

# AKL Series

## Features

- $\phi 4 \sim \phi 12.5$ , 105°C, 3000~5000 hours assured
- Long life assured
- Designed for reflow soldering
- Designed for surface mounting on high-density PCB
- RoHS 2.0 compliant, 247 REACH&SVHC compliant
- AEC-Q200 compliant, Please contact Jarson for more details, test data, information



Marking color: Black

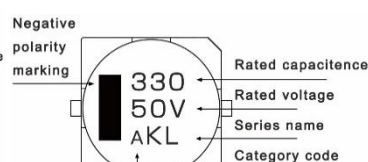
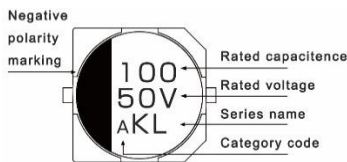
## Specifications

Category temp. range	-55℃ to +105℃									
Capacitance tolerance	±20% (120 Hz / +20 ℃)									
Leakage current	I ≤ 0.01 CV or 3 μA whichever is greater (after 2 minutes)									
Tan δ	Please see the attached characteristics list									
Characteristics at low temperature(Impedance ratio at 120 Hz)	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100
	Z (-25 ℃) / Z (+20 ℃)	4	3	2	2	2	2	2	2	2
	Z (-55 ℃) / Z (+20 ℃)	10	7	5	4	4	4	3	3	3
Endurance	After applying rated working voltage for 3000/5000 hours at +105 ℃ ± 2 ℃, and then being stabilized at +20 ℃, capacitors shall meet the following limits.									
	Test Time	φ D ≤ 6.3mm: 3000H, φ D ≥ 8mm: 5000H								
	Capacitance change	Within ±30% of the initial value								
	Dissipation factor (tan δ)	Less than 300% of the initial value								
	Leakage current	Within the initial limit								
Shelf life	After storage for 1000 h at +105 ℃ ± 2 ℃ with no voltage applied and then being stabilized at +20 ℃, capacitors shall meet the limits specified in endurance.									
Resistance to soldering heat	After reflow soldering and then being stabilized at +20 ℃, capacitors shall meet the following limits.									
	Capacitance change	Within ±10% of the initial value								
	Dissipation factor (tan δ)	Within the initial limit								
	Leakage current	Within the initial limit								
Frequency correction factor for ripple current	Frequency	50Hz	120Hz		1kHz			10kHz≤		
	C ≤ 1000μF	0.7	1.0		1.2			1.3		
	C > 1000μF	0.85	1.0		1.1			1.15		

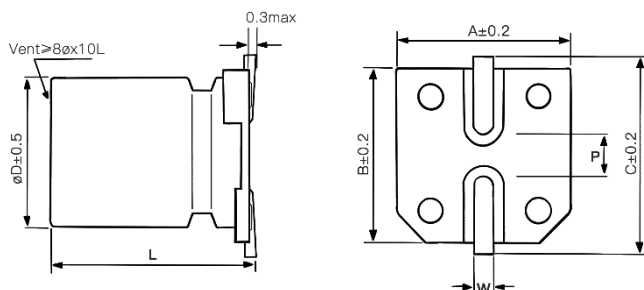
## Marking

$\phi D \leq 10mm$

$\phi D \geq 12.5mm$



## Dimensions:



Dimensions						Unit: mm
$\phi D$	L	A	B	C	W	P $\pm 0.2$
4	5.7 $\pm 0.3$	4.3	4.3	5.1	0.5~0.8	1.0
5	5.7 $\pm 0.3$	5.3	5.3	6.0	0.5~0.8	1.4
6.3	5.7 $\pm 0.3$	6.6	6.6	7.3	0.5~0.8	2.0
6.3	7.7 $\pm 0.3$	6.6	6.6	7.3	0.5~0.8	2.0
8	10.5 $\pm 0.5$	8.3	8.3	9.1	0.7~1.3	3.1
10	10.5 $\pm 0.5$	10.3	10.3	11.1	0.7~1.3	4.4
10	13 $\pm 0.5$	10.3	10.3	11.1	0.7~1.3	4.4
12.5	13.5 $\pm 0.5$	13.0	13.0	14.0	1.1~1.4	4.4
12.5	16 $\pm 0.5$	13.0	13.0	14.0	1.1~1.4	4.4

**Part Number System:**

SMD Aluminum E-Caps      KL series      16V      220μF      ±20 %      8 φ x10.5L

**A**
**KL**
**1C**
**221**
**M**
**0810**

Produce category

Series name

Rated voltage

Capacitance

Capacitance tolerance

Case Size

**Characteristics list**

Rated voltage (V)	Capacitance (±20%) (μF)	Case size		Specification		Part Number③	Taping&Reel
		øD (mm)	L (mm)	Rated ripple current① (mA rms)	tan δ②		MPQ (pcs/reel)
6.3	22	4	5.7	22	0.30	AKL0J220M0406	2000
	33	5	5.7	35	0.30	AKL0J330M0506	1000
	47	5	5.7	38	0.30	AKL0J470M0506	1000
	100	6.3	5.7	69	0.30	AKL0J101M0606	1000
	220	6.3	7.7	120	0.30	AKL0J221M0607	1000
	330	8	10.5	141	0.30	AKL0J331M0810	500
	470	10	10.5	320	0.30	AKL0J471M1010	500
	1000	10	10.5	410	0.32	AKL0J102M1010	500
	1500	12.5	13.5	500	0.40	AKL0J152M1313	200
	2200	12.5	13.5	600	0.42	AKL0J222M1313	200
10	22	4	5.7	22	0.24	AKL1A220M0406	2000
	33	5	5.7	35	0.24	AKL1A330M0506	1000
	47	6.3	5.7	50	0.24	AKL1A470M0606	1000
	100	6.3	7.7	81	0.24	AKL1A101M0607	1000
	220	8	10.5	141	0.24	AKL1A221M0810	500
	330	10	10.5	290	0.24	AKL1A331M1010	500
	470	10	10.5	320	0.24	AKL1A471M1010	500
	1000	10	13	390	0.26	AKL1A102M1013	400
	1500	12.5	13.5	500	0.38	AKL1A152M1313	200
	2200	12.5	13.5	600	0.40	AKL1A222M1313	200
16	10	4	5.7	18	0.20	AKL1C100M0406	2000
	22	5	5.7	30	0.20	AKL1C220M0506	1000
	33	6.3	5.7	48	0.20	AKL1C330M0606	1000
	47	6.3	5.7	50	0.20	AKL1C470M0606	1000
	100	6.3	7.7	81	0.20	AKL1C101M0607	1000
	220	8	10.5	141	0.20	AKL1C221M0810	500
	330	10	10.5	290	0.20	AKL1C331M1010	500
	470	10	10.5	320	0.20	AKL1C471M1010	500
	1000	12.5	13.5	550	0.34	AKL1C102M1313	200
	1500	12.5	13.5	600	0.36	AKL1C152M1313	200
25	10	5	5.7	27	0.16	AKL1E100M0506	1000
	22	6.3	5.7	44	0.16	AKL1E220M0606	1000
	33	6.3	5.7	50	0.16	AKL1E330M0606	1000
	47	6.3	7.7	63	0.16	AKL1E470M0607	1000
	100	8	10.5	116	0.16	AKL1E101M0810	500
	220	10	10.5	290	0.16	AKL1E221M1010	500
	330	10	10.5	320	0.16	AKL1E331M1010	500
	470	12.5	13.5	400	0.26	AKL1E471M1313	200

① Rated ripple current (120Hz / +105℃)    ② tan δ (120Hz / +20℃)    ③ For automotive, the Part Number is appended with "a" at the end.

※ Please refer to the page of reflow conditions for reflow profile.

**Characteristics list**

Rated voltage (V)	Capacitance (±20%) (μF)	Case size		Specification		Part Number③	Taping&Reel
		øD (mm)	L (mm)	Rated ripple current① (mA rms)	tan δ②		MPQ (pcs/reel)
35	4.7	4	5.7	16	0.14	AKL1V4R7M0406	2000
	10	5	5.7	27	0.14	AKL1V100M0506	1000
	22	6.3	5.7	44	0.14	AKL1V220M0606	1000
	33	6.3	7.7	57	0.14	AKL1V330M0607	1000
	47	8	10.5	92	0.14	AKL1V470M0810	500
	100	10	10.5	151	0.14	AKL1V101M1010	500
	220	10	10.5	320	0.14	AKL1V221M1010	500
	330	12.5	13.5	320	0.22	AKL1V331M1313	200
	470	12.5	16	410	0.22	AKL1V471M1316	200
50	1	4	5.7	8	0.12	AKL1H010M0406	2000
	2.2	4	5.7	12	0.12	AKL1H2R2M0406	2000
	3.3	4	5.7	17	0.12	AKL1H3R3M0406	2000
	4.7	5	5.7	22	0.12	AKL1H4R7M0506	1000
	10	6.3	5.7	32	0.12	AKL1H100M0606	1000
	22	6.3	7.7	58	0.12	AKL1H220M0607	1000
	33	8	10.5	130	0.12	AKL1H330M0810	500
	47	8	10.5	141	0.12	AKL1H470M0810	500
	100	10	10.5	160	0.12	AKL1H101M1010	500
	220	12.5	13.5	280	0.18	AKL1H221M1313	200
	330	12.5	16	360	0.18	AKL1H331M1316	200
63	10	6.3	7.7	45	0.10	AKL1J100M0607	1000
	22	8	10.5	65	0.10	AKL1J220M0810	500
	33	10	10.5	80	0.10	AKL1J330M1010	500
	47	10	10.5	110	0.10	AKL1J470M1010	500
	100	12.5	13.5	200	0.14	AKL1J101M1313	200
	150	12.5	13.5	240	0.14	AKL1J151M1313	200
	220	12.5	16	240	0.14	AKL1J221M1316	200
80	100	12.5	13.5	220	0.10	AKL1K101M1313	200
	150	12.5	16	290	0.10	AKL1K151M1316	200
100	10	8	10.5	55	0.08	AKL2A100M0810	500
	22	10	10.5	70	0.08	AKL2A220M1010	500
	33	10	10.5	80	0.08	AKL2A330M1010	500
	47	12.5	13.5	150	0.10	AKL2A470M1313	200
	68	12.5	13.5	180	0.10	AKL2A680M1313	200
	100	12.5	16	240	0.10	AKL2A101M1316	200

① Rated ripple current (120Hz / +105°C)    ② tan δ (120Hz / +20°C)    ③ For automotive, the Part Number is appended with "a" at the end.

※ Please refer to the page of reflow conditions for reflow profile.