

HP Series Snap-in Type 105°C

Features

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



Specifications

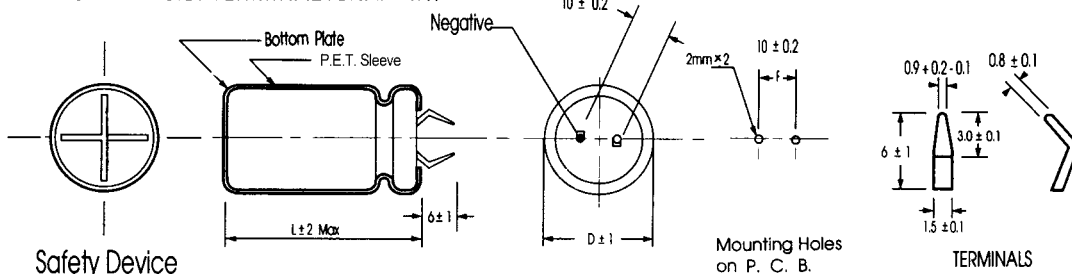
Item	Performance Characteristics										
Operating Temperature Range	-40 to +105°C	-25 to +105°C									
Rated Voltage Range	10 to 100 VDC	160 to 450 VDC									
Capacitance Range	330 to 68000 µF	33 to 2200 µF									
Capacitance Tolerance	± 20% (120Hz, +20°C)										
Leakage Current (+20°C, max.)	I ≤ 0.02CV After 5 minutes with rated working voltage applied.										
Dissipation Factor (tan δ , at 20°C , 120Hz)	Less than the value under table (%)										
	µ F \ 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	—	—	—				
Low Temperature Characteristics (at 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		:2000 Hrs									
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	:1000 Hrs									
	Ambient temperature	:+105°C									
	Applied voltage	:None									
	After test requirement at +20°C	: 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(µ F) \ Frequency(Hz)	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:(unit:mm)

SYMBOL G : P.C.B. TERMINAL (SNAP-IN)



Case Size

φ D x L (mm)

Cap (μF) / φ D	WV		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	Size	Ripple
3300											22x26	1.17						
4700	22x26	1.24									22x26	1.53	25x26	1.55				
6800	22x26	1.56	25x26	1.56							22x31	1.65						
8200	22x26	2.04	25x26	2.04							22x31	2.02	25x26	2.02	30x26	2.02		
10000	22x31	2.20	25x26	2.20	30x26	2.20					22x31	2.79	25x26	2.79	30x26	2.81		
12000	22x31	2.34									22x36	2.97	25x31	2.97				
	22x36	2.49	25x26	2.40							22x36	3.06	25x31	3.06	30x26	3.06		
15000	22x36	2.76	25x26	2.60	30x26	2.80					22x41	3.24	25x36	3.24	30x26	3.24	35x32	3.24
			25x31	2.76									25x41	3.42				
18000	22x36	2.94	25x31	2.94							22x51	3.51	25x46	3.51	30x36	3.51	35x32	3.54
22000	22x41	3.12	25x36	3.12	30x26	3.08	35x27	3.20					25x46	4.08	30x36	4.08	35x32	4.08
					30x31	3.30							25x51	4.25				
27000	22x46	3.48	25x36	3.48	30x31	3.48	35x27	3.48					25x51	4.30	30x41	4.30	35x32	4.30
33000			25x46	3.72	30x36	3.72	35x27	3.65							30x46	4.83	35x37	4.83
							35x32	3.85										
39000			25x51	4.10	30x41	4.10	35x32	4.10							30x51	5.78	35x42	5.78
47000					30x46	4.38	35x37	4.38									35x47	6.32
56000					30x51	4.64	35x42	4.64									35x52	7.05
68000							35x52	4.80										

Cap (μF) / φ D	WV		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	Size	Ripple
1500											22x26	1.26						
2200	22x26	1.03									22x26	1.35	25x26	1.45				
											22x31	1.45						
3300	22x26	1.48	25x26	1.48							22x26	1.80	25x26	1.90	30x26	1.92		
3900											22x31	1.90						
4700	22x26	1.88	25x26	1.90	30x26	1.92					22x36	2.42	25x26	2.30	30x26	2.54		
	22x31	1.92										25x31	2.44					
5600	22x31	2.25								22x36	2.89	25x31	2.89	30x26	2.89			
6800	22x31	2.60	25x26	2.60	30x26	2.60				22x41	3.24	25x36	3.24	30x26	3.21	35x27	3.24	
														30x31	3.43			
8200	22x36	3.14	25x31	3.14	30x26	3.14				22x51	3.57	25x41	3.57	30x31	3.57	35x27	3.57	
	22x41	3.50	25x36	3.50	30x31	3.50	35x27	3.50				25x46	3.96	30x36	3.96	35x27	3.75	
12000	22x46	4.02	25x41	4.02	30x31	4.02	35x27	4.02					25x51	4.21	30x41	4.21	35x32	4.21
			25x46	4.58	30x36	4.58	35x32	4.58							30x46	4.69	35x37	4.69
15000			25x51	4.82	30x41	4.82	35x32	4.79								35x42	5.07	
18000							35x37	4.82										
22000					30x46	5.12	35x37	5.12									35x52	5.50
							35x42	5.30										
27000							35x47	5.47										
33000							35x52	6.09										

Cap (μF) / φ D	WV		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	Size	Ripple
680											22x26	0.70						
1000	22x26	0.84									22x26	0.85	25x26	0.85				
1200											22x26	0.98						
	22x26	1.10	25x26	1.12							22x26	1.10	25x26	1.12	30x26	1.14		
1500	22x31	1.12									22x31	1.15						
	22x26	1.50									22x31	1.40	25x26	1.40				
1800	22x331	1.62																
	22x31	1.65	25x26	1.65	30x26	1.65					22x36	1.65	25x31	1.65	30x26	1.65		
2200	22x31	1.85	25x26	1.85							22x41	2.07	25x36	2.07	30x26	2.07		
	22x36	1.97	25x31	1.98														
2700	22x36	2.24	25x31	2.24	30x26	2.24					22x46	2.46	25x36	2.40	30x31	2.48	35x27	2.48
											22x51	2.55	25x41	2.54				
3300	22x41	2.54	25x36	2.54	30x26	2.49							25x41	2.92	30x36	3.05	35x27	3.05
					30x31	2.66							25x46	3.07				
3900	22x46	2.95	25x36	2.80	30x31	2.95	35x27	2.95					25x51	3.43	30x41	3.43	35x32	3.43
			25x41	3.01														
4700	22x51	3.10	25x41	3.02	30x36	3.14	35x27	3.10							30x46	3.86	35x37	3.86
			25x46	3.15	30x41	3.20	35x32	3.20										
5600			25x46	3.23	30x41	3.26	35x32	3.26							30x51	4.64	35x42	4.64
			25x51	3.35														
6800					30x46	3.58	35x37	3.58									35x47	5.05
8200					30x51	4.11	35x42	4.11									35x52	5.75
10000							35x47	4.62										
12000							35x52	5.05										
15000																		

φ DxDL(mm)

Cap (μF)	φ D	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										22x26	0.54						
470		22x26	0.63							22x26	0.79	25x26	0.81				
560		22x26	0.70							22x31	0.85						
		22x31	0.75							22x26	0.90	25x26	0.95				
680		22x26	0.81	25x26	0.86					22x31	1.02	25x26	1.02	30x26	1.14		
		22x31	0.87														
820		22x31	1.02	25x26	1.02					22x31	1.26	25x26	1.26	30x26	1.32		
				25x31	1.09												
1000		22x31	1.11	25x31	1.16	30x26	1.16			22x36	1.38	25x31	1.38	30x26	1.38		
		22x36	1.18														
1200		22x36	1.46	25x31	1.46	30x26	1.46			22x41	1.65	25x36	1.65	30x31	1.65		
						30x31	1.56										
1500		22x41	1.74	25x36	1.74	30x26	1.70			22x46	1.83	25x41	1.83	30x31	1.83	35x27	1.83
						30x31	1.82										
1800		22x46	1.95	25x36	1.89	30x31	1.95	35x27	1.95			25x41	2.52	30x36	2.52	35x32	2.52
				25x41	1.99												
2200		22x51	2.25	25x41	2.20	30x31	2.20	35x27	2.25			25x51	3.03	30x41	3.03	35x32	3.03
				25x46	2.31	30x36	2.31	35x32	2.40								
2700				25x46	2.58	30x36	2.58	35x32	2.68					30x46	4.10	35x37	4.10
				25x51	2.70	30x41	2.72	35x37	2.85								
3300				25x51	3.30	30x41	3.30	35x37	3.30					30x56	4.59	35x47	4.59
				25x56	3.45	30x46	3.50	35x42	3.50								
3900						30x46	3.73	35x37	3.73							35x47	4.98
						30x51	3.90	35x42	3.93								
4700					30x51	4.29	35x42	4.29								35x52	5.43
5600							35x47	5.10									
6800							35x52	5.66									

Cap (μF)	φ D	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										22x26	0.38						
150		22x26	0.37							22x26	0.54	25x26	0.54				
220		22x26	0.42							22x31	0.92	25x26	0.92	30x26	0.92		
270		22x26	0.74							22x31	1.03	25x26	1.03	30x26	1.05		
330		22x31	0.98	25x26	0.98	30x26	1.00			22x36	1.21	25x31	1.21	30x26	1.21		
		22x31	1.09	25x31	1.10	30x26	1.10			22x36	1.33	25x31	1.34	30x31	1.45		
390		22x36	1.15							22x41	1.41	25x36	1.43				
		22x36	1.21	25x31	1.21	30x26	1.21			22x41	1.57	25x36	1.59	30x31	1.65	35x27	1.65
470										22x46	1.65	25x41	1.68				
		22x41	1.40	25x36	1.40	30x31	1.40	35x27	1.40	22x46	1.81	25x41	1.85	30x31	1.85	35x27	1.85
560										22x51	1.90	25x46	1.94	30x36	1.94		
		22x46	1.64	25x36	1.58	30x31	1.65	35x27	1.71	22x51	2.04	25x46	2.07	30x31	2.04	35x32	2.17
680				25x41	1.67	30x36	1.75	35x32	1.80	22x56	2.12	25x51	2.17	30x36	2.17		
				25x41	1.76	30x36	1.85	35x32	1.85			25x51	2.30	30x36	2.30	35x37	2.31
820				25x46	1.85							25x56	2.40	30x41	2.40		
				25x51	2.15	30x41	2.15	35x32	2.15					30x41	2.62	35x37	2.62
1000													30x46	2.75	35x42	2.75	
													30x51	3.00	35x42	3.00	
1200				25x56	2.46	30x46	2.46	35x37	2.46								
						30x51	2.80	35x42	2.80								
1500																35x47	3.28
																35x52	3.46
1800						30x51	3.13	35x42	3.13							35x52	4.01
								35x52	3.26								
2200								35x57	3.39								

Cap (μF)	φ D	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										22x26	0.27						
100										22x31	0.44	25x26	0.44				
150		22x26	0.50	25x26	0.50					22x31	0.60	25x26	0.60	30x26	0.60		
180		22x26	0.60	25x26	0.60					22x31	0.69	25x26	0.69	30x26	0.69		
220		22x31	0.85	25x26	0.85	30x26	0.85			22x36	1.00	25x31	1.00	30x26	1.00		
270		22x31	1.05	25x26	1.05	30x26	1.05			22x41	1.16	25x36	1.16	30x31	1.16		
330		22x36	1.15	25x31	1.15	30x26	1.15			22x46	1.28	25x36	1.28	30x31	1.28	35x27	1.28
		22x41	1.25	25x31	1.20	30x26	1.25			22x46	1.48	25x36	1.48	30x31	1.48	35x27	1.48
390				25x36	1.28	30x31	1.33										
		22x46	1.35	25x36	1.31	30x31	1.35	35x27	1.35			25x41	1.76	30x36	1.76	35x32	1.76
470				25x41	1.38							25x46	1.85				
		22x51	1.60	25x46	1.60	30x36	1.60	35x27	1.60			25x51	1.93	30x41	1.93	35x32	1.93
680		22x56	1.70	25x51	1.75	30x41	1.75	35x32	1.75					30x46	2.22	35x37	2.22
820				25x56	2.00	30x46	2.00	35x37	2.00					30x51	2.48	35x42	2.48
1000						30x51	2.30	35x42	2.30							35x47	2.80
1200								35x47	2.35							35x52	3.17
1500								35x52	2.40								
1800								35x56	2.50								

φ DxL(mm)

Cap (μF)	φ D	400								420							
		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		22x26	0.39							22x26	0.32						
47		22x26	0.56	25x26	0.56					22x26	0.45	25x26	0.45				
56		22x26	0.63	25x26	0.68					22x26	0.52	25x26	0.52				
		22x31	0.68														
68		22x31	0.72	25x26	0.72	30x26	0.72			22x31	0.64	25x26	0.64	30x26	0.64		
82		22x31	0.77	25x31	0.82	30x26	0.85			22x31	0.75	25x31	0.75	30x26	0.75		
		22x36	0.82														
100		22x36	0.82	25x31	0.82	30x26	0.82			22x36	0.78	25x31	0.78	30x26	0.78		
120		22x36	0.90	25x31	0.90	30x26	0.90			22x36	0.84	25x36	1.84	30x26	0.84		
150		22x41	0.98	25x36	0.98	30x31	0.95	35x27	0.95	22x41	0.97	25x36	0.97	30x31	0.97		
180		22x46	1.14	25x41	1.14	30x36	1.14	35x32	1.14	22x46	1.02	25x41	1.02	30x36	1.02	35x27	1.02
220				25x46	1.21	30x41	1.21	35x32	1.21			25x46	1.22	30x41	1.22	35x27	1.22
270						30x46	1.40	35x37	1.40					30x46	1.5	35x32	1.5
330						30x51	1.57	35x42	1.57					30x51	1.68	35x42	1.68
390								35x42	1.71							35x47	1.76
								35x47	1.79								
470								35x47	1.94							35x52	1.87
								35x52	2.03								
560								35x52	2.23								

Cap (μF)	φ D	450							
		22		25		30		35	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
33		22x26	0.24						
47		22x31	0.35	25x26	0.35				
56		22x31	0.41	25x26	0.41				
68		22x36	0.55	25x31	0.55	30x26	0.55		
82		22x36	0.64	25x31	0.64	30x26	0.64		
100		22x41	0.74	25x31	0.74	30x31	0.74		
120		22x46	0.82	25x36	0.82	30x31	0.82		
150		22x51	0.96	25x41	0.96	30x36	0.96	35x27	0.96
180				25x46	1.14	30x36	1.10	35x32	1.14
						30x41	1.16		
220						30x41	1.24	35x37	1.24
270						30x51	1.48	35x42	1.48
330								35x47	1.64
390								35x52	1.86
470									
560									

Ripple Current (A, rms) at 105°C 120Hz