SHF Series Aluminum Electrolytic Capacitors

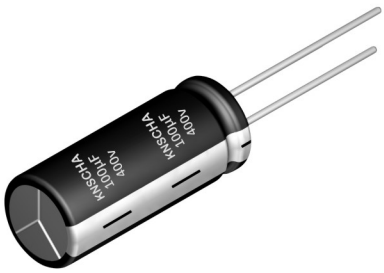
KNSCHA
Empowering The World

FEATURES

- Customized product
- High ripple current,Low impedance,Long Life
- Load Life5000~10000hours
- For Low temperature starting
- Suitable for electricity meters
- Compliant to the RoHS directive

- 客人订制品
- 高纹波、低阻抗和长寿命品
- 寿命5000~10000小时
- 低温启动
- 适用于智能电表，通过国网测试
- RoHS指令对策品

ΦD < 13mm



ΦD ≥ 13mm

SPECIFICATIONS

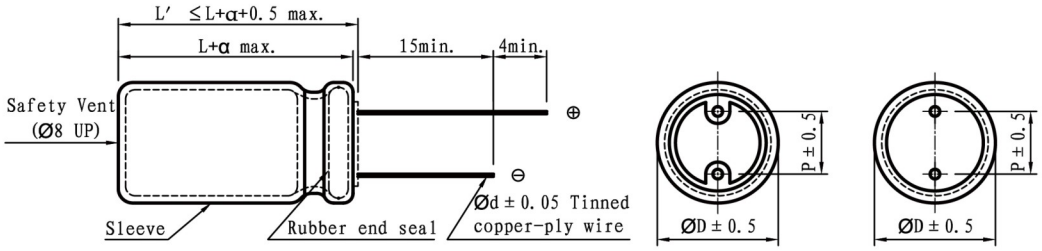
Items 项 目	Characteristics 特 性									
Capacitance Tolerance 静电容量误差	± 20%(120Hz,20℃)									
Operating Temperature Range 适用温度范围	-40 ~ +105℃				-40 ~ +105 ℃					
Rated Voltage Range 额定电压范围	6.3 ~ 100VDC				160 ~ 450 VDC					
Leakage Current 泄漏电流	V ≦ 100V I ≦ 0.01CV or 3 (μA) (After 2 minutes application of DC rated voltage, at 20 ℃) V > 100V I ≦ 0.03CV +20 (μA) (After 5 minutes application of DC rated voltage, at 20 ℃)									
Dissipation Factor 散逸因素(tan δ)	Measurement Frequency: 120Hz. Temperature: 20℃									
	Rated Voltage (V)	6. 3	10	16	25	35	50	63	100	160~450
	tan δ (Max)	0. 24	0.20	0. 16	0.15	0. 12	0.10	0. 09	0.08	0. 15
	When nominal capacitance over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF.									
Low Temperature Stability 低温特性 Impedance Ratio (Max) 阻抗比率(最大值)	Measurement Frequency: 120Hz.									
	Rated Voltage (V)	6. 3	10	16	25	35	50	63	100	160~250	400~450
	Z(-25℃)/Z(20℃)	4	3	2	2	2	2	2	2	3	6
	Z(-40℃)/Z(20℃)	8	6	4	3	3	3	3	3	6	12
Load Life 负荷寿命	Case size		D ≦ 6. 3			D = 8, 10			D ≧ 13	
	Load Life		5, 000 hours			7, 000 hours			10, 000 hours	
	Capacitance Change		Within ± 25% of Initial Value							
	tan δ		200% or less of Initial Specified Value							
	Leakage Current		Initial Specified Value or less							
Shelf Life 放置寿命	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.									
	Capacitance Change		Within ± 25% of Initial Value							
	tan δ		200% or less of Initial Specified Value							
	Leakage Current		Initial Specified Value or less							
Standards 参照标准	JIS C5101-4 (IEC 60384)									

Frequency Coefficient of Permissible Ripple Current

Capacitance (μ F)	Frequency(Hz)				
	50	120	300	1K	100K
≦ 33	0.50	0.55	0.70	0.90	1.00
47 ~ 330	0.60	0.70	0.85	0.95	1.00
470 ~ 1000	0.65	0.75	0.90	0.98	1.00
1200 ~ 18000	0.70	0.80	0.95	1.00	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5℃ rise. When long life performance is required in actual use , the rms ripple current has to be reduced.

DIMENSIONS(mm)



φD	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.5	0.6	0.6	0.8	0.8

α	(L＜16) 1.5
	(L≧16) 2.0

STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105℃ 100KHz; IMP (Ω max)at 20℃,-10℃ 100KHz

Cap (μF)	V	6.3				10			
	Item	D x L	IMP		R.C.	D x L	IMP		R.C.
			20℃	-10℃			20℃	-10℃	
100						5x11	0.640	2.530	215
150		5x11	0. 630	2. 530	210	5x11	0.640	2.530	230
220		6. 3x11	0. 280	0. 990	320	6. 3x11	0.250	0.960	340
330		6. 3x11	0. 230	0. 960	340	6. 3x11	0.250	0.960	380
470		8x12	0. 170	0. 640	345	8x12	0.150	0.580	640
680		8x12	0. 150	0. 580	645	8x16	0.098	0.390	845
						10x13	0.091	0.340	865
820		10x13	0. 091	0. 360	865	10x16	0.080	0.310	1015
1000		8x16	0. 097	0. 390	870	8x20	0.078	0.300	1050
						10x16	0.069	0.270	1215
1200		8x20	0. 081	0. 290	1050	10x20	0.053	0.200	1410
		10x16	0. 072	0. 270	1215				
1500		10x20	0. 053	0. 210	1410	10x25	0.048	0.190	1610
1800						13x21	0.046	0.170	1710
2200		10x25	0. 050	0. 190	1650	10x30	0.036	0.140	1920
						13x21	0.042	0.140	1910
2700		10x30	0. 036	0. 140	1900				
3300		13x21	0. 041	0. 140	1900	13x25	0.032	0.100	2230
3900		13x25	0. 032	0. 100	2240	13x30	0.029	0.089	2660
4700		13x30	0. 029	0. 089	2650	13x35	0.025	0.075	2890
5600		13x35	0. 025	0. 075	2890	13x40	0.021	0.064	3360
						16x26	0.025	0.069	2940
6800		13x40	0. 021	0. 064	3350	16x32	0.021	0.058	3460
		16x26	0. 025	0. 069	2940	18x25	0.025	0.057	3150
8200		16x32	0. 021	0. 058	3450	16x36	0.020	0.052	3610
						18x32	0.020	0.047	4180
10000		16x36	0. 019	0. 052	3620	16x40	0.018	0.045	4090
		18x25	0. 023	0. 057	3150	18x35	0.017	0.045	4150
12000		16x40	0. 017	0. 045	4090	18x40	0.015	0.039	4290
		18x32	0. 019	0. 047	4180				
15000		18x35	0. 018	0. 045	4230				
18000		18x40	0. 016	0. 035	4290				

※ 13mm may be replaced by 12.5mm upon customer's request.

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STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105℃ 100KHz; IMP (Ω max)at 20℃,-10℃ 100KHz

Cap (μF) \ V	16				25			
Item	D x L	IMP		R.C.	D x L	IMP		R.C
		20℃	-10℃			20℃	-10℃	
47					5x11	0. 760	3. 040	200
56	5x11	0. 760	3. 040	220	5x11	0. 760	3. 040	240
100	6. 3x11	0. 280	1. 150	310	6. 3x11	0. 280	1. 150	340
120	6. 3x11	0. 280	1. 150	340				
220	8x12	0. 250	1. 130	510	8x12	0. 160	0. 690	650
330	8x12	0. 160	0. 690	650	8x16	0. 120	0. 470	850
					10x13	0. 110	0. 430	870
470	8x16	0. 120	0. 470	840	8x20	0. 096	0. 360	1050
	10x13	0. 110	0. 430	865	10x16	0. 083	0. 320	1210
680	8x20	0. 095	0. 360	1060	10x20	0. 064	0. 240	1410
	10x16	0. 083	0. 320	1210				
820	10x20	0. 073	0. 290	1310	10x25	0. 058	0. 230	1660
1000	10x20	0. 064	0. 240	1410	10x30	0. 043	0. 160	1920
					13x21	0. 049	0. 160	1910
1200	10x25	0. 061	0. 230	1650				
1500	10x30	0. 043	0. 160	1920	13x25	0. 038	0. 120	2240
	13x21	0. 050	0. 160	1910				
1800	13x25	0. 041	0. 130	2140	13x30	0. 036	0. 110	2660
2200	13x25	0. 038	0. 120	2240	13x35	0. 030	0. 090	2890
2700	13x30	0. 035	0. 110	2650	13x40	0. 025	0. 078	3360
					16x26	0. 031	0. 083	2940
3300	13x35	0. 030	0. 091	2890	16x32	0. 025	0. 070	3460
					18x25	0. 028	0. 067	3150
3900	13x40	0. 031	0. 078	3350	18x25	0. 023	0. 061	3620
	16x26	0. 028	0. 083	2930	18x32	0. 024	0. 056	4180
4700	16x32	0. 025	0. 070	3450	16x40	0. 020	0. 054	4090
	18x25	0. 028	0. 068	3150	18x35	0. 022	0. 054	4230
5600	16x36	0. 024	0. 062	3620	18x40	0. 018	0. 047	4290
	18x32	0. 024	0. 056	4180				
6800	16x40	0. 020	0. 054	4080				
8200	18x35	0. 023	0. 054	4230				
10000	18x40	0. 018	0. 047	4290				

※ 13mm may be replaced by 12.5mm upon customer's request.

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D×L(mm) ; R.C.(mA rms) at 105℃ 100KHz; IMP (Ω max)at 20℃,-10℃ 100KHz

Cap (μF) \ V	35				50			
Item	D x L	IMP		R.C.	D x L	IMP		R.C.
		20℃	-10℃			20℃	-10℃	
22					5x11	1. 540	6. 16	180
33	5x11	0. 690	2. 780	220				
47	6. 3x11	0. 430	1. 700	280	6. 3x11	0. 780	3. 300	220
56	6. 3x11	0. 400	1. 580	340	6. 3x11	0. 660	2. 640	300
100	8x12	0. 320	1. 180	510	8x12	0. 360	1. 470	560
120					8x16	0. 270	1. 060	740
150	8x12	0. 160	0. 630	650	10x13	0. 270	1. 060	770
180					8x20	0. 200	0. 800	920
220	8x16	0. 110	0. 430	850	10x16	0. 190	0. 750	1050
	10x13	0. 100	0. 390	865				
270	8x20	0. 088	0. 320	1060	10x20	0. 140	0. 530	1230
330	10x16	0. 076	0. 290	1210	10x25	0. 120	0. 490	1450
470	10x20	0. 058	0. 220	1410	10x30	0. 100	0. 380	1695
					13x21	0. 100	0. 340	1670
560	10x25	0. 053	0. 200	1650	13x25	0. 080	0. 250	1950
680	10x30	0. 040	0. 150	1920	13x30	0. 072	0. 230	2320
	13x21	0. 044	0. 160	1910				
820					13x35	0. 058	0. 180	2520
1000	13x25	0. 037	0. 110	2230	13x40	0. 050	0. 160	2930
					16x26	0. 062	0. 170	2555
1200	13x30	0. 032	0. 098	2660	16x32	0. 052	0. 150	3020
					18x25	0. 062	0. 160	2750
1500	13x35	0. 028	0. 083	2880	16x36	0. 046	0. 130	3150
1800	13x40	0. 023	0. 072	3350	16x40	0. 042	0. 110	3720
	16x26	0. 028	0. 076	2940	18x32	0. 052	0. 130	3640
2200	16x32	0. 023	0. 064	3500	18x35	0. 044	0. 100	3690
	18x25	0. 026	0. 063	3140				
2700	16x36	0. 022	0. 057	3620	18x40	0. 038	0. 090	3810
	18x32	0. 021	0. 052	4180				
3300	16x40	0. 020	0. 050	4090				
	18x35	0. 021	0. 050	4230				
3900	18x40	0. 019	0. 044	4290				

※ 13mm may be replaced by 12.5mm upon customer's request.

STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105℃ 100KHz; IMP (Ω max)at 20℃,-10℃ 100KHz

Cap (μF) \ V	63				100			
Item	D x L	IMP		R.C.	D x L	IMP		R.C.
		20℃	-10℃			20℃	-10℃	
6. 8					5x11	2. 780	11. 640	56
15	5x11	2. 20	9. 20	56	6. 3x11	1. 520	6. 330	120
27					8x12	0. 980	4. 390	235
33	6. 3x11	1. 20	5. 00	120				
39					8x16	0. 570	2. 660	280
47	8x12	0. 68	3. 10	190	10x13	0. 550	2. 280	290
56	8x12	0. 62	2. 80	235	8x20	0. 410	2. 020	330
68					10x16	0. 380	1. 900	358
82	8x16	0. 45	2. 10	310	10x20	0. 270	1. 190	470
	10x13	0. 43	1. 80	300				
100	10x16	0. 35	1. 80	320	10x25	0. 260	1. 070	536
120	8x20	0. 33	1. 60	362	10x30	0. 190	0. 900	666
	10x16	0. 30	1. 50	357	13x21	0. 210	0. 810	690
180	10x20	0. 20	0. 94	470	13x25	0. 160	0. 570	790
220	10x25	0.20	0.84	531	13x30	0. 130	0. 530	905
					16x22	0. 120	0. 470	1050
270	10x30	0. 15	0. 70	663	13x35	0. 110	0. 450	1060
	13x21	0. 13	0. 65	690	16x26	0. 095	0. 340	1250
330	13x25	0. 12	0. 45	790	13x40	0. 092	0. 380	1190
390					16x32	0. 071	0. 260	1570
					18x25	0. 075	0. 270	1490
470	13x30	0. 100	0.42	910	16x36	0. 061	0. 220	1790
					18x32	0. 063	0. 220	1640
560	13x35	0. 082	0. 35	1050	16x40	0. 054	0. 190	2030
	16x26	0. 073	0. 27	1250				
680	13x40	0. 070	0. 30	1190	18x35	0. 054	0. 190	1790
820	16x32	0. 053	0. 20	1580	18x40	0. 049	0. 170	2340
	18x25	0. 057	0. 21	1490				
1000	16x36	0. 045	0. 17	1790				
	18x32	0. 047	0. 17	1640				
1200	16x40	0. 039	0. 15	2020				
	18x35	0. 040	0. 15	1790				
1500	18x40	0. 035	0. 13	2340				

※ 13mm may be replaced by 12.5mm upon customer's request.

STANDARD RATINGS

D×L(mm) ; R.C.(mA rms) at 105℃ 100KHz; IMP (Ω max)at 20℃,-10℃ 100KHz

Cap (μF)	V	160		200		250		400		450	
	Item	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.	D x L	R.C.
2. 2		6. 3x11	41	6. 3x11	41	8x12	50	8x12	50	8x12	50
3.3		8x12	49	8x12	50	8x12	73	8x12	63	8x12	73
								10x16	80	10x16	94
4. 7		8x12	62	8x12	73	8x12	80	10x13	80	10x13	87
6.8		8x12	65	8x12	88	10x13	113	10x16	105	10x16	114
10		10x13	109	10x16	116	10x16	146	10x20	133	10x20	146
15		10x13	133	10x16	133	10x16	179	10x20	163	13x20	207
22		10x16	189	10x20	203	13x21	246	13x21	235	13x25	276
33		10x20	246	13x21	291	13x21	328	13x25	298	16x22	349
39		10x20	276	13x21	319	13x25	364	16x22	298	16x26	437
47		13x21	335	13x21	364	13x25	407	16x26	465	16x32	480
68		13x25	378	13x25	407	16x22	451	16x26	510	18x25	510
82		16x22	465	16x26	510	16x32	567	18x25	610	18x32	844
100		16x26	510	16x32	699	16x36	728	18x32	801	18x35	960
120								18x40	946	18x40	1120

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Note：Alldesignand specification are for reference only and is subject to change without priornotice.If any doubt about safety for your application，please contact KNSCHA immediately for technical assistancebe for epurchase
备注：以上所提供的设计及特性参数仅供参考，任何修改不作预先通知。如果在使用上有疑问，请再购买前与科尼盛联系，以便我们提供技术上的服务和协助。