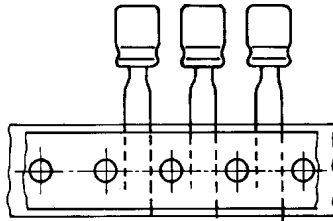


Aluminum Electrolytic Capacitors, Radial Style



CHARACTERISTICS

- Polarized Al electrolytic capacitor
- High C·U product
- Very small dimensions

APPLICATIONS

- General uses, industrial electronics, automotive electronics, audio / video systems
- Smoothing, filtering, coupling, decoupling, timing elements
- Little space requirement
- Portable and mobile units

MAIN SPECIFICATIONS			
Nominal Case Size (D x L)	[mm]	5 x 11 to 18 x 40	
Rated Capacitance Range	[μF]	1 to 22000	
Capacitance Tolerance	[%]	± 20	
Rated Voltage Range	[V]	6.3 to 350	400, 450
Category Temperature Range	[°C]	-40 to 85	-25 to 85
Endurance Test at Upper Category Temperature	[h]	2000	
Lifetime at 85°C and I _R	[h]	3000	
Lifetime at 40°C and I _R	[h]	70000	
Sectional Specifications		IEC 384-4, CECC 30300, GP grade	
Detail Specifications		CECC 30301-037, similar to DIN 45 910 Part 124 without quality assessment	
Climatic Category IEC 68 DIN 40040		40 / 085 / 56 GPF	25 / 085 / 56 HPF
Failure Rate	[10 ⁻⁹ / h]	≤ 90	

DIMENSIONS														
Nominal size D x L [in millimeters]														
C _R [μF]	U _R [V]													
	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
1.0														8 x 11.5
2.2													8 x 11.5	10 x 12.5
3.3										6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 12.5
4.7									6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 12.5	10 x 16
10								5 x 11	10 x 12.5	10 x 12.5	10 x 12.5	10 x 16	10 x 20	10 x 20
22								6.3 x 11	10 x 16	10 x 16	10 x 20	13 x 20	13 x 25	13 x 25
33							5 x 11	8 x 11.5	10 x 20	10 x 20	13 x 20	13 x 25	16 x 25	16 x 25
47					5 x 11		6.3 x 11	10 x 12.5	13 x 20	13 x 20	13 x 25	16 x 25	16 x 31.5	16 x 31.5
100			5 x 11		6.3 x 11		8 x 11.5	10 x 20	13 x 25	16 x 25	16 x 31.5	16 x 35.5	18 x 40	
220		5 x 11	6.3 x 11		8 x 11.5	10 x 12.5	10 x 16	13 x 25	16 x 31.5	18 x 35.5	18 x 40			
330		6.3 x 11	8 x 11.5	8 x 11.5	10 x 12.5	10 x 16	10 x 20	16 x 25	18 x 35.5					
470		6.3 x 11	8 x 11.5	10 x 12.5	10 x 16	10 x 20	13 x 20	16 x 25						
1000	8 x 11.5	10 x 12.5	10 x 16	10 x 20	13 x 20	13 x 25	16 x 25							
2200	10 x 20	10 x 20	13 x 20	13 x 25	16 x 25	16 x 35.5								
3300	10 x 20	13 x 20	13 x 25	16 x 25	16 x 35.5	18 x 35.5								
4700	13 x 20	13 x 25	16 x 25	16 x 31.5	18 x 35.5									
6800	13 x 25	16 x 25	16 x 31.5	18 x 35.5										
10000	16 x 25	16 x 35.5	18 x 35.5											
15000	16 x 35.5	18 x 35.5												
22000	18 x 40													

•10% capacitance tolerance on request

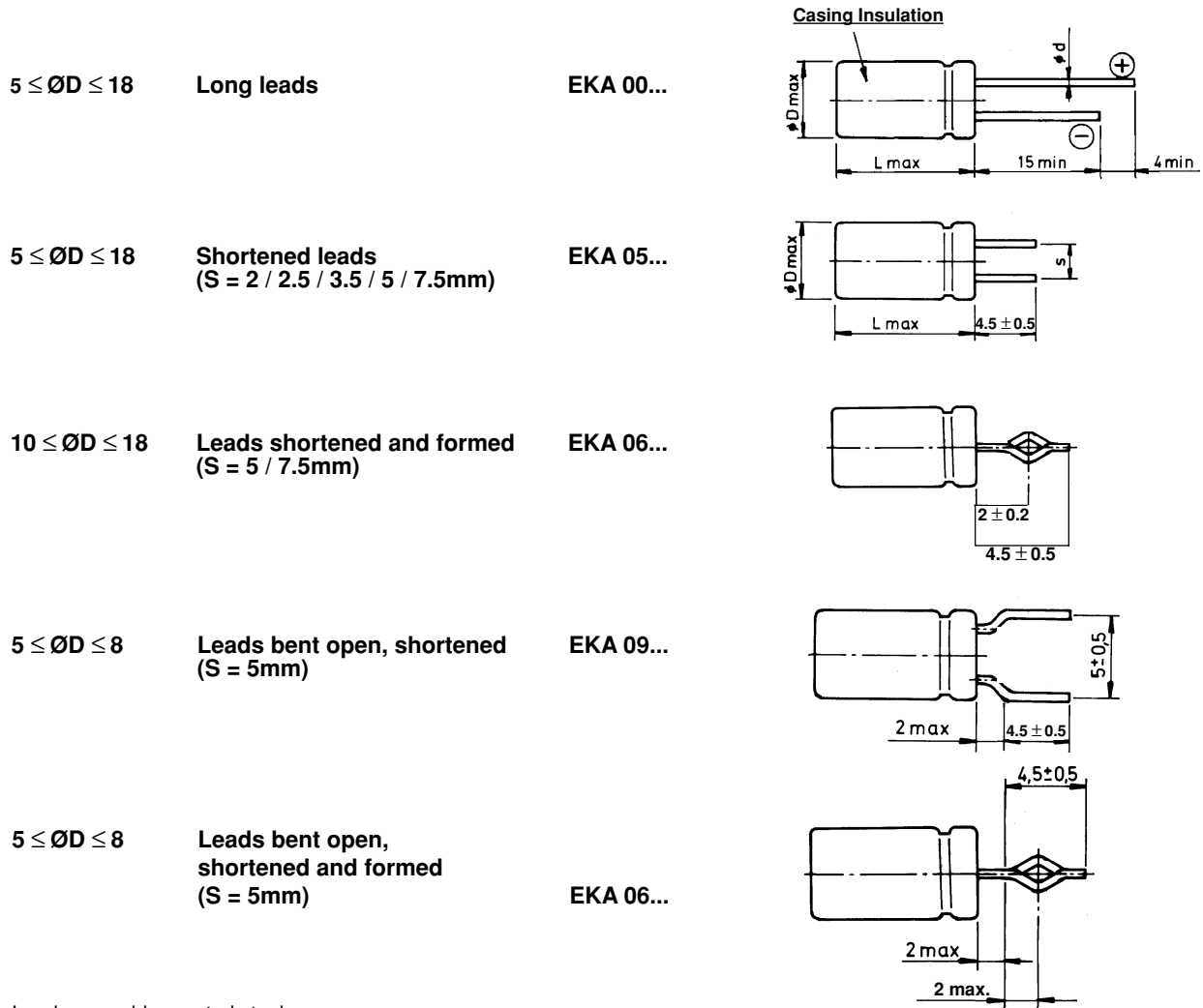
LEAKAGE CURRENT

Formula for the calculation of the maximum leakage current for acceptance tests I_L:
 [Test conditions: U_R 20°C, 2 minutes (U_R ≤ 100V) / 5 minutes (U_R > 100V)]

$$I_{L2} [\mu A] \leq 0.01 \cdot C_R [\mu F] \cdot U_R [V] \quad \text{or } 3\mu A \quad \text{for } U_R \leq 100V \quad \text{whichever is greater}$$

$$I_{L5} [\mu A] \leq 0.02 \cdot C_R [\mu F] \cdot U_R [V] \quad +15 \quad \text{for } U_R > 100V$$

LOW TEMPERATURE BEHAVIOR									
Impedance Ratio Z(T2) / Z(T1) at 120Hz									
T2 / T1	RATED VOLTAGE [V]								
	6.3	10	16	25	35	50 - 100	160	200 - 350	400, 450
-25°C / +20°C	5	4	3	2	2	2	4	6	12
-40°C / +20°C	12	10	8	5	4	3	6	8	-

DIMENSIONS AND LEAD CONFIGURATION


Leads are solder-coated steel
Safety vent for $\text{ØD} \geq 8\text{mm}$

DIMENSIONS [in millimeters]			
NOMINAL SIZE D X L	MAXIMUM SIZE D _{max.} X L _{max.}	LEAD ød ± 0.05	LEAD SPACING S ± 0.05
5 x 11	5.5 x 12.0	0.5	2.0
6.3 x 11	6.8 x 12.0	0.5	2.5
8 x 11.5	8.5 x 12.5	0.6	3.5
10 x 12.5	10.5 x 14.5	0.6	5.0
10 x 16	10.5 x 18.0	0.6	5.0
10 x 20	10.5 x 22.0	0.6	5.0
13 x 20	13.5 x 22.0	0.6	5.0
13 x 25	13.5 x 27.0	0.6	5.0
16 x 25	16.5 x 27.0	0.8	7.5
16 x 31.5	16.5 x 33.5	0.8	7.5
16 x 35.5	16.5 x 37.5	0.8	7.5
18 x 35.5	18.5 x 37.5	0.8	7.5
18 x 40	18.5 x 42.0	0.8	7.5

TECHNICAL AND ORDERING INFORMATION

If not indicated otherwise the following test conditions apply to all electrical parameters:

$$T_a = 20^\circ\text{C}, p = 80\text{-}120 \text{ kPa}, RH = 45\text{-}75\%$$

C_R	Rated Capacitance at 120Hz
U_R	Rated Voltage
$\tan \delta$	Max. Dissipation Factor at 120Hz
R_{ESR}	Max. Equivalent Series Resistance at 120Hz
I_R	Rated Alternating Current at 120Hz and Upper Category Temperature

Ordering example:

EKA 2200 μF / 25V, $\pm 20\%$, size: 16mm x 25mm
Leads: Long - Ordering code: EKA 00JG422E00

Leads: Short (4.5mm \pm 0.5) - Ordering code: EKA 05...

Leads: Bent open, shortened - Ordering code: EKA 09...

Leads: Bent open, shortened and formed
Ordering code: EKA 06...

ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE

CAPACITANCE 120Hz C_R [μF]	RATED VOLTAGE U_R [V]	DIMENSIONS D x L [mm]	DISSIPATION FACTOR 120Hz	EQUIVALENT SERIES RESISTANCE 120Hz [Ω]	RATED CURRENT I_R 120Hz, 85 $^\circ\text{C}$ [mA]	WEIGHT [g]	ORDERING CODE
1000	6.3	8 x 11.5	0.28	0.45	567	1.1	EKA00PB410B00
2200	6.3	10 x 20	0.30	0.22	1012	2.5	EKA00DE422B00
3300	6.3	10 x 20	0.33	0.16	1197	2.5	EKA00DE433B00
4700	6.3	13 x 20	0.35	0.12	1624	3.8	EKA00GE447B00
6800	6.3	13 x 25	0.40	0.09	2001	4.5	EKA00GG468B00
10000	6.3	16 x 25	0.46	0.07	2501	7.0	EKA00JG510B00
15000	6.3	16 x 35.5	0.56	0.06	3160	11.0	EKA00JL515B00
22000	6.3	18 x 40	0.70	0.05	3821	16.0	EKA00KK522B00
220	10	5 x 11	0.24	1.74	212	0.5	EKA00AA322C00
330	10	6.3 x 11	0.24	1.16	298	0.8	EKA00BA333C00
470	10	6.3 x 11	0.24	0.81	356	0.8	EKA00BA347C00
1000	10	10 x 12.5	0.24	0.38	712	1.5	EKA00DC410C00
2200	10	10 x 20	0.26	0.19	1023	2.5	EKA00DE422C00
3300	10	13 x 20	0.29	0.14	1509	3.8	EKA00GE433C00
4700	10	13 x 25	0.31	0.11	1893	4.5	EKA00GG447C00
6800	10	16 x 25	0.36	0.08	2362	7.0	EKA00JG468C00
10000	10	16 x 35.5	0.42	0.07	3018	11.0	EKA00JL510C00
15000	10	18 x 35.5	0.52	0.06	3529	13.0	EKA00KL515C00
100	16	5 x 11	0.20	3.18	157	0.5	EKA00AA310D00
220	16	6.3 x 11	0.20	1.45	267	0.8	EKA00BA322D00
330	16	8 x 11.5	0.20	0.97	386	1.1	EKA00PB333D00
470	16	8 x 11.5	0.20	0.68	460	1.1	EKA00DC347D00
1000	16	10 x 16	0.20	0.32	854	2.0	EKA00DD410D00
2200	16	13 x 20	0.22	0.16	1271	3.8	EKA00GE422D00
3300	16	13 x 25	0.25	0.12	1750	4.5	EKA00GG433D00
4700	16	16 x 25	0.27	0.09	2222	7.0	EKA00JG447D00
6800	16	16 x 31.5	0.32	0.07	2715	9.0	EKA00JS468D00
10000	16	18 x 35.5	0.38	0.06	3374	13.0	EKA00KL510D00



ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE							
CAPACITANCE 120Hz CR [μF]	RATED VOLTAGE UR [V]	DIMENSIONS D x L [mm]	DISSIPATION FACTOR 120Hz	EQUIVALENT SERIES RESISTANCE 120Hz [Ω]	RATED CURRENT IR 120Hz, 85°C [mA]	WEIGHT [g]	ORDERING CODE
330 470 1000 2200 3300 4700 6800	25 25 25 25 25 25 25	8 x 11.5 10 x 12.5 10 x 20 13 x 25 16 x 25 16 x 31.5 18 x 35.5	0.16 0.16 0.16 0.18 0.21 0.23 0.28	0.77 0.54 0.25 0.13 0.10 0.08 0.07	431 598 1042 1615 2082 2592 3228	1.1 1.5 2.5 4.5 7.0 9.0 13	EKA00PB333E00 EKA00DC347E00 EKA00DE410E00 EKA00GG422E00 EKA00JG433E00 EKA00JS447E00 EKA00KL468E00
47 100 220 330 470 1000 2200 3300 4700	35 35 35 35 35 35 35 35 35	5 x 11 6.3 x 11 8 x 11.5 10 x 12.5 10 x 16 13 x 20 16 x 25 16 x 35.5 18 x 35.5	0.14 0.14 0.14 0.14 0.14 0.14 0.16 0.19 0.21	4.74 2.23 1.01 0.68 0.47 0.22 0.12 0.09 0.07	131 220 386 549 717 1340 1900 2519 3060	0.5 0.8 1.1 1.5 2.0 3.8 7.0 11.0 13.0	EKA00AA247F00 EKA00BA310F00 EKA00PB322F00 EKA00DC333F00 EKA00DD347F00 EKA00GE410F00 EKA00JG422F00 EKA00JL433F00 EKA00KL447F00
220 330 470 1000 2200 3300	50 50 50 50 50 50	10 x 12.5 10 x 16 10 x 20 13 x 25 16 x 35.5 18 x 35.5	0.12 0.12 0.12 0.12 0.14 0.17	0.87 0.58 0.41 0.19 0.10 0.08	472 633 825 1540 2253 2721	1.5 2.0 2.5 4.5 11.0 13.0	EKA00DC322H00 EKA00DD333H00 EKA00DE347H00 EKA00GG410H00 EKA00JL422H00 EKA00KL433H00
33 47 100 220 330 470 1000	63 63 63 63 63 63 63	5 x 11 6.3 x 11 8 x 11.5 10 x 16 10 x 20 13 x 20 16 x 25	0.10 0.10 0.10 0.10 0.10 0.10 0.10	4.83 3.39 1.59 0.72 0.48 0.34 0.16	142 169 291 549 733 1027 1812	0.5 0.8 1.1 2.0 2.5 3.8 7.0	EKA00AA233J00 EKA00BA247J00 EKA00PB310J00 EKA00DD322J00 EKA00DE333J00 EKA00GE347J00 EKA00JG410J00
10 22 33 47 100 220 330 470	100 100 100 100 100 100 100 100	5 x 11 6.3 x 11 8 x 11.5 10 x 12.5 10 x 20 13 x 25 16 x 25 16 x 25	0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08	13.0 5.79 3.86 2.71 1.27 0.58 0.39 0.27	72 124 178 247 431 819 1113 1328	0.5 0.8 1.1 1.5 2.5 4.5 7.0 7.00	EKA00AA210L00 EKA00BA222L00 EKA00PB233L00 EKA00DC247L00 EKA00DE310L00 EKA00GG322L00 EKA00JG333L00 EKA00JG347L00
4.7 10 22 33 47 100 220 330	160 160 160 160 160 160 160 160	6.3 x 11 10 x 12.5 10 x 16 10 x 20 13 x 20 13 x 25 16 x 31.5 18 x 35.5	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	51.0 24.0 11.0 7.24 5.08 2.39 1.09 0.72	48 95 155 207 290 462 832 1147	0.8 1.5 2.0 2.5 3.8 4.5 9.0 13.0	EKA00BA147M00 EKA00DC210M00 EKA00DD222M00 EKA00DE233M00 EKA00GE247M00 EKA00GG310M00 EKA00JS322M00 EKA00KL333M00

ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE							
CAPACITANCE 120Hz CR [μF]	RATED VOLTAGE UR [V]	DIMENSIONS D x L [mm]	DISSIPATION FACTOR 120Hz	EQUIVALENT SERIES RESISTANCE 120Hz [Ω]	RATED CURRENT IR 120Hz, 85°C [mA]	WEIGHT [g]	ORDERING CODE
3.3	200	6.3 x 11	0.15	72.0	40	0.8	EKA00BA133S00
4.7	200	8 x 11.5	0.15	51.0	56	1.1	EKA00PB147S00
10	200	10 x 12.5	0.15	24.0	95	1.5	EKA00DC210S00
22	200	10 x 16	0.15	11.0	155	2.0	EKA00DD222S00
33	200	10 x 20	0.15	7.24	207	2.5	EKA00DE233S00
47	200	13 x 20	0.15	5.08	290	3.8	EKA00GE247S00
100	200	16 x 25	0.15	2.39	512	7.0	EKA00JG310S00
220	200	18 x 35.5	0.15	1.09	936	13.0	EKA00KL322S00
3.3	250	8 x 11.5	0.15	72.0	47	1.1	EKA00PB133N00
4.7	250	8 x 11.5	0.15	51.0	56	1.1	EKA00PB147N00
10	250	10 x 12.5	0.15	24.0	95	1.5	EKA00DC210N00
22	250	10 x 20	0.15	11.0	169	2.5	EKA00DE222N00
33	250	13 x 20	0.15	7.24	243	3.8	EKA00GE233N00
47	250	13 x 25	0.15	5.08	317	4.5	EKA00GG247N00
100	250	16 x 31.5	0.15	2.39	561	9.0	EKA00JS310N00
220	250	18 x 40	0.15	1.09	982	16.0	EKA00KK322N00
3.3	350	8 x 11.5	0.20	97.0	47	1.1	EKA00PB133O00
4.7	350	10 x 12.5	0.20	68.0	65	1.5	EKA00DC147O00
10	350	10 x 16	0.20	32.0	105	2.0	EKA00DD210O00
22	350	13 x 20	0.20	15.0	199	3.8	EKA00GE222O00
33	350	13 x 25	0.20	9.65	265	4.5	EKA00GG233O00
47	350	16 x 25	0.20	6.78	351	7.0	EKA00JG247O00
100	350	16 x 35.5	0.20	3.18	588	11.0	EKA00JL310O00
2.2	400	8 x 11.5	0.20	145.0	39	1.1	EKA00PB122X00
3.3	400	10 x 12.5	0.20	97.0	55	1.5	EKA00DC133X00
4.7	400	10 x 12.5	0.20	68.0	65	1.5	EKA00DC147X00
10	400	10 x 20	0.20	32.0	114	2.5	EKA00DE210X00
22	400	13 x 25	0.20	15.0	217	4.5	EKA00GG222X00
33	400	16 x 25	0.20	9.65	294	7.0	EKA00JG233X00
47	400	16 x 31.5	0.20	6.78	384	9.0	EKA00JG247X00
100	400	18 x 40	0.20	3.18	662	16.0	EKA00KK310X00
1.0	450	8 x 11.5	0.20	318.0	24	1.1	EKA00PB110P00
2.2	450	10 x 12.5	0.20	145.0	41	1.5	EKA00DC122P00
3.3	450	10 x 12.5	0.20	97.0	50	1.5	EKA00DC133P00
4.7	450	10 x 16	0.20	68.0	65	2.0	EKA00DD147P00
10	450	10 x 20	0.20	32.0	104	2.5	EKA00DE210P00
22	450	13 x 25	0.20	15.0	198	4.5	EKA00GG210P00
33	450	16 x 25	0.20	9.65	269	7.0	EKA00JG233P00
47	450	16 x 31.5	0.20	6.78	351	9.0	EKA00JS247P00