

## HP Series

SAMXON®

Lug/Snap-in Terminal Type(插入/自立型), Wide Temperature(寬溫度)

### FEATURES

- Highly reliable capacitors that withstand under high ripple current.
- Two or three dimensions with same ratings.
- Aluminum case designed explosion-proof vent.
- Best for switching power supplies.



### SPECIFICATIONS

Item	Performance Characteristics												
Operating Temperature Range	-40 to +105°C												
Rated Working Voltage Range	10 to 100V												
Nominal Capacitance Range	47 ~ 56000μF												
Capacitance Tolerance	±20% (120Hz, +20°C)												
Leakage Current	$I \leq 3 \sqrt{CV} (\mu A)$ after 5 minutes application of rated working voltage at +20°C												
tan δ (120Hz, +20°C)	Working Voltage (V)	10	16	25	35	50	63	80					
	tan δ (max.)	0.55	0.50	0.45	0.35	0.30	0.30	0.25					
	Working Voltage (V)	160 ~ 220	250	315 ~ 385	400 ~ 500								
	tan δ (max.)	0.15	0.15	0.15	0.20								
For capacitance value > 33000μF, add following calculated value: $\frac{(rated\ capacitance) - 33000\mu F}{10000\mu F} \times 0.1$													
Low Temperature Characteristics	Impedance ratio max. at 120Hz												
	Working Voltage (V)	10	16	25	35	50	63	80					
	Z-25°C / Z+20°C	6	6	6	6	4	3	3					
	Z-40°C / Z+20°C	15	15	15	15	15	15	15					
	Working Voltage (V)	160 ~ 180	200 ~ 220	250	315 ~ 385	400	450	500					
	Z-25°C / Z+20°C	8	8	8	8	8	8	8					
High Temperature Loading	Z-40°C / Z+20°C	-	-	-	-	-	-	-					
	Testing time	: 2000 hours				Post test requirements at +20°C							
	Testing temp.	: +105°C				Leakage current : ≤ Initial specified value							
Shelf Life	Testing condition	: Rated DC working voltage with the max. ripple current				Cap. change : within ±20% of initial measured value							
	tan δ	: ≤ 200% of initial specified value				tan δ : ≤ 200% of initial specified value							
	At 105°C no voltage applied after 1000 hours and then being stabilized at 20°C the capacitors shall meet the following limits												
Others	Leakage current	: ≤ Initial specified value											
	Cap. change	: within ±15% of initial measured value											
	tan δ	: ≤ 150% of initial specified value											
Others		JIS C - 5101 (IEC 60384)											

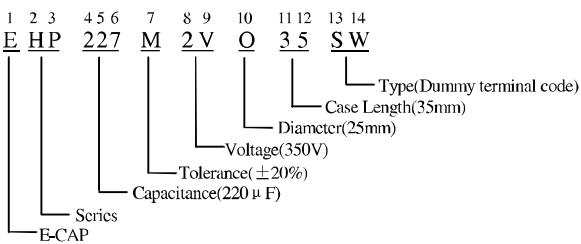
### RIPPLE CURRENT MULTIPLIER

#### Frequency Coefficient

Frequency multiplying factor:  
If capacitors are used to filter circuits at a frequency other than 120Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

Freq.(Hz)	60	120	1k	10 ~ 50k
10 ~ 100V	0.90	1.00	1.15	1.25
160 ~ 250V	0.80	1.00	1.25	1.47
315 ~ 500V	0.80	1.00	1.30	1.47

### PART NUMBER SYSTEM(EXAMPLE:350V220μF)



HP

Large Can Aluminum Electrolytic Capacitors

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Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap.( $\mu$ F)	Code	Case Size	Ripple Current						
2700	278							20 x 25	1.62
3300	338							20 x 30	1.94
3900	398					20 x 25	1.72	22 x 25	1.90
4700	478					20 x 30	2.04	20 x 35	2.02
						22 x 25	2.00	22 x 30	2.00
5600	568			20 x 25	1.89	20 x 35	2.23	22 x 35	2.40
						22 x 30	2.20	25 x 30	2.40
6800	688	20 x 25	1.41	20 x 30	2.25	20 x 40	2.72	22 x 40	2.60
				22 x 25	2.20	22 x 30	2.40	25 x 35	2.60
8200	828	20 x 30	1.67	20 x 35	2.43	22 x 35	2.70	22 x 50	2.90
				22 x 30	2.40	25 x 30	2.70	25 x 40	2.90
10000	109	20 x 30	1.88	20 x 40	2.79	22 x 40	3.00	25 x 45	3.20
		22 x 25	1.80	22 x 30	2.60	25 x 35	3.00	30 x 35	3.20
12000	129	20 x 35	2.23	22 x 35	2.90	22 x 50	3.20	25 x 50	3.50
		22 x 30	2.20	25 x 30	2.90	25 x 40	3.20	30 x 40	3.50
		25 x 25	2.20	30 x 25	2.90	30 x 30	3.20	35 x 30	3.50
15000	159	20 x 40	2.31	22 x 40	3.20	25 x 45	3.60	30 x 45	3.90
		22 x 35	2.30	25 x 35	3.20	30 x 35	3.60		
		25 x 25	2.30	30 x 30	3.20	35 x 30	3.60	35 x 35	3.90
18000	189	22 x 40	2.52	22 x 45	3.50	30 x 40	3.90		
		25 x 30	2.40	25 x 40	3.50			35 x 40	4.51
		30 x 25	2.49	30 x 30	3.50	35 x 35	3.90		
22000	229	22 x 45	2.60	25 x 45	3.80	30 x 45	4.30		
		25 x 35	2.60	30 x 35	3.80			35 x 45	5.24
		30 x 25	2.60	35 x 30	3.80	35 x 35	4.30		
27000	279	22 x 50	3.19	25 x 50	4.20				
		25 x 40	3.10	30 x 40	4.20	35 x 45	4.80		
		30 x 30	3.10	35 x 30	4.20				
33000	339	25 x 45	3.40	30 x 45	4.70				
		30 x 35	3.40			35 x 50	5.55		
		35 x 30	3.40	35 x 35	4.70				
39000	399	30 x 40	3.79	30 x 50	5.10				
		35 x 30	3.70	35 x 40	5.10				
47000	479	30 x 45	4.26	35 x 45	5.50				
		35 x 35	4.20						
56000	569	35 x 40	5.00						

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

Case Size  $\phi$ D x L(mm)

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### STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap.( $\mu$ F)	Code	Case Size	Ripple Current						
560	567							20 x 25	0.95
680	687							20 x 30	1.15
820	827					20 x 25	1.04	22 x 25	1.09
1000	108			20 x 25	1.21	20 x 30	1.24	20 x 35	1.31
						22 x 25	1.19	22 x 30	1.40
1200	128			20 x 30	1.43	20 x 35	1.43	20 x 40	1.61
				22 x 25	1.40	22 x 30	1.50	22 x 35	1.69
1500	158	20 x 25	1.29	20 x 35	1.52	20 x 35	1.57	25 x 25	1.45
				22 x 30	1.50	22 x 30	1.59	25 x 35	1.98
1800	188	20 x 30	1.53	20 x 35	1.72	20 x 40	1.77	22 x 40	1.97
		22 x 25	1.50	22 x 30	1.70	22 x 35	1.79	25 x 40	2.23
2200	228	20 x 35	1.72	20 x 40	2.01	22 x 40	2.03	25 x 45	2.53
		22 x 30	1.70	22 x 35	1.87	25 x 35	2.10	30 x 35	2.55
2700	278	20 x 35	1.82	22 x 40	2.20	22 x 45	2.39	30 x 40	2.86
		22 x 30	1.80	25 x 35	2.20	25 x 40	2.35	35 x 35	2.90
3300	338	25 x 25	1.80	30 x 25	2.20	30 x 30	2.35	35 x 50	2.82
		20 x 40	2.01	22 x 45	2.60	25 x 45	2.64	30 x 45	3.30
3900	398	22 x 35	2.00	25 x 35	2.39	30 x 35	2.61	35 x 35	3.25
		25 x 30	2.00	30 x 30	2.50	35 x 30	2.60		
4700	478	22 x 40	2.23	25 x 40	2.57	25 x 50	2.92	30 x 50	3.60
		25 x 30	2.20			30 x 40	2.82	35 x 40	3.67
5600	568	30 x 25	2.20	30 x 35	2.70	35 x 30	2.97		
		22 x 45	2.50	25 x 50	3.00	30 x 45	3.34	35 x 45	3.80
6800	688	25 x 35	2.43	30 x 40	3.00				
		30 x 30	2.50	35 x 30	3.00	35 x 35	3.38		
8200	828	22 x 50	2.80	30 x 40	3.22	30 x 50	3.80		
		25 x 40	2.80						
		30 x 35	2.76	35 x 35	3.30	35 x 40	3.80	35 x 50	4.05
8200	828	35 x 30	3.30						
8200	828	30 x 40	3.30	30 x 50	3.86				
8200	828	35 x 35	3.30						
8200	828	35 x 40	3.30	35 x 40	3.84	35 x 45	3.90		
8200	828	30 x 40	3.71	35 x 45	4.43	35 x 50	4.20		
10000	109	35 x 45	4.30						
10000	109	35 x 40	4.49	35 x 50	5.11				
12000	129	35 x 45	4.56						
15000	159	35 x 50	4.80						

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

Case Size  $\phi$ D x L(mm)

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Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap.( $\mu$ F)	Code	Case Size	Ripple Current						
180	187							20 x 25	0.90
220	227			20 x 25	1.00	20 x 25	1.00	20 x 30	1.00
270	277	20 x 25	1.10	20 x 30	1.10	20 x 30	1.10	22 x 25	1.00
				22 x 25	1.00	22 x 25	1.10	20 x 35	1.15
330	337	20 x 30	1.20	20 x 30	1.20	20 x 35	1.20	20 x 40	1.25
		22 x 25	1.20	22 x 25	1.20	22 x 30	1.25	22 x 35	1.25
		20 x 35	1.42	20 x 35	1.30	20 x 40	1.31	20 x 45	1.40
390	397	22 x 30	1.30	22 x 30	1.35	22 x 30	1.35	22 x 35	1.40
		25 x 25	1.35	25 x 25	1.35	25 x 25	1.35	25 x 30	1.40
470	477	20 x 40	1.34	20 x 40	1.40	22 x 35	1.50	22 x 40	1.51
		22 x 30	1.55	22 x 35	1.50	25 x 30	1.50	25 x 30	1.44
		25 x 25	1.55	25 x 30	1.50	30 x 25	1.50	30 x 25	1.50
		22 x 35	1.67	22 x 40	1.67	22 x 40	1.67	22 x 45	1.70
560	567			25 x 30	1.67	25 x 30	1.59	25 x 35	1.64
		25 x 30	1.67	30 x 25	1.67	30 x 25	1.67	30 x 30	1.70
		30 x 25	1.67	30 x 25	1.67	35 x 25	1.71		
680	687	22 x 40	1.82	22 x 45	1.78	22 x 45	1.78	25 x 40	1.84
		25 x 35	1.85	25 x 35	1.78	25 x 35	1.72	30 x 35	1.93
		30 x 25	1.82	30 x 30	1.78	30 x 30	1.78	35 x 30	1.89
820	827	22 x 45	2.04	22 x 50	2.04	25 x 40	1.99	25 x 45	2.08
		25 x 35	2.04	25 x 40	2.04	30 x 35	2.04	30 x 40	2.19
		30 x 30	2.04	30 x 30	2.04	35 x 25	2.04	35 x 30	2.16
1000	108	25 x 45	2.40	25 x 45	2.30	25 x 50	2.42	30 x 45	2.50
		30 x 35	2.25	30 x 35	2.30	30 x 35	2.30	35 x 35	2.44
		35 x 30	2.30	35 x 30	2.30	35 x 30	2.30		
1200	128	25 x 50	2.62	30 x 40	2.55	30 x 40	2.65		
		30 x 35	2.49	35 x 35	2.55	35 x 35	2.65	35 x 40	2.79
		35 x 30	2.49						
1500	158	30 x 40	2.84	30 x 45	2.90	35 x 40	3.08	35 x 45	3.22
		35 x 35	2.84	35 x 35	2.90				
1800	188	30 x 50	3.32	35 x 40	3.30	35 x 45	3.48		
		35 x 35	3.00						
2200	228	35 x 45	3.50	35 x 50	3.65				

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Case Size φD x L(mm)

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### STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)	
Cap.( $\mu$ F)	Code	Case Size	Ripple Current						
56	566							20 x 25	0.37
68	686					20 x 25	0.47	20 x 30	0.44
82	826			20 x 25	0.64	20 x 30	0.54	22 x 25	0.45
100	107			20 x 30	0.69	20 x 30	0.60	20 x 30	0.50
						22 x 25	0.69	22 x 30	0.52
120	127			20 x 30	0.75	20 x 35	0.68	20 x 40	0.66
				22 x 25	0.75	22 x 25	0.70	22 x 30	0.64
150	157	20 x 25	0.79	20 x 35	0.82	20 x 40	0.78	25 x 30	0.78
				22 x 30	0.82	22 x 30	0.77	30 x 25	0.75
180	187	22 x 25	0.88	25 x 25	0.86	30 x 25	0.90	30 x 30	0.88
220	227	20 x 35	1.00	22 x 35	0.98	22 x 40	1.00	22 x 45	0.96
		22 x 25	1.00	25 x 30	1.04	25 x 35	1.04	25 x 35	0.94
270	277	20 x 40	1.10	22 x 40	1.10	22 x 45	1.11	25 x 45	1.13
		22 x 30	1.18	25 x 35	1.16	25 x 40	1.18	30 x 35	1.08
330	337	25 x 30	1.30	25 x 40	1.33	30 x 35	1.34	35 x 30	1.10
		30 x 25	1.35	30 x 30	1.33	35 x 30	1.22	35 x 30	1.24
390	397	22 x 35	1.30	22 x 45	1.27	25 x 45	1.29	30 x 45	1.31
		25 x 35	1.49	25 x 40	1.40	25 x 50	1.51	30 x 45	1.41
470	477	30 x 25	1.49	30 x 35	1.47	30 x 35	1.43	35 x 35	1.40
		22 x 45	1.65	30 x 40	1.70	30 x 40	1.57	35 x 40	1.68
560	567	25 x 40	1.65	35 x 30	1.70	35 x 35	1.69		
		30 x 30	1.65						
680	687	25 x 45	1.80	30 x 40	1.95	30 x 50	1.85	35 x 45	1.87
		30 x 35	1.80	35 x 35	2.05	35 x 40	1.90		
820	827	25 x 50	2.03						
		30 x 35	2.00	35 x 40	2.17	35 x 45	2.20		
1000	108	35 x 30	2.00						
1200	128	30 x 40	2.30						
		35 x 35	2.30	35 x 45	2.20				
		30 x 50	2.70						
		35 x 40	2.69						
		35 x 45	3.09						

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

Case Size  $\phi$ D x L(mm)

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Voltage (Code)		400V (2G)		420V (2M)		450V (2W)		500V (2H)	
Cap.( $\mu$ F)	Code	Case Size	Ripple Current						
47	476					20 x 25	0.39	22 x 25	0.35
56	566	20 x 25	0.51	20 x 25	0.51	20 x 30	0.51	22 x 25	0.38
68	686	20 x 30	0.56	20 x 30	0.56	20 x 35	0.56	22 x 30	0.45
		22 x 25	0.55	22 x 25	0.55	22 x 30	0.53		
82	826	20 x 30	0.64	20 x 35	0.64	20 x 35	0.64	22 x 35	0.54
		22 x 25	0.64	22 x 25	0.64	25 x 25	0.64		
100	107	20 x 35	0.70	20 x 35	0.70	22 x 30	0.65	22 x 35	0.56
		22 x 30	0.70	22 x 30	0.70	25 x 25	0.64		
		25 x 25	0.70	25 x 25	0.70	30 x 25	0.72		
120	127	20 x 40	0.75	20 x 40	0.75	22 x 40	0.80	22 x 40	0.64
		22 x 30	0.70	22 x 30	0.70	25 x 30	0.80		
150	157	22 x 40	0.88	22 x 40	0.88	22 x 40	0.84	25 x 40	0.76
		25 x 30	0.83	25 x 35	0.88	25 x 35			
		30 x 25	0.88	30 x 25	0.88	30 x 30	0.88		
180	187	22 x 40	0.93	22 x 40	0.90	25 x 40	1.00	30 x 35	0.86
		25 x 35	0.98	25 x 35	0.92				
		30 x 30	0.98	30 x 30	0.96		1.00		
220	227	22 x 45	1.05	22 x 45	1.05	25 x 45	1.12	30 x 40	0.97
		25 x 35	1.04	30 x 30	1.03	30 x 35	1.12		
		30 x 30	1.10	35 x 25	1.10	35 x 30	1.12		
270	277	25 x 50	1.29	25 x 50	1.37	30 x 40	1.28	30 x 45	1.12
		30 x 35	1.22	30 x 35	1.18		1.28		
		35 x 30	1.22	35 x 30	1.22		1.28		
330	337	30 x 45	1.55	30 x 45	1.49	30 x 45	1.39		
		35 x 30	1.44	35 x 30	1.36	35 x 40	1.45		
390	397	30 x 45	1.60	30 x 45	1.60	35 x 40	1.55		
		35 x 35	1.60	35 x 40	1.66				
470	477	35 x 40	1.90	35 x 40	1.81	35 x 50	1.85		
560	567	35 x 45	2.12						

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

Case Size φD x L(mm)

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