

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

- Highly reliable capacitors that withstand under high ripple current.
- Best for switching power supplies.



◆ SPECIFICATIONS

Item	Performance Characteristics																												
Operating temperature range	-40 to +105°C	-25 to +105°C																											
Rated Working Voltage Range	10 to 100V	160 to 450V																											
Nominal Capacitance Range	47 to 56000µF																												
Capacitance Tolerance	±20(120Hz,+20°C)																												
Leakage Current	I ≤ 0.03CV or 3mA whichever is smaller after 2minutes application of rated working voltage at +20°C																												
Dissipation Factor tan δ(120Hz,+20°C)	<table border="1"> <tr> <th>Working Voltage(V)</th> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <th>tan δ(max)</th> <td>0.55</td> <td>0.50</td> <td>0.45</td> <td>0.35</td> <td>0.30</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> </tr> </table>	Working Voltage(V)	10	16	25	35	50	63	80	100	tan δ(max)	0.55	0.50	0.45	0.35	0.30	0.30	0.25	0.20										
	Working Voltage(V)	10	16	25	35	50	63	80	100																				
tan δ(max)	0.55	0.50	0.45	0.35	0.30	0.30	0.25	0.20																					
	<table border="1"> <tr> <th>Working Voltage(V)</th> <td>160~220</td> <td>250</td> <td>315~450</td> <td></td> <td></td> </tr> <tr> <th>tan δ(max)</th> <td>0.15</td> <td>0.15</td> <td>0.25</td> <td></td> <td></td> </tr> </table>	Working Voltage(V)	160~220	250	315~450			tan δ(max)	0.15	0.15	0.25																		
Working Voltage(V)	160~220	250	315~450																										
tan δ(max)	0.15	0.15	0.25																										
	For capacitance value > 33000µF,add following calculated value:((rated cap)-33000)/1000µF																												
Low Temperature Characteristics	Impedance ratio max at 120Hz																												
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	Working Voltage(V)	10	16	25	35	50	63	80	100																				
	Z-25°C/Z+20°C	6	6	6	6	4	3	3	3																				
Z-40°C/Z+20°C	15	15	15	10	8	6	6	6																					
<table border="1"> <tr> <th>Working Voltage(V)</th> <td>160</td> <td>160~220</td> <td>250</td> <td>315~385</td> <td>400</td> <td>450</td> </tr> <tr> <th>Z-25°C/Z+20°C</th> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <th>Z-40°C/Z+20°C</th> <td>~</td> <td>~</td> <td>~</td> <td>~</td> <td>~</td> <td>~</td> </tr> </table>	Working Voltage(V)	160	160~220	250	315~385	400	450	Z-25°C/Z+20°C	8	8	8	8	8	8	Z-40°C/Z+20°C	~	~	~	~	~	~								
Working Voltage(V)	160	160~220	250	315~385	400	450																							
Z-25°C/Z+20°C	8	8	8	8	8	8																							
Z-40°C/Z+20°C	~	~	~	~	~	~																							
High Temperature Loading	Test conditions After 2000 hours application of rated voltage at +105°C the capacitor shall meet the following limits.	Post test requirements at +20°C Leakage current : ≤ Initial specified value Cap.Change :within ±20%of Initial measured value tan δ : ≤ 200% of Initial specified value																											
	At 105°C no voltage applied after 1000hours the capacitors shall meet the following limits. Leakage current : ≤ Initial specified value Cap . Change :within ±20%of Initial measured value tan δ : ≤ 150% of Initial specified value																												
Shelf Life																													

◆ RIPPLE CURRENT MULTIPLIER

(1) Frequency Coefficient

1)maximum rms ripple current at 120Hz, 105°C are given in the table.

2)temperature multiplying factor.

where capacitors are operated at temperature other than 105°C, the maximum ripple current must be the figure shown in the table below

Frequency coefficient

Rated voltage \ freq. (Hz)	60	120	1k	0~50K
10~100V	0.9	1.0	1.15	1.25
160~250V	0.8	1.0	1.25	1.47
315~450	0.8	1.0	1.30	1.47

(2) Temperature Coefficient

3) 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

Temperature coefficient

Temperature	20~45	65	85	105
FACTOR	2	1.89	1.52	1.0

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

◆ DIMENSIONS

Voltage	10V		16V		25V		35V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
2700							20*25	1.29
3300							20*30	1.57
3900					20*25	1.58	20*35	1.78
							22*30	1.69
4700					20*30	1.65	20*40	2.02
							22*35	2.02
					22*25	1.61	25*25	1.62
5600			20*25	1.68	20*35	1.85	22*35	2.13
					22*30	1.80	25*30	2.00
6800	20*25	1.31	20*30	1.80	20*40	2.11	22*40	2.41
					22*35	2.09	25*35	2.31
			22*25	1.75	25*25	1.87	30*25	2.31
8200	20*30	1.59	20*35	2.08	22*40	2.31	22*50	2.85
					25*30	2.34	25*40	2.73
			22*30	2.00	30*25	2.16	30*30	2.75
10000	20*30	1.88	20*40	2.15	22*45	2.65	25*45	3.05
			22*30	2.10	25*35	2.61		
	22*25	1.77	25*25	2.05	30*30	2.61	30*35	3.05
12000	20*35	2.18	22*35	2.31	22*50	2.80	25*50	3.37
	22*30	2.10	25*30	2.30	25*40	2.81	30*40	3.23
	25*25	1.94	30*25	2.30	30*30	2.74	35*30	3.19
15000	20*40	2.27	22*40	2.68	25*45	3.27	30*45	3.72
	22*35	2.23	25*35	2.58	30*35	3.13		
	25*30	2.10	30*30	2.57	35*30	3.26	35*35	3.67
18000	22*40	2.41	22*50	3.20	30*40	3.56	35*40	4.37
	25*30	2.34	25*40	3.16				
	30*25	2.25	30*30	2.98	35*35	3.84		
22000	22*45	2.58	22*45	3.36	30*45	4.04	25*45	4.92
	25*35	2.54	30*35	3.30				
	30*30	2.50	35*30	3.25	35*35	3.75		
27000	22*50	3.17	25*50	3.25	35*45	4.74		
	25*40	3.07	30*40	3.80				
	30*30	2.95	35*35	3.93				
33000	25*45	3.39	30*45	4.30	35*50	5.50		
	30*35	3.33						
	35*30	3.21	35*35	4.27				
39000	30*40	3.70	30*50	4.81				
	35*35	3.68	35*40	4.80				
47000	30*45	4.22	35*45	5.53				
	35*40	4.16						
56000	35*50	5.00						

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

Case Size ΦD X L (mm)

SHP

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

◆ DIMENSIONS

Voltage Cap(μF)	50V		63V		80V		100V	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
560							20*25	0.95
680							20*30	1.15
							22*25	1.09
820					20*25	1.04	20*35	1.31
							22*30	1.32
1000			20*25	1.1	20*30	1.24	20*35	1.43
							22*30	1.47
					22*25	1.19	25*25	1.45
1200			20*30	1.20	20*35	1.43	20*40	1.61
							22*35	1.69
			22*25	1.20	22*30	1.44	25*30	1.68
1500	20*25	1.15	20*35	1.47	20*35	1.57	22*40	1.97
					22*30	1.59	25*35	1.98
			22*30	1.47	25*25	1.59	30*25	1.95
1800	20*30	1.39	20*35	1.58	20*40	1.77	22*45	2.23
			22*30	1.58	22*35	1.79	25*40	2.20
	22*25	1.34	25*25	1.52	25*30	1.71	30*30	2.2
2200	20*35	1.60	20*40	1.80	22*40	2.03	25*45	2.53
			22*35	1.82	25*35	1.98	30*35	2.55
	22*30	1.60	25*30	1.75	30*25	1.98	35*30	2.50
2700	20*35	1.73	22*40	2.07	22*45	2.39	25*50	2.82
	22*30	1.70	25*35	2.11	25*40	2.35	30*40	2.86
	25*25	1.70	30*25	1.72	30*30	2.35	35*35	2.89
3300	20*40	1.97	22*45	2.33	25*45	2.64	30*45	3.30
	22*35	1.97	25*35	2.27	30*35	2.61		
	25*30	1.88	30*30	2.24	35*30	2.47	35*35	3.25
3900	22*40	2.22	25*40	2.51	25*50	2.92	30*50	3.60
	25*30	2.20			30*40	2.82		
	30*25	1.95	30*35	2.55	35*30	2.47	35*40	3.67
4700	22*45	2.43	25*50	2.91	30*45	3.34	35*45	3.8
	25*35	2.43	30*40	2.86				
	30*30	2.25	35*30	2.80	35*35	3.38		
5600	22*50	2.75	30*40	3.22	30*50	3.80	35*50	4.05
	25*40	2.72						
	30*30	2.64	35*35	3.20	35*40	3.80		
6800	25*45	3.30	30*50	3.65	35*45	3.90		
	30*35	3.30						
	35*30	3.25	35*40	3.65				
8200	30*40	3.60	35*45	4.04	35*50	4.20		
	35*35	3.60						
10000	30*50	4.05	35*50	4.48				
	35*40	4.04						
12000	35*45	4.56						

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

Case Size ΦD X L (mm)

SHP

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

◆ DIMENSIONS

Voltage	160V		180V		200V		220V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
180							20*25	0.81
220			20*25	0.81	20*25	0.83	20*30	0.94
							22*25	0.94
270	20*25	0.87	20*30	0.97	20*30	0.97	20*35	1.10
			22*25	0.95	22*25	0.99	22*30	1.09
330	20*30	1.02	20*35	1.09	20*35	1.17	20*40	1.18
					22*30	1.20	22*35	1.24
	22*25	1.03	22*30	1.13	25*25	1.20	25*25	1.14
390	20*35	1.15	20*35	1.28	20*40	1.27	20*45	1.33
			22*30	1.32	22*35	1.30	22*35	1.30
	22*30	1.17	25*25	1.33	25*25	1.34	25*30	1.26
470	20*40	1.25	20*40	1.34	22*40	1.44	22*40	1.41
	22*30	1.28	22*35	1.39	25*30	1.44	25*30	1.39
	25*25	1.29	25*30	1.43	30*25	1.48	30*25	1.37
560	22*35	1.45	22*40	1.56	22*45	1.60	22*45	1.60
			25*30	1.53	25*35	1.60	25*35	1.56
	25*30	1.49	30*25	1.56	30*30	1.60	30*30	1.61
680	22*40	1.64	22*45	1.76	22*50	1.75	25*40	1.75
	25*35	1.70	25*35	1.76	25*40	1.76	30*35	1.76
	30*25	1.63	30*30	1.74	30*30	1.74	35*30	1.72
820	22*45	1.85	22*50	1.97	25*45	2.10	25*45	1.97
	25*40	1.92	25*40	1.99	30*35	2.11	30*40	2.06
	30*30	1.91	30*30	1.93	35*30	2.10	35*30	1.95
1000	25*45	2.17	25*45	2.24	25*50	2.36	30*45	2.44
			30*35	2.24	30*40	2.40		
	30*35	2.19	35*30	2.20	35*35	2.30	35*35	2.20
1200	25*50	2.43	30*40	2.53	30*45	2.69	35*40	2.37
	30*40	2.48						
	35*30	2.25	35*35	2.54	35*35	2.53		
1500	30*45	2.82	30*50	3.03	35*40	2.97	35*45	2.64
	35*35	2.62	35*40	2.91				
1800	30*50	3.13	35*45	3.25	35*50	3.45		
	35*40	2.97						
2200	35*45	3.34	35*50	3.62				

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

Case Size ΦD X L (mm)

SHP

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

◆ DIMENSIONS

Voltage	250V		310V		350V		385V	
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
56							20*25	0.37
68					20*25	9.00	20*30	0.44
							22*25	0.45
82			20*25	0.39	20*30	0.45	20*30	0.50
							22*30	0.52
100			20*30	0.45	20*30	0.51	20*35	0.56
							22*30	0.58
					22*25	0.53	25*25	0.57
120			20*30	0.54	20*35	0.59	20*40	0.66
					22*30	0.61	22*35	0.68
			22*25	0.56	25*25	0.62	25*30	0.68
150	20*25	0.71	20*35	0.64	22*40	0.70	22*40	0.79
			22*30	0.66	22*35	0.73	25*30	0.78
			25*25	0.65	25*30	0.73	30*25	0.75
180	20*30	0.82	20*40	0.75	22*40	0.83	22*45	0.89
			22*35	0.78	25*30	0.80	25*35	0.86
	22*25	0.84	25*30	0.71	30*25	0.81	30*30	0.88
220	20*35	0.95	22*40	0.89	22*45	0.94	22*50	1.01
	22*30	0.97	25*30	0.85	25*35	0.92	25*40	1.00
	25*25	0.99	30*25	0.83	30*30	0.98	30*30	1.00
270	20*40	1.08	22*45	1.01	22*50	1.07	25*45	1.13
	22*35	1.11	25*35	0.98	25*40	1.05	30*40	1.14
	25*30	1.15	30*30	1.01	30*30	1.03	35*30	1.10
330	22*40	1.26	22*50	1.14	25*45	1.24	30*45	1.31
	25*30	1.26	25*40	1.12	30*35	1.24		
	30*25	1.31	30*30	1.21	35*30	1.18	35*35	1.32
390	22*45	1.41	25*45	1.31	25*50	1.38	30*50	1.48
	25*35	1.42	30*35	1.30	30*40	1.39		
	30*30	1.50	35*30	1.23	35*35	1.39	35*40	1.48
470	22*50	1.58	30*40	1.53	30*45	1.57	35*45	1.76
	25*40	1.61						
	30*30	1.61	35*35	1.47	35*35	1.50		
560	25*45	1.80	30*45	1.65	30*50	1.75	35*50	1.95
	30*35	1.84	35*40	1.66	35*40	1.69		
680	25*50	2.03	35*45	1.96	35*45	1.96		
	30*40	2.09						
	35*30	1.96						
820	30*45	2.35	35*50	2.19				
	35*35	2.26						
1000	30*50	2.64						
	35*40	2.57						
1200	35*45	2.88						

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

Case Size ΦD X L (mm)

SHP

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

◆ DIMENSIONS

Voltage	400V		420V		450V			
Cap(μF)	Size	Ripple	Size	Ripple	Size	Ripple		
47					20*25	0.36		
56	20*25	0.40	20*25	0.40	20*30	0.41		
					22*25	0.42		
68	20*30	0.48	20*30	0.48	20*35	0.47		
				0.50	22*30	0.50		
	22*25	0.49	22*25	0.53	25*25	0.50		
82	20*30	0.54	20*35	0.56	20*40	0.53		
			22*30	0.56	22*35	0.56		
	22*30	0.56	25*25	0.58	25*30	0.92		
100	20*35	0.60	20*35	0.63	22*40	0.57		
	22*30	0.60	22*30	0.63	25*30	0.64		
	25*25	0.62	25*25	0.63	30*25	0.67		
120	20*40	0.61	20*45	0.71	22*45	0.72		
	22*35	0.61	22*35	0.73	25*35	0.71		
	25*25	0.73	30*25	0.72	30*30	0.77		
150	22*40	0.85	22*45	0.86	22*50	0.80		
	25*35	0.85	25*35	0.83	25*40	0.82		
	30*25	0.79	30*25	0.83	30*30	0.85		
180	22*45	0.95	22*50	1.02	25*45	0.93		
	25*35	0.92	25*40	0.94				
	30*30	0.95	30*30	0.95	30*35	0.97		
220	22*50	1.08	25*45	1.13	25*50	1.05		
	25*40	1.05	30*35	1.09	30*40	1.10		
	30*35	1.24	35*30	1.05	35*30	1.01		
270	25*50	1.29	25*50	1.37	30*45	1.25		
	30*40	1.30	30*40	1.25				
	35*40	1.18	35*35	1.25	35*35	1.26		
330	30*45	1.47	30*45	1.49	30*50	1.42		
	35*35	1.41	35*35	1.42	35*40	1.44		
390	30*50	1.64	30*50	1.67	35*45	1.61		
	35*40	1.59	35*40	1.61				
470	35*45	1.87	35*40	1.86	35*50	1.80		
560	35*50	2.09						

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

Case Size ΦD X L (mm)