

# KNSCHA Snap-in Type Aluminum Electrolytic Capacitors

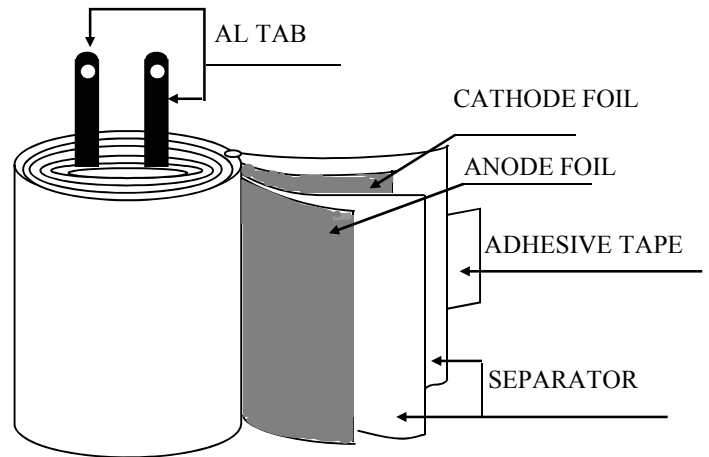
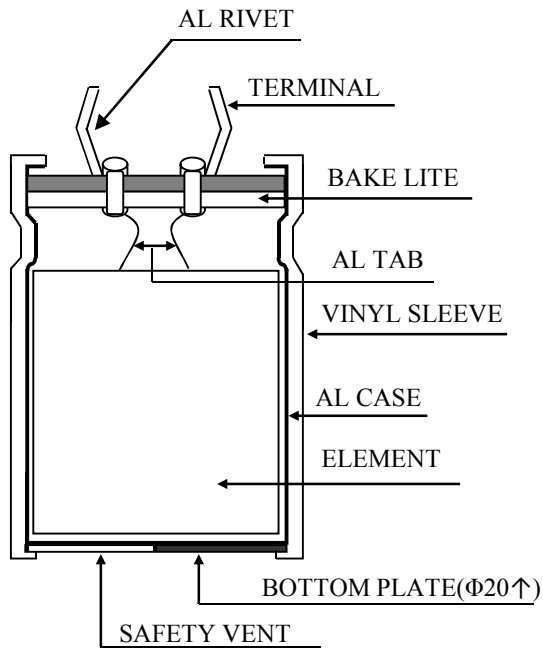
<b>Customer :</b>	◆KNSCHA SHA Series Snap-in Terminal Type Aluminum Electrolytic Capacitors,105°C High Ripple Current
-------------------	--

## PRODUCT CHARACTERISTICS

KNSCHA P/N	Cap. (120Hz)	Cap. Tol.	Rate Volt.	Surge Volt.	Oper. Temp.	Nominal Case Size	Leakage Current	D.F. Max	RC 120HZ	ESR 100KHZ	Normal service life
	(uF)	(%)	(V-DC)	(V-DC)	(°C)	D*L(mm)	Max(uA)	()	(Arms)	(Ω)	(Hours)
152EC0328	470	±20	450	500	-25~105°C	30*45	1379	0.20	1.61	/	3000
152EC0331	220	±20	450	500	-25~105°C	30*30	944	0.20	1.00	/	3000
152EC0344	10000	±20	50	62	-40~105°C	35*40	2121	0.30	4.04	/	3000
152EC0345	3300	±20	35	43	-40~105°C	22*25	1019	0.40	1.45	/	3000

# KNSCHA Snap-in Type Aluminum Electrolytic Capacitors

## STRUCTURE and MATERIALS



### LARGE SIZED TYPE CAPACITORS COMPONENT

PART NAME	MATERIALS
AL RIVET	ALUMINUM 99.9%
TERMINAL	SPCC
BAKE LITE	RUBBER+PAPER LAMINATE
AL TAB	ALUMINUM 99.9% OVER
SLEEVE	INK
	P.E.T (Polyethylene Terephthalate Resin)
AL CASE	ALUMINUM 99.5%
ANODE FOIL	FORMED ALUMINUM 99.9% OVER
CATHODE FOIL	FORMED ALUMINUM 98.4% OVER
SEPARATOR	INSULATION PAPER
ADHESIVE TAPE	POLY PROPYLENE FILM

# SHA Series

## 特征/FEATURES

- Withstanding 3000 hours application of rated ripple current at 105°C
- high ripple current, Long life
- Compliant to the RoHS directive
- 105°C印加纹波电流寿命保证3000小时
- 电源以及音响，使用时特性优良
- RoHs指令对策品

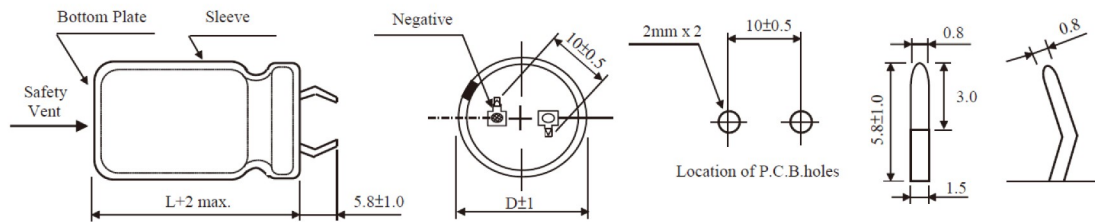


## 规格表/SPECIFICATIONS

项目 Items	特征 Characteristics								
温度范围 Category Temperat Range	-40°C ~ +105°C			-40°C ~ +105°C			-25°C ~ +105°C		
规格电压范围 Rated voltage range	6.3-100V.DC			160-250V.DC			400-450V.DC		
静电容量允许容差 Capacitance Tolerance	±20% (20°C, 120Hz)								
漏电流 Leakage Current(MAX)	6.3-100V.DC				160-450V.DC				
	I=0.01CV或者3(µA) 值以下定格电压印加2分钟后 I=0.01CVor3(µA) whichever is greater after 2 minutes application of rated voltage				I=0.02CV值以下定格电压印加3分钟后 I=0.02CVwhichever is greater after 3 minutes application of rated voltage				
	I=漏电流 (µA)		C=定格静电容量 (µF)		V=定格电压 (V)				
	Leakage Current		Rated Capacitance		Rated Voltage				
损失角正接 (tan δ) Dissipation Factor(MAX)	定格电压 (V)	6.3	10	16	25	35	50	63	20°C
	Rated Voltage	0.22	0.2	0.16	0.14	0.12	0.1	0.09	
	定格电压 (V)	80	100	160	200	250	400	450	120Hz
	Rated Voltage	0.09	0.08	0.15	0.15	0.15	0.15	0.15	
容量超过1000µF; 每超过1000µF, 损失角增加0.02 Add 0.02 per 1,000µF for more than 1,000µF items.									
高温负荷特性 High Temp Load Test	105°C, 在规定的时间内, 印加定格电压与纹波电流后, 满足下列条件 After life test with ripple current at conditions stated in the table below, the capacitors shall meet the following requirements. 105°C施加额定电压3000小时后满足下列条件 After 3000 hours, application of DC rated working voltage at +105°C, capacitor shall meet the following limits.								
	静电容量变化率 Capacitance Change	初期值的 ±25% Within ±25%							
	损失角正接 (tan δ) Dissipation Factor	规格值的200%以内 Not more than the specified value							
	漏电流 Leakage Current(MAX)	规格值以下 Not more than the specified value							
低温特性 (抵抗比) Low Temperature Stability impedance Ratio MAX	规格电压 (V) Rated Voltage	6.3-16V	25-50V	63-100V	160-250V	400V	450V		
	Z(-25°C)/Z(20°C)	4	5	6	5	6	8		
	Z(-40°C)/Z(20°C)	8	9	10	9	10	12		
高温无负荷特性 High Temp Non-Load Test	After storage for 1000 hours at 105°C with no voltage applied, voltage treatment of JIS-C-5102 article 4-4 is to be given and then measurement shall be made, at which time requirements specified in the table "High Temperature Loading" can be met. 在105°C的条件下不加电压放置1000个小时, 按照JIS-C-5102中4-4的标准进行处理, 特性满足高温负荷特性								

# SHA Series

## 寸法图DIMENSIONS



★ Φ35mm: 3.5 ± 0.5mm The standard design has no plastic disc 标准的作业没有底座

### ▼ MULTIPLIER FOR RIPPLE CURRENT 纹波电流修正系数

(1) Frequency coefficient 频率系数

Freq.(Hz) Cap(μF)	120	1K	10K	100K	(2) Temperature coefficient			
					Ambient Temperature(°C) Coefficient	65	75	85
330 ~ 680	1.00	1.30	1.41	1.43	1.10	1.15	1.20	1.00
820 ~ 82000	1.00	1.20	1.25	1.30	1.10	1.15	1.20	1.00

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 6.3V(0J)					
定格静容量(μF) Rated Capacitance	外形尺寸 Size ΦDxL (mm)	定格电流 Rated ripple current m A r.m.s./105°C,120KHz	阻抗值 Impedance /100KHz/(Ω)		
			20°C	-10°C	
12000	22*25	1540	1.050	4.600	
15000	22*25	1720	1.000	4.300	
18000	22*30	1950	0.980	4.300	
18000	25*25	1960	0.950	4.300	
22000	22*35	2230	0.900	4.300	
22000	25*30	2250	0.800	4.300	
22000	30*25	2280	0.700	4.300	
27000	22*40	2540	0.600	4.300	
27000	25*35	2570	0.550	4.100	
27000	30*25	2570	0.450	3.900	
33000	22*45	2880	0.430	3.700	
33000	25*40	2930	0.410	3.300	
33000	30*30	2930	0.400	3.200	
33000	35*25	2930	0.380	3.100	
39000	25*40	3180	0.330	3.900	
39000	30*25	3260	0.290	3.300	
39000	35*30	3400	0.260	3.100	
47000	25*50	3690	0.250	2.900	
47000	30*40	3690	0.230	2.700	
47000	35*30	3730	0.220	2.500	
56000	30*45	4160	0.200	2.300	
56000	35*35	4160	0.180	2.100	
68000	30*50	4710	0.160	2.000	
68000	35*40	4710	0.140	1.800	
82000	35*45	5320	0.120	1.600	



# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 10V(1A)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
10000	22*25	1550	1.000	4.300
12000	22*30	1770	0.980	4.300
15000	22*30	1970	0.950	4.300
15000	25*25	1980	0.900	4.300
18000	22*35	2210	0.800	4.300
18000	25*30	2230	0.700	4.300
22000	22*40	2550	0.600	4.300
22000	25*35	2550	0.550	4.100
22000	30*25	2550	0.450	3.900
27000	22*50	2930	0.430	3.700
27000	25*40	2940	0.410	3.300
27000	30*30	2940	0.400	3.200
27000	35*25	2940	0.380	3.100
33000	25*45	3300	0.330	3.900
33000	30*35	3310	0.290	3.300
33000	35*30	3360	0.260	3.100
39000	25*50	3680	0.250	2.900
39000	30*40	3690	0.230	2.700
39000	35*30	3690	0.220	2.500
47000	30*45	4170	0.200	2.300
47000	35*35	4170	0.180	2.100
56000	30*50	4680	0.160	2.000
56000	35*40	4680	0.140	1.800
定格电压 Rated voltage 16V(1C)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
6800	22*25	1570	0.980	4.300
10000	22*30	1970	0.950	4.300
10000	25*25	1970	0.900	4.300
12000	22*35	2220	0.800	4.300
12000	25*30	2240	0.700	4.300
12000	30*25	2450	0.600	4.300
15000	22*40	2550	0.550	4.100
15000	25*35	2580	0.450	3.900
15000	30*25	2580	0.430	3.700
18000	22*45	2870	0.410	3.300
18000	25*40	2920	0.400	3.200
18000	30*30	2920	0.380	3.100
18000	35*25	2920	0.330	3.900
22000	25*45	3320	0.290	3.300
22000	30*35	3320	0.260	3.100
22000	35*25	3320	0.250	2.900
27000	25*50	3780	0.230	2.700
27000	30*40	3780	0.220	2.500
27000	35*30	3780	0.200	2.300
33000	30*45	4300	0.180	2.100
33000	35*35	4300	0.160	2.000
39000	30*50	4810	0.140	1.800
39000	35*40	4810	0.120	1.600
47000	35*45	5430	0.100	1.500

# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 25V(1E)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
4700	22*25	1500	0.95	4.30
5600	22*25	1630	0.900	4.300
6800	22*30	1860	0.800	4.300
6800	25*25	1870	0.700	4.300
8200	22*35	2110	0.600	4.300
8200	25*30	2120	0.550	4.100
8200	30*25	2150	0.450	3.900
10000	22*40	2390	0.430	3.700
10000	25*35	2420	0.410	3.300
10000	30*25	2420	0.400	3.200
12000	22*45	2690	0.380	3.100
12000	25*40	2740	0.330	3.900
12000	30*30	2740	0.290	3.300
12000	35*25	2740	0.260	3.100
15000	25*45	3150	0.250	2.900
15000	30*35	3150	0.230	2.700
15000	35*30	3270	0.220	2.500
18000	25*50	3540	0.200	2.300
18000	30*40	3540	0.180	2.100
18000	35*30	3580	0.160	2.000
22000	30*45	4040	0.140	1.800
22000	35*35	4040	0.120	1.600
27000	35*45	4730	0.100	1.500
33000	35*50	5390	0.080	1.300
定格电压 Rated voltage 35V(1V)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
3300	22*25	1400	0.900	4.300
3900	22*30	1570	0.800	4.300
4700	22*30	1800	0.700	4.300
4700	25*25	1950	0.600	4.300
5600	22*35	1960	0.550	4.100
5600	25*30	1990	0.450	3.900
5600	30*25	2200	0.430	3.700
6800	22*40	2230	0.410	3.300
6800	25*35	2230	0.400	3.200
6800	30*25	2550	0.380	3.100
8200	22*50	2550	0.330	3.900
8200	25*40	2750	0.290	3.300
8200	30*30	2750	0.260	3.100
8200	35*25	2870	0.250	2.900
10000	25*45	2900	0.230	2.700
10000	30*35	2910	0.220	2.500
10000	35*30	3240	0.200	2.300
12000	25*50	3240	0.180	2.100
12000	30*40	3240	0.160	2.000
12000	35*30	3720	0.140	1.800
15000	30*45	3720	0.120	1.600
15000	35*35	4370	0.100	1.500
18000	35*40	4920	0.080	1.300
22000	35*50	5390	0.075	1.200

# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 50V(1H)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
1800	22*25	1330	0.800	4.300
2700	22*30	1690	0.700	4.300
2700	25*25	1700	0.600	4.300
3300	22*35	1930	0.550	4.100
3300	25*30	1930	0.450	3.900
3900	22*40	2160	0.430	3.700
3900	25*35	2180	0.410	3.300
3900	30*25	2180	0.400	3.200
4700	22*45	2430	0.380	3.100
4700	25*35	2430	0.330	3.900
4700	30*30	2430	0.290	3.300
4700	35*25	2480	0.260	3.100
5600	22*50	2750	0.250	2.900
5600	25*40	2750	0.230	2.700
5600	30*25	2760	0.220	2.500
5600	35*25	2760	0.200	2.300
6800	25*50	3300	0.180	2.100
6800	30*40	3300	0.160	2.000
6800	35*30	3300	0.140	1.800
8200	30*45	3600	0.120	1.600
8200	35*35	3600	0.100	1.500
10000	30*50	4040	0.080	1.300
10000	35*40	4040	0.075	1.200
12000	35*45	4500	0.065	1.100
定格电压 Rated voltage 63V(1J)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
1200	22*25	1190	0.700	4.300
1500	22*25	1330	0.600	4.300
1800	22*30	1510	0.550	4.100
1800	25*25	1520	0.450	3.900
2200	22*35	1730	0.430	3.700
2200	25*30	1740	0.410	3.300
2700	22*40	1970	0.400	3.200
2700	25*35	1990	0.380	3.100
2700	30*25	1990	0.330	3.900
3300	22*50	2290	0.290	3.300
3300	25*40	2290	0.260	3.100
3300	30*30	2290	0.250	2.900
3300	35*25	2290	0.230	2.700
3900	25*45	2540	0.220	2.500
3900	30*35	2550	0.200	2.300
3900	35*25	2550	0.180	2.100
4700	25*50	2860	0.160	2.000
4700	30*40	2860	0.140	1.800
4700	35*30	2860	0.120	1.600
5600	30*45	3200	0.100	1.500
5600	35*35	3200	0.080	1.300
6800	30*35	3650	0.075	1.200
6800	30*50	3650	0.065	1.100
8200	35*45	3900	0.060	1.000
10000	35*50	4400	0.055	0.900

# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 80V(1K)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s/105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
1800	30*25	1800	0.600	4.300
2200	22*45	2040	0.550	4.100
2200	25*35	2040	0.450	3.900
2200	30*30	2050	0.430	3.700
2200	35*25	2070	0.410	3.300
2700	25*45	2360	0.400	3.200
2700	30*35	2360	0.380	3.100
2700	35*25	2360	0.330	3.900
3300	25*50	2680	0.290	3.300
3300	30*40	2680	0.260	3.100
3300	35*30	2680	0.250	2.900
3900	30*45	3000	0.230	2.700
3900	35*35	3000	0.220	2.500
4700	30*50	3390	0.200	2.300
4700	35*40	3390	0.180	2.100
5600	35*45	3800	0.160	2.000
6800	35*45	3900	0.140	1.800
8200	35*50	4100	0.120	1.600
10000	35*50	4300	0.100	1.500
定格电压 Rated voltage 100V(2A)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s/105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
1000	22*35	1500	0.550	4.100
1500	22*45	1940	0.450	3.900
1800	25*45	2230	0.430	3.700
2200	30*40	2530	0.410	3.300
2200	35*30	2700	0.400	3.200
2700	30*45	2880	0.380	3.100
2700	35*35	2800	0.330	3.900
3300	30*40	2950	0.290	3.300
3300	35*35	3200	0.260	3.100
4700	30*50	3500	0.250	2.900
4700	35*45	3600	0.230	2.700
5600	35*50	3950	0.220	2.500
6800	35*55	4200	0.200	2.300
8200	35*60	4300	0.180	2.100
10000	35*60	4500	0.160	2.000



# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 160V(2C)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
330	22*25	1200	1.350	4.30
390	25*25	1300	1.100	4.300
470	22*30	1550	1.030	4.300
470	25*25	1550	0.980	4.300
560	25*30	1670	0.950	4.300
560	30*25	1670	0.920	4.100
680	25*30	1820	0.880	3.900
680	30*25	1820	0.820	3.700
820	25*35	2040	0.770	3.300
820	30*30	2040	0.720	3.200
1000	25*40	2250	0.660	3.100
1000	30*35	2250	0.620	3.900
1000	35*30	2250	0.570	3.300
1200	30*40	2490	0.550	3.100
1500	35*35	2970	0.520	2.900
1800	35*40	3320	0.480	2.700
2200	35*45	3860	0.450	2.650
2200	35*50	3860	0.400	2.550
2700	35*50	4000	0.350	2.400
3300	35*60	4630	0.230	2.200
定格电压 Rated voltage 200V(2D)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100Khz/(Ω)	
			20℃	-10℃
330	25*25	1350	0.950	4.300
390	25*25	1450	0.920	4.100
470	25*30	1650	0.880	3.900
470	35*20	1650	0.820	3.700
560	25*30	1750	0.770	3.300
560	30*25	1820	0.720	3.200
680	30*30	1950	0.660	3.100
680	35*25	2010	0.620	3.900
820	35*25	2200	0.570	3.300
820	35*30	2350	0.550	3.100
1000	22*50	2450	0.520	2.900
1000	25*45	2450	0.520	2.900
1000	35*30	2550	0.480	2.700
1000	35*35	2580	0.450	2.650
1200	35*40	2700	0.400	2.550
1500	35*40	3080	0.520	2.400
1800	35*50	3500	0.480	2.200
2200	35*55	3850	0.450	2.000
2200	35*60	3950	0.400	1.850

# SHA Series

## 标准品一览表/STANDARD SIZE

定格电压 Rated voltage 250V(2E)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s/105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
220	22*25	1350	0.880	3.900
220	25*25	1450	0.820	3.700
330	25*30	1650	0.770	3.300
330	30*25	1650	0.720	3.200
390	25*35	1750	0.660	3.100
470	25*35	1820	0.620	3.900
470	30*30	1950	0.570	3.300
560	30*30	2010	0.550	3.100
560	35*25	2200	0.520	2.900
680	30*35	2350	0.480	2.700
680	35*30	2450	0.450	2.650
820	30*40	2550	0.400	2.550
820	35*35	2580	0.520	2.400
1000	35*40	2700	0.480	2.200
1000	35*45	2900	0.450	2.000
1000	35*50	3100	0.400	1.850
1200	35*45	3200	0.350	1.700
1500	35*50	3300	0.330	1.680
1800	35*60	3450	0.280	1.660
2200	35*55	3100	0.390	1.600
2200	35*60	3500	0.260	1.600
2200	35*65	3980	0.220	1.580
定格电压 Rated voltage 400V(2G)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s/105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
82	22*25	1050	0.770	3.300
100	22*25	1150	0.720	3.200
100	25*25	1150	0.660	3.100
120	25*25	1280	0.620	3.900
120	22*30	1280	0.570	3.300
150	25*25	1350	0.550	3.100
180	25*30	1350	0.520	2.900
180	25*30	1350	0.520	2.900
180	30*30	1350	0.520	2.900
220	22*40	1460	0.480	2.700
220	25*40	1460	0.480	2.700
220	22*45	1460	0.480	2.700
220	30*30	1460	0.450	2.650
270	22*50	1500	0.400	2.550
270	30*30	1500	0.400	2.550
330	30*30	1680	0.520	2.400
330	35*30	1680	0.480	2.200
390	35*30	1720	0.450	2.000
470	25*50	1850	0.450	2.000
470	35*30	1850	0.400	1.850
470	35*35	1850	0.400	1.850
470	35*40	1850	0.350	1.700
560	35*40	2250	0.330	1.680
560	35*45	2250	0.280	1.660
560	35*50	2250	0.260	1.600
680	35*45	2400	0.220	1.580
680	35*50	2400	0.200	1.700
680	35*55	2400	0.180	1.680
820	35*50	2550	0.170	1.660
820	30*55	2700	0.170	1.660
820	35*55	2550	0.160	1.600
1000	35*60	3300	0.150	1.580



# SHA Series

标准品一览表/STANDARD SIZE

定格电压 Rated voltage 450V(2W)				
定格静容量(μ F) Rated Capacitance	外形尺寸 Size Φ D×L (mm)	定格电流 Rated ripple current m A r.m.s./105℃,120KHz	阻抗值 Impedance /100KHz/(Ω)	
			20℃	-10℃
68	22*25	1050	1.100	4.500
82	25*25	1150	0.660	3.100
100	25*25	1280	0.620	3.900
100	25*30	1280	0.570	3.300
120	22*36	1300	0.570	3.300
120	25*30	1350	0.550	3.100
120	30*25	1350	0.520	2.900
150	30*25	1460	0.480	2.700
180	30*30	1460	0.450	2.650
220	30*35	1500	0.400	2.550
220	35*30	1680	0.520	2.400
270	25*45	1680	0.480	2.200
270	30*35	1680	0.480	2.200
330	25*50	1700	0.460	2.100
330	30*40	1720	0.450	2.000
330	35*35	1850	0.400	1.850
390	35*35	1850	0.350	1.700
470	35*50	2250	0.280	1.660
470	35*40	2250	0.330	1.680
470	35*45	2250	0.280	1.660
560	35*50	2250	0.260	1.600
560	35*55	2400	0.220	1.580
560	35*60	2400	0.200	1.700
680	35*55	2400	0.180	1.680
680	35*60	2550	0.170	1.660
820	35*60	2650	0.160	1.600
1000	35*66	3300	0.150	1.580