

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

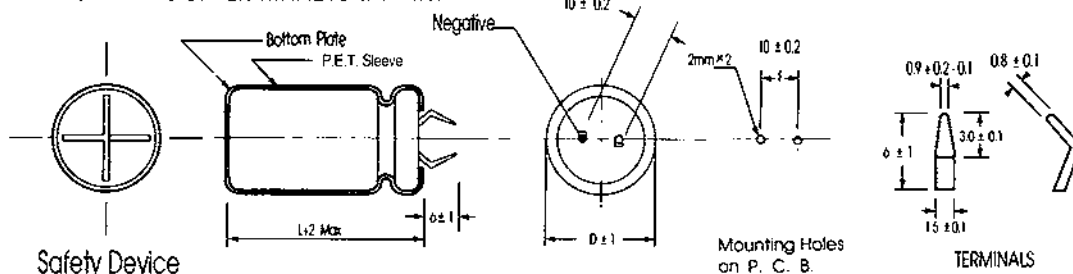
Item	Performance Characteristics										
Operating Temperature Range	-40 to +105℃							-25 to +105℃			
Rated Voltage Range	10 to 100 VDC							160 to 450 VDC			
Capacitance Range	330 to 68000 μ F							33 to 2200 μ F			
Capacitance Tolerance	± 20% (120Hz, +20℃)										
Leakage Current (+20℃,max.)	I ≤ 0.02CV After 5 minutes with rated working voltage applied.										
Dissipation Factor (tan δ , at 20℃ , 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	—	—	—				
	56000~68000	50	45	—	—	—	—				
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℃ / Z+20℃	5	5	4	4	4	4	4	4	4	8
	Z - 40℃ / Z+20℃	15	15	15	12	12	12	12	—	—	—
Load Life	Test conditions Duration time :2000 Hrs Ambient temperature :+105℃ Applied voltage :Rated DC working voltage After test requirement at +20℃ 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℃ Applied voltage :None After test requirement at +20℃ : 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 $\leq$ 100	0.8	1	1.23	1.36	1.48	1.53
100 < CAP $\leq$ 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)	WV(SV) φ D		10 (13)								16 (20)							
			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				
											22x31	1.65						
6800	22x26	1.56	25x26	1.56							22x31	2.02	25x26	2.02	30x26	2.02		
8200	22x26	2.04	25x26	2.04							22x31	2.20						
10000	22x31	2.20	25x26	2.20	30x26	2.20					22x31	2.79	25x26	2.79	30x26	2.81		
											22x36	2.97	25x31	2.97				
12000	22x31	2.34									22x36	3.06	25x31	3.06	30x26	3.06		
	22x36	2.49	25x26	2.40														
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
			25x46	3.72	30x36	3.72	35x27	3.65							30x46	4.83	35x37	4.83
33000							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)	WV(SV) φ D		25 (32)								35 (44)							
			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						
											22x31	2.23						
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
10000	22x41	3.50	25x36	3.50	30x31	3.50	35x27	3.50					25x46	3.96	30x36	3.96	35x27	3.75
																	35x32	4.00
12000	22x46	4.02	25x41	4.02	30x31	4.02	35x27	4.02					25x51	4.21	30x41	4.21	35x32	4.21
15000			25x46	4.58	30x36	4.58	35x32	4.58							30x46	4.69	35x37	4.69
18000			25x51	4.82	30x41	4.82	35x32	4.79									35x42	5.07
							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)	WV(SV) φ D		50 (63)								63 (79)							
			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						
1500	22x26	1.10	25x26	1.12							22x26	1.10	25x26	1.12	30x26	1.14		
	22x31	1.12									22x31	1.15						
1800	22x26	1.50									22x31	1.40	25x26	1.40				
	22x331	1.62																
2200	22x31	1.65	25x26	1.65	30x26	1.65					22x36	1.65	25x31	1.65	30x26	1.65		
	22x31	1.85	25x26	1.85							22x41	2.07	25x36	2.07	30x26	2.07		
2700	22x36	1.97	25x31	1.98														
3300	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				
3900	22x41	2.54	25x36	2.54	30x26	2.49							25x41	2.92	30x36	3.05	35x27	3.05
					30x31	2.66							25x46	3.07				
4700	22x46	2.95	25x36	2.80	30x31	2.95	35x27	2.95					25x51	3.43	30x41	3.43	35x32	3.43
			25x41	3.01														
5600	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										
6800			25x46	3.23	30x41	3.26	35x32	3.26							30x51	4.64	35x42	4.64
			25x51	3.35														
8200					30x46	3.58	35x37	3.58									35x47	5.05
10000					30x51	4.11	35x42	4.11									35x52	5.75
12000							35x47	4.62										
15000							35x52	5.05										

φ D x L (mm)

Cap (μF)	φ D	80 (100)								100 (125)							
		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				
										22x31	0.85						
560		22x26	0.70							22x26	0.90	25x26	0.95				
		22x31	0.75							22x31	0.97						
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)								200 (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
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				
470		22x36	1.21	25x31	1.21	30x26	1.21			22x41	1.57	25x36	1.59	30x31	1.65	35x27	1.65
										22x46	1.65	25x41	1.68				
560		22x41	1.40	25x36	1.40	30x31	1.40	35x27	1.40	22x46	1.81	25x41	1.85	30x31	1.85	35x27	1.85
										22x51	1.90	25x46	1.94	30x36	1.94		
680		22x46	1.64	25x36	1.58	30x31	1.65	35x27	1.71	22x51	2.04	25x46	2.07	30x31	2.04	35x32	2.17
				25x41	1.67	30x36	1.75	35x32	1.80	22x56	2.12	25x51	2.17	30x36	2.17		
820				25x41	1.76	30x36	1.85	35x32	1.85			25x51	2.30	30x36	2.30	35x37	2.31
				25x46	1.85							25x56	2.40	30x41	2.40		
1000				25x51	2.15	30x41	2.15	35x32	2.15					30x41	2.62	35x37	2.62
														30x46	2.75	35x42	2.75
1200				25x56	2.46	30x46	2.46	35x37	2.46					30x51	3.00	35x42	3.00
1500						30x51	2.80	35x42	2.80							35x47	3.28
1800																35x52	3.46
						30x51	3.13	35x42	3.13							35x52	4.01
2200								35x52	3.26								
								35x57	3.39								

Cap (μF)	φ D	220 (270)								250 (300)							
		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										
470		22x46	1.35	25x36	1.31	30x31	1.35	35x27	1.35			25x41	1.76	30x36	1.76	35x32	1.76
				25x41	1.38							25x46	1.85				
560		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 D×L(mm)

WV(SV) Cap (μF) φ D	400 (450)								420 (470)							
	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		
	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	35x32	1.22
270					30x46	1.40	35x37	1.40					30x46	1.5	35x37	1.5
330					30x51	1.57	35x42	1.57					30x51	1.68	35x42	1.68
							35x42	1.71							35x47	1.76
390							35x47	1.79								
							35x47	1.94							35x52	1.87
							35x52	2.03								
560							35x52	2.23								

WV(SV) Cap (μF) φ D	450 (500)							
	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

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