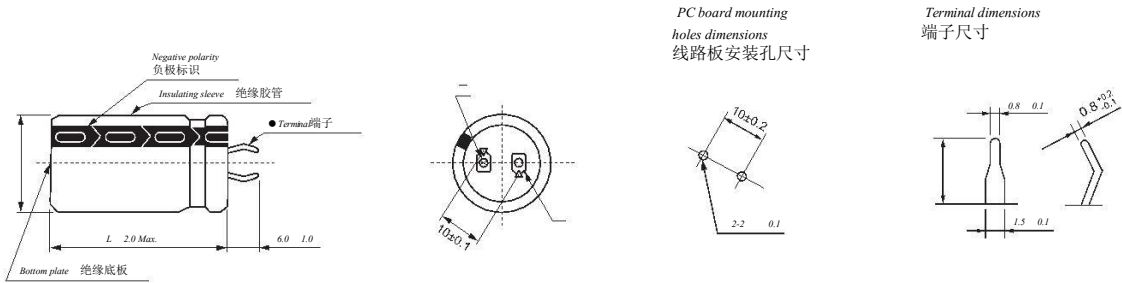
- Wide temperature range of -40(-25)~+105 °C
适用于 -40(-25)~+105 °C 的宽温温度范围
- Standard snap-in terminal series
导箔型标准品系列
- Comply with the RoHS & REACH
符合 RoHS 与 REACH



SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性	
Category Temperature Range 工作温度范围	-40 ~ +105°C	-25 ~ +105°C
Voltage Range 额定工作电压范围	6.3 ~ 350V	400 ~ 450V
Capacitance Range 静电容量范围	68 ~ 68000µF	56 ~ 470µF
Capacitance Tolerance 静电容量允许偏差	±20% at 120Hz, 20°C	
Leakage Current 漏电流	$I \leq 3\sqrt{CV}$ (after 5 minutes application of rated voltage at 20 °C) (在 20 °C 环境中施加额定工作电压 5 分钟后) I: Leakage current (A) 漏电流, C: Nominal capacitance (F) 标称静电容量, V: Rated voltage (V) 额定电压	
Dissipation Factor (tan δ) 损耗角正切	When nominal capacitance is over 1000 µF, tan δ shall be added 0.01 to the listed value with increase of every 1000 µF. 当标称静电容量大于 1000 µF, 其标称静电容量每增加 1000 µF, 损耗角正切增加 0.01. Measurement frequency 测试频率: 120Hz, Temperature 温度: 20°C	
	Rated Voltage (V) 额定工作电压	10 16 25, 35 50, 63 80, 100 160~400 450
	tan δ (max.) 最大损耗角正切	0.50 0.40 0.35 0.25 0.20 0.15 0.20
Stability at Low Temperature 低温特性	Measurement frequency 测试频率: 120Hz	
	Rated Voltage (V) 额定工作电压	10~16 25 35 50~100 160~250 350~450
	Impedance Ratio 阻抗比	Z(-25°C) / Z(+20°C) 5 4 2 4 8
		Z(-40°C) / Z(+20°C) 15 15 12 6 —
Endurance 耐久性	When the capacitors are restored to 20°C after 2000 hours application of the rated voltage at 105°C, they meet the characteristics listed below. 在 105°C 环境中施加额定工作电压 2000 小时后, 待电容器恢复至 20°C 时进行测量, 电容器的特性符合下表要求。	
	Capacitance Change 静电容量变化率	Within ±20% of initial value 初始值的 ±20% 以内
	Dissipation Factor 损耗角正切	Less than 200% of specified value 不大于规范值的 200%
	Leakage Current 漏电流	Less than specified value 不大于规范值
Shelf Life 高温贮存特性	When the capacitors are restored to 20°C after leaving under no load at 105°C for 1000 hours, they meet the specified listed below. 在 105°C 环境中无负荷放置 1000 小时后, 待电容器恢复至 20°C 时进行测量, 电容器的特性符合下表要求。	
	Capacitance Change 静电容量变化率	Within ±20% of initial value 初始值的 ±20% 以内
	Dissipation Factor 损耗角正切	Less than 200% of specified value 不大于规范值的 200%
	Leakage Current 漏电流	Less than specified value 不大于规范值
Marking 标识	Printed with white colour on black sleeve (PVC) or printed with white colour on green sleeve (PET). 黑色胶管白字印刷 (PVC) 或绿色胶管白字印刷 (PET)。	

DRAWING & DIMENSIONS 外形图及尺寸 (Unit: mm)



FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 纹波电流频率补偿系数

Frequency 频率		50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系数	~ 100 F	0.88	1.0	1.06	1.15	1.20
	160 ~ 250 F	0.85	1.0	1.20	1.25	1.45
	315 F ~	0.88	1.0	1.15	1.20	1.40

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5~10 °C rise. When long life performance is required in actual use, the rms ripple current has to be reduced. 铝电解电容器在叠加纹波电流后会引起发热, 温度每上升 5~10 °C 寿命会减半。若要保持长寿命性能, 请在使用过程中适当降低纹波电流。

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HP Series

DIMENSIONS & STANDARD RATINGS 规格尺寸及标准参数

WV F D		6.3 (0J)				10 (1A)				16 (1C)			
		22	25	30	35	22	25	30	35	22	25	30	35
8200	822									22 x 25 2.14			
10000	103					22 x 25 2.17				22 x 30 2.48	25 x 25 2.56		
12000	123	22 x 25 2.19				22 x 30 2.48				22 x 35 2.80	25 x 30 2.90	30 x 25 2.97	
15000	153	22 x 30 2.53				22 x 35 2.83	25 x 25 2.75			22 x 40 3.17	25 x 35 3.29	30 x 30 3.38	
18000	183	22 x 35 2.85	25 x 25 2.77			22 x 35 3.00	25 x 30 3.11			22 x 45 3.50	25 x 40 3.65	30 x 30 3.57	
22000	223	22 x 35 3.04	25 x 30 3.15			22 x 40 3.35	25 x 35 3.48	30 x 25 3.38			25 x 45 4.03	30 x 35 3.98	
27000	273	22 x 40 3.40	25 x 35 3.53	30 x 25 3.42		22 x 50 3.88	25 x 40 3.87	30 x 30 3.79			25 x 50 4.42	30 x 40 4.39	35 x 30 4.29
33000	333	22 x 50 3.92	25 x 40 3.91	30 x 30 3.83			25 x 45 4.26	30 x 35 4.20				30 x 45 4.79	35 x 35 4.71
39000	393		25 x 45 4.26	30 x 35 4.20			25 x 50 4.60	30 x 40 4.57				30 x 50 5.16	35 x 40 5.10
47000	473		25 x 50 4.63	30 x 40 4.50	35 x 30 4.50			30 x 45 4.95	35 x 30 4.46				35 x 45 5.50
56000	563			30 x 50 5.17	35 x 40 5.12			30 x 45 4.95	35 x 35 4.87				
68000	683				35 x 45 5.52				35 x 45 5.49	Case size 尺寸 Ripple current 纹波电流			

WV F D		25 (1E)				35 (1V)				50 (1H)			
		22	25	30	35	22	25	30	35	22	25	30	35
2700	272									22 x 30 1.94			
3300	332					22 x 25 1.62				22 x 35 2.20			
3900	392					22 x 30 1.88				22 x 40 2.52	25 x 35 2.62	30 x 25 2.54	
4700	472	22 x 25 1.73				22 x 35 2.14	25 x 25 2.09			22 x 45 2.81	25 x 40 2.93	30 x 30 2.87	
5600	562	22 x 30 1.98				22 x 35 2.29	25 x 30 2.37	30 x 25 2.43		22 x 50 3.11	25 x 40 3.11	30 x 35 3.21	
6800	682	22 x 30 2.14				22 x 40 2.61	25 x 35 2.71	30 x 30 2.79		22 x 50 3.11	25 x 50 3.64	30 x 40 3.61	35 x 30 3.53
8200	822	22 x 35 2.42	25 x 30 2.50			22 x 50 3.02	25 x 40 3.02	30 x 30 2.95				30 x 45 3.94	35 x 35 3.87
10000	103	22 x 40 2.77	25 x 35 2.88				25 x 45 3.43	30 x 35 3.38				30 x 50 4.42	35 x 40 4.37
12000	123	22 x 45 3.09	25 x 40 3.22	30 x 30 3.15			25 x 50 3.78	30 x 40 3.75	35 x 30 3.67				35 x 45 4.78
15000	153		25 x 45 3.62	30 x 35 3.57	35 x 30 3.65		25 x 50 4.22	30 x 45 4.19	35 x 35 4.12				35 x 50 5.24
18000	183		25 x 50 4.36	30 x 40 3.95	35 x 35 4.06				35 x 40 4.52				35 x 55 5.70
22000	223			30 x 45 4.36	35 x 35 4.28				35 x 45 4.95	Case size 尺寸 Ripple current 纹波电流			
27000	273				35 x 45 4.92								

WV F D		63 (1J)				80 (1K)				100 (2A)			
		22	25	30	35	22	25	30	35	22	25	30	35
820	821					22 x 25 1.37				22 x 30 1.46	25 x 25 1.51		
1000	102					22 x 30 1.62	25 x 25 1.67			22 x 35 1.71	25 x 30 1.77		
1200	122	22 x 25 1.37				22 x 30 1.67	25 x 25 1.72			22 x 40 1.86	25 x 35 1.94	30 x 25 1.88	
1500	152	22 x 30 1.50	25 x 25 1.54			22 x 35 1.98	25 x 30 2.05			22 x 45 2.18	25 x 40 2.28	30 x 30 2.23	
1800	182	22 x 30 1.64	25 x 25 1.69			22 x 40 2.28	25 x 35 2.37	30 x 25 2.30			25 x 45 2.61	30 x 35 2.57	
2200	222	22 x 35 1.86	25 x 30 1.92			22 x 45 2.51	25 x 35 2.49	30 x 30 2.56			25 x 50 2.85	30 x 40 2.83	35 x 30 2.76
2700	272	22 x 40 2.17	25 x 30 2.13	30 x 25 2.18			25 x 45 3.03	30 x 35 2.99				30 x 45 3.27	35 x 30 3.22
3300	332	22 x 50 2.53	25 x 40 2.53	30 x 30 2.48			25 x 50 3.33	30 x 40 3.30	35 x 30 3.23			30 x 50 3.59	35 x 40 3.55
3900	392		25 x 45 2.88	30 x 35 2.84				30 x 45 3.75	35 x 35 3.69				35 x 45 4.03
4700	472		25 x 40 3.20	30 x 40 3.17	35 x 30 3.10			30 x 50 4.90	35 x 40 4.06				35 x 50 4.40
5600	562			30 x 45 3.51	35 x 35 3.46				35 x 45 4.44				35 x 50 4.65
6800	682			30 x 50 3.92	35 x 40 3.88				35 x 50 4.90	Case size 尺寸 Ripple current 纹波电流			35 x 50 5.50
8200	822				35 x 45 4.22								
10000	103				35 x 50 4.74								

Case size D L(mm), ripple current (A rms) at 105 °C, 120Hz

尺寸 D L(mm), 纹波电流(A rms)于 105 °C, 120Hz

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CAT.2025/V1.2

HP Series

DIMENSIONS & STANDARD RATINGS 规格尺寸及标准参数

WV F D		160 (2C)				200 (2D)				250 (2E)			
		22	25	30	35	22	25	30	35	22	25	30	35
150	151									22 x 25 0.68	25 x 20 0.69		
180	181	22 x 20 0.69				22 x 20 0.69				22 x 25 0.74	25 x 30 0.76	30 x 20 0.83	
220	221	22 x 20 0.76				22 x 25 0.78	25 x 20 0.80			22 x 30 0.88	25 x 25 0.90	30 x 20 0.92	
270	271	22 x 25 0.91	25 x 20 0.93			22 x 25 0.93	25 x 25 0.96	30 x 20 0.98		22 x 35 1.03	25 x 30 1.06	30 x 25 1.09	35 x 20 1.11
330	331	22 x 25 1.01	25 x 25 1.10	30 x 20 1.13		22 x 30 1.05	25 x 25 1.10	30 x 20 1.15		22 x 40 1.20	25 x 30 1.18	30 x 25 1.21	35 x 20 1.23
390	391	22 x 30 1.17	25 x 25 1.20	30 x 20 1.23		22 x 40 1.22	25 x 30 1.25	30 x 25 1.28	35 x 20 1.32	22 x 45 1.36	25 x 40 1.42	30 x 30 1.39	35 x 25 1.42
470	471	22 x 35 1.36	25 x 25 1.32	30 x 25 1.44	35 x 20 1.47	22 x 45 1.38	25 x 35 1.43	30 x 30 1.48	35 x 20 1.53	22 x 50 1.56	25 x 40 1.56	30 x 30 1.53	35 x 25 1.56
560	561	22 x 40 1.56	25 x 30 1.53	30 x 25 1.57	35 x 25 1.70	22 x 50 1.60	25 x 40 1.66	30 x 30 1.72	35 x 25 1.78		25 x 50 1.86	30 x 35 1.76	35 x 30 1.80
680	681	22 x 45 1.80	25 x 35 1.79	30 x 25 1.73	35 x 25 1.88		25 x 45 1.78	30 x 35 1.85	35 x 30 1.92			30 x 45 2.12	35 x 35 2.09
820	821	22 x 50 2.06	25 x 40 2.06	30 x 30 2.02	35 x 25 2.06			30 x 40 2.05	35 x 35 2.12				35 x 40 2.40
1000	102		25 x 45 2.38	30 x 35 2.35	35 x 30 2.41			30 x 45 2.20	35 x 40 2.32				35 x 45 2.76
1200	122		25 x 50 2.52	30 x 40 2.50	35 x 30 2.44				35 x 50 2.48				35 x 50 2.91
1500	152				35 x 40 3.00	Case size 尺寸 Ripple current 纹波电流							

WV F D		315 (2F)				350 (2V)				400 (2G)			
		22	25	30	35	22	25	30	35	22	25	30	35
56	560									22 x 20 0.37			
68	680					22 x 20 0.41				22 x 25 0.44	25 x 20 0.45		
82	820	22 x 20 0.45				22 x 25 0.48	25 x 20 0.49			22 x 30 0.51	25 x 25 0.53	30 x 20 0.54	
100	101	22 x 25 0.53	25 x 20 0.55			22 x 25 0.53	25 x 25 0.59	30 x 20 0.60		22 x 35 0.60	25 x 30 0.62	30 x 20 0.60	
120	121	22 x 30 0.62	25 x 25 0.64	30 x 20 0.65		22 x 30 0.62	25 x 25 0.64	30 x 20 0.65		22 x 40 0.69	25 x 30 0.68	30 x 25 0.70	35 x 20 0.71
150	151	22 x 35 0.74	25 x 30 0.76	30 x 20 0.73		22 x 40 0.78	25 x 30 0.76	30 x 25 0.78	35 x 20 0.80	22 x 45 0.81	25 x 35 0.81	30 x 30 0.83	35 x 20 0.80
180	181	22 x 40 0.85	25 x 35 0.88	30 x 25 0.86	35 x 20 0.87	22 x 45 0.89	25 x 35 0.88	30 x 30 0.91	35 x 20 0.87	22 x 50 0.93	25 x 40 0.93	30 x 30 0.91	35 x 25 0.93
220	221	22 x 45 0.98	25 x 35 0.98	30 x 30 1.00	35 x 20 0.96	22 x 50 1.03	25 x 40 1.03	30 x 30 1.00	35 x 25 1.03		25 x 45 1.07	30 x 35 1.06	35 x 30 1.08
270	271		25 x 45 1.19	30 x 35 1.17	35 x 25 1.14		25 x 45 1.19	30 x 35 1.17	35 x 30 1.20		25 x 50 1.24	30 x 40 1.23	35 x 30 1.20
330	331		25 x 50 1.37	30 x 40 1.36	35 x 30 1.33			30 x 40 1.36	35 x 35 1.40		25 x 45 1.36	30 x 45 1.42	35 x 35 1.40
390	391			30 x 45 1.54	35 x 35 1.52			30 x 45 1.54	35 x 40 1.59			30 x 50 1.61	35 x 40 1.59
470	471			30 x 50 1.76	35 x 40 1.74				35 x 45 1.82			30 x 50 1.70	35 x 45 1.82
560	561				35 x 40 1.90				35 x 50 2.06				35 x 50 2.06
680	681				35 x 50 2.27	Case size 尺寸 Ripple current 纹波电流							35 x 50 2.15

WV F D		450 (2W)			
		22	25	30	35
47	470	22 x 20 0.34			
56	560	22 x 25 0.40	25 x 20 0.41		
68	680	22 x 30 0.47	25 x 25 0.48	30 x 20 0.49	
82	820	22 x 35 0.54	25 x 30 0.56	30 x 20 0.54	
100	101	22 x 40 0.63	25 x 30 0.62	30 x 25 0.64	35 x 20 0.65
120	121	22 x 45 0.73	25 x 35 0.72	30 x 30 0.74	35 x 25 0.76
150	151	22 x 50 0.85	25 x 40 0.85	30 x 30 0.83	35 x 25 0.85
180	181		25 x 45 0.97	30 x 35 0.96	35 x 30 0.98
220	221		25 x 50 1.12	30 x 40 1.11	35 x 30 1.08
270	270			30 x 45 1.28	35 x 35 1.26
330	331			30 x 50 1.48	35 x 40 1.46
390	391				35 x 45 1.66
470	471				35 x 45 1.85

Case size D L(mm)
Ripple current (A rms) at 105 °C, 120Hz

尺寸 D L(mm)
纹波电流(A rms)于 105 °C, 120Hz

Please refer to page 23 "Packaging Specifications" for the minimum package quantity. 最小包装数量请查阅第23页“包装标准”。
Please refer to page 18 for the Part Number System. 产品编码规则请查阅第18页。

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