

HP series

Features

- ◆ Highly reliable capacitors that with high ripple current.
- ◆ Terminal spacing fixed at 10 mm for printed circuit board plug in.
- ◆ Aluminum case deaigned explosion –proof vent.
- ◆ Best for switching power supplies.
- ◆ For detail specifications, please refer to Engineering Bulletin No.E107
- ◆ HoHS Compliant



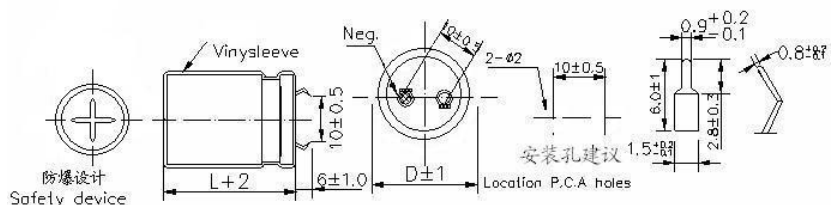
Specifications

Item	Performance Characteristics										
Operating Temperature Range	-40~+105°C	-25~+105°C									
Rate Voltage Range	10~100VDC	160~450VDC									
Capacitance Range	330~68000µF	33~22000µF									
Capacitance Tolerance	±20% (120Hz, +20°C)										
Leakage current (+20°C,max.)	1 ≤ 0.02CVA After 5 minutes with rated working voltage applied.										
Dissipation factor (tgδ)	Less than the value under table (%)										
	Uf \ VDC	10-16	25-35	50-63	80-100	160-250	315-450				
	47~390	-	-	-	15	15	20				
	470~3900	25	20	20	20	15	20				
	4700~8200	35	30	30	25	-	-				
	10000~22000	40	35	30	-	-	-				
	27000~47000	45	40	35	-	-	-				
56000~68000	50	45	-	-	-	-					
Low Temperature Characteristics (120Hz)	Impedance ratio max.										
	Rated voltage (V)	10	16	25	35	50	63	100	160	200-250	400-450
	Z-25°C / Z+20°C	5	5	4	4	4	4	4	4	4	8
	Z-40°C / Z+20°C	15	15	15	12	12	12	12	-	-	-
Load Life	Test conditions										
	Duration time	: 2000Hrs									
	Ambient temperature	: +105°C									
	Applied voltage	: Rated DC working voltage									
	After test requirement at +20°C										
	Capacitance change	: ≤±20% of the initial measured value									
Dissipation factor	: ≤200% of the initial specified value										
Leakage current	: ≤The initial specified value										
Shelf Life	Test conditions										
	Duration time	: 1000Hrs									
	Ambient temperature	: +105°C									
	Applied voltage	: None									
	After test requirement at +20°C	: The same limits as Load life									
Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes											

Multiplier for Ripple Current vs. Frequency

CAP(µF)	50(60)	120	400	1k	10k	50k-100k
10 < CAP ≤ 100	0.8	1	1.23	1.36	1.48	1.53
100 < CAP ≤ 1000	0.8	1	1.16	1.25	1.35	1.38
1000 < CAP	0.8	1	1.11	1.17	1.25	1.28

Diagram of Dimensions





HP series
Case Size

Φ D×L

wv ΦD Cap (uF)	10								16									
	22		25		30		35		22		25		30		35			
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple		
3300										22×26	1.17							
4700	22×26	1.24								22×26	1.53	25×26	1.55					
										22×31	1.65							
6800	22×26	1.56	25×26	1.56						22×31	2.02	25×26	2.02	30×26	2.02			
8200	22×26	2.04	25×26	2.04						22×31	2.20							
10000	22×31	2.20	25×26	2.20	30×26	2.20				22×31	2.79	25×26	2.79	30×26	2.81			
										22×36	2.97	25×31	2.97					
12000	22×31	2.34								22×36	3.06	25×31	3.06	30×26	3.06			
			22×36	2.49	25×26	2.40												
15000	22×36	2.76	25×26	2.60	30×26	2.80				22×41	3.24	25×36	3.24	30×26	3.24	35×32	3.24	
			25×31	2.76								25×41	3.42					
18000	22×36	2.94	25×31	2.94						22×51	3.51	25×46	3.51	30×36	3.51	35×32	3.54	
22000	22×41	3.12	25×36	3.12	30×26	3.08	35×27	3.20					35×46	4.08	30×36	4.08	35×32	4.08
					30×31	3.30						35×51	4.25					
27000	22×46	3.48	25×36	3.48	30×31	3.48	35×27	3.48					25×51	4.30	30×41	4.30	35×32	4.30
33000			25×46	3.72	30×36	3.72	35×27	3.65							30×46	4.83	35×37	4.83
							35×32	3.85										
39000			25×51	4.10	30×41	4.10	35×32	4.10							30×51	5.78	35×42	5.78
47000					30×46	4.38	35×37	4.38									35×47	6.32
56000					30×51	4.64	35×42	4.64									35×52	7.05
68000							35×42	4.80										

wv ΦD Cap (uF)	25								35									
	22		25		30		35		22		25		30		35			
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple		
1500										22×26	1.26							
2200	22×26	1.03								22×26	1.35	25×26	1.45					
										22×31	1.45							
3300	22×26	1.48	25×26	1.48						22×26	1.80	25×26	1.90	30×26	1.92			
										22×31	1.90							
3900										22×31	2.23							
4700	22×26	1.88	25×26	1.90	30×26	1.92				22×36	2.42	25×26	2.30	30×26	2.54			
												25×31	2.44					
5600	22×31	2.25								22×36	2.89	25×31	2.89	30×26	2.89			
6800	22×31	2.60	25×26	2.60	30×26	2.60				22×41	3.24	25×36	3.24	30×26	3.21	35×27	3.24	
														30×31	3.43			
8200	22×36	3.14	25×31	3.14	30×26	3.14				22×51	3.57	25×41	3.57	30×31	3.57	35×27	3.57	
10000	22×41	3.50	25×36	3.50	30×31	3.50	35×27	3.50					25×46	3.96	30×36	3.96	35×27	3.75
																35×32	4.00	
12000	22×46	4.02	25×41	4.02	30×31	4.02	35×27	4.02					25×51	4.21	30×41	4.21	35×32	4.21
15000			25×46	4.58	30×36	4.58	35×32	4.58							30×46	4.69	35×37	4.69
18000			25×51	4.82	30×41	4.82	35×32	4.79									35×42	5.07
							35×37	4.82										
22000					30×46	5.12	35×37	5.12									35×52	5.50
27000							35×42	5.30										
							35×47	5.47										
33000							35×52	6.09										

Ripple Current (A.ms) at 105°C 120Hz



HP series
Case Size

Φ D×L

wv ΦD Cap (uF)	50								63								
	22		25		30		35		22		25		30		35		
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	
680										22×26	0.70						
1000	22×26	0.84								22×26	0.85	25×26	0.85				
1200										22×26	0.98						
1500	22×26	1.10	25×26	1.12						22×26	1.10	25×26	1.12	30×26	1.14		
	22×31	1.12								22×31	1.15						
1800	22×26	1.50								22×31	1.40	25×26	1.40				
	22×31	1.62															
2200	22×31	1.65	25×26	1.65	30×26	1.65				22×36	1.65	25×31	1.65	30×26	1.65		
2700	22×31	1.85	25×26	1.85						22×41	2.07	25×36	2.07	30×26	2.07		
	22×36	1.97	25×31	1.98													
3300	22×36	2.24	25×31	2.24	30×26	2.24				22×46	2.46	25×36	2.40	30×31	2.48	35×27	2.48
										22×51	2.55	25×41	2.54				
3900	22×41	2.54	25×36	2.54	30×26	2.49						25×41	2.92	30×36	3.05	35×27	3.0
					30×31	2.66						25×46	3.07				
4700	22×46	2.95	25×36	2.80	30×31	2.95	35×27	2.95				25×51	3.43	30×41	3.43	35×32	3.43
			25×41	3.01													
5600	22×51	3.10	25×41	3.02	30×36	3.14	35×27	3.10						30×46	3.86	35×7	3.86
			25×46	3.15	30×41	3.20	35×32	3.20									
6800			25×46	3.23	30×41	3.26	35×32	3.26						30×51	4.64	35×42	4.64
			25×51	3.35													
8200					30×46	3.58	35×37	3.58								35×47	5.05
10000					30×51	4.11	35×42	4.11								35×52	5.75
12000							35×47	4.62									
15000							35×52	5.05									

wv ΦD Cap (uF)	80								100								
	22		25		30		35		22		25		30		35		
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	
330										22×26	0.54						
470	22×26	0.63								22×26	0.79	25×26	0.81				
										22×31	0.85						
560	22×26	0.70								22×26	0.90	25×26	0.95				
	22×31	0.75								22×31	0.97						
680	22×26	0.81	25×26	0.86						22×31	1.02	25×26	1.02	30×26	1.14		
	22×31	0.87															
820	22×31	1.02	25×26	1.02						22×31	1.26	25×26	1.26	30×26	1.32		
			25×31	1.09													
1000	22×31	1.11	25×31	1.16	30×26	1.16				22×36	1.38	25×31	1.38	30×26	1.38		
	22×36	1.18															
1200	22×36	1.46	25×31	1.46	30×26	1.46				22×41	1.65	25×36	1.65	30×31	1.65		
					30×31	1.56											
1500	22×41	1.74	25×36	1.74	30×26	1.70				22×46	1.83	25×41	1.83	30×31	1.83	35×27	1.83
					30×31	1.83											
1800	22×46	1.95	25×36	1.89	30×31	1.95	35×27	1.95				25×41	2.52	30×36	2.52	35×32	2.52
			25×41	1.99													
2200	22×51	2.25	25×41	2.20	30×31	2.20	35×27	2.25				25×51	3.03	30×41	3.03	35×32	3.03
			25×46	2.31	30×36	2.31	35×32	2.40									
2700			25×46	2.58	30×36	2.58	35×32	2.68						30×46	4.10	35×37	4.10
			25×51	2.70	30×41	2.72	35×37	2.85									
3300			25×51	3.30	30×41	3.30	35×37	3.30						30×56	4.59	35×47	4.59
			25×56	3.45	30×46	3.50	35×42	3.50									
3900					30×46	3.73	35×37	3.73								35×47	4.98
					30×51	3.90	35×42	3.93									
4700					30×51	4.29	35×42	4.29								35×52	5.43
5600							35×47	5.10									
6800							35×52	5.66									

Ripple Current (A,ms) at 105°C 120Hz



HP series
Case Size

Φ D×L

wv ΦD Cap (uF)	160								200							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
100									22×26	0.38						
150	22×26	0.37							22×26	0.54	25×26	0.54				
220	22×26	0.42							22×31	0.92	25×26	0.92	30×26	0.92		
270	22×26	0.74							22×31	1.03	25×26	1.03	30×26	1.05		
330	22×31	0.98	25×26	0.98	30×26	1.00			22×36	1.21	25×31	1.21	30×26	1.21		
390	22×31	1.09	25×31	1.10	30×26	1.10			22×36	1.33	25×31	1.34	30×31	1.45		
	22×36	1.15							22×41	1.41	25×36	1.43				
470	22×36	1.21	25×1	1.21	30×26	1.21			22×41	1.57	25×36	1.59	30×31	1.65	35×27	1.65
									22×46	1.65	25×41	1.68				
560	22×41	1.40	25×36	1.40	30×31	1.40	35×27	1.40	22×46	1.81	25×41	1.85	30×31	1.85	35×27	1.85
									22×51	1.90	25×46	1.94	30×36	1.94		
680	22×46	1.64	25×36	1.58	30×31	1.65	35×27	1.71	22×51	2.04	25×46	2.07	30×1	2.04	35×32	2.17
			25×41	1.67	30×36	1.75	35×32	1.80	22×56	2.12	25×51	2.17	30×36	2.17		
820			25×41	1.76	30×36	1.85	35×32	1.85			25×51	2.30	30×36	2.30	35×37	2.31
			25×46	1.85							25×56	2.40	30×41	2.40		
1000			25×51	2.15	30×41	2.15	35×32	2.15					30×41	2.62	35×37	2.62
													30×46	2.75	35×42	2.75
1200			25v56	2.46	30×46	2.46	35×37	2.46					30×51	3.00	35×42	3.00
1500					30×51	2.80	35×42	2.80							35×47	3.28
															35×52	3.46
1800					30×51	3.13	35×42	3.13							35×52	4.01
2200							35×52	3.26								
							35×57	3.39								

wv ΦD Cap (uF)	220								250							
	22		25		30		35		22		25		30		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
68									22×26	0.27						
100									22×31	0.44	25×26	0.44				
150	22×26	0.50	25×26	0.50					22×31	0.60	25×26	0.60	30×26	0.60		
180	22×26	0.60	25×26	0.60					22×31	0.69	25×26	0.69	30×26	0.69		
220	22×31	0.85	25×26	0.85	30×26	0.85			22×36	1.00	25×31	1.00	30×26	1.00		
270	22×31	1.05	25×26	1.05	30×26	1.05			22×41	1.16	25×36	1.16	30×31	1.16		
330	22×36	1.15	25×1	1.15	30×26	1.15			22×46	1.28	25×36	1.28	30×31	1.28	35×27	1.28
390	22×41	1.25	25×31	1.20	30×26	1.25			22×46	1.48	25×36	1.48	30×31	1.48	35×27	1.48
			25×36	1.28	30×31	1.33										
470	22×46	1.35	25×36	1.31	30×31	1.35	35×27	1.35			25×41	1.76	30×36	1.76	3×32	1.76
			25×41	1.38							25×46	1.85				
560	22×51	1.60	25×46	1.60	30×36	1.60	35×27	1.60			25×51	1.93	30×41	1.93	35×32	1.93
680	22×56	1.70	25×51	1.75	30×41	1.75	35×32	1.75					30×46	2.22	35×37	2.22
820			25×56	2.00	30×46	2.00	35×37	2.00					30×51	2.48	35×42	2.48
1000					30×51	2.30	35×42	2.30							35×47	2.80
1200							35×47	2.35							35×52	3.17
1500							35×52	2.40								
1800							35×56	2.50								

Ripple Current (A,ms) at 105°C 120Hz

HP series
Case Size

Φ D×L

wv ΦD Cap (uF)	400								450								
	22		25		30		35		22		25		30		35		
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	
33	22×26	0.39								22×26	0.24						
47	22×26	0.56	25×26	0.56						22×31	0.35	25×26	0.35				
56	22×26	0.63	25×26	0.68						22×31	0.41	25×26	0.41				
	22×31	0.68															
68	22×31	0.72	25×26	0.72	30×26	0.72				22×36	0.55	25×31	0.55	30×26	0.55		
82	22×31	0.77	25×31	0.82	30×26	0.85				22×36	0.64	25×31	0.64	30×26	0.64		
	22×36	0.82															
100	22×36	0.82	25×31	0.82	30×26	0.82				22×41	0.74	25×31	0.74	30×31	0.74		
120	22×36	0.90	25×31	0.90	30×26	0.90				22×46	0.82	25×36	0.82	30×31	0.82		
150	22×41	0.98	25×36	0.98	30×31	0.95	35×27	0.95		22×51	0.96	25×41	0.96	30×36	0.96	35×27	0.96
180	22×46	1.14	25×41	1.14	30×36	1.14	35×32	1.14				25×46	1.14	30×36	1.10	35×32	1.14
														30×41	1.16		
220			25×46	1.21	30×41	1.21	35×32	1.21						30×41	1.24	35×37	1.24
270					30×46	1.40	35×37	1.40						30×51	1.48	35×42	1.48
330					30×51	1.57	35×42	1.57								35×47	1.64
390							35×42	1.71								35×52	1.86
							35×47	1.79									
470							35×47	1.94									
							35×52	2.03									
560							35×52	2.23									

Ripple Current (A,ms) at 105°C 120Hz