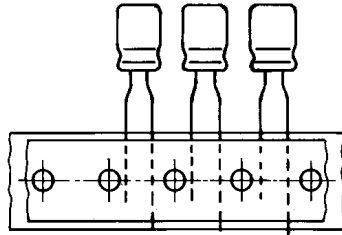
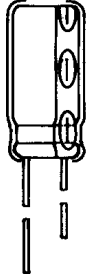


# Aluminum Electrolytic Capacitors, Radial Style



## FEATURES

- Polarized Al electrolytic capacitor
- High C-U product
- Small dimensions
- Low impedance over high temperature and frequency ranges
- High AC rating
- Long lifetime

## APPLICATIONS

- Industrial electronics, telecommunication systems, audio / video systems
- Professional switching power supply units
- DC-DC converters
- Smoothing, filtering
- Portable and mobile units

<b>MAIN SPECIFICATIONS</b>					
Nominal Case Size (D x L)	[mm]	5 x 11 to 18 x 40			
Rated Capacitance Range	[ $\mu$ F]	0.47 to 10000			
Capacitance Tolerance	[%]	$\pm 20$			
Rated Voltage Range	[V]	6.3 to 450			
Category Temperature Range	[ $^{\circ}$ C]	6.3 to 100V -55 to 105	160 to 400V -40 to 105	450V -25 to 105	
Endurance Test at Upper Category Temperature	[h]	dim 5 x 11 to 6.3 x 11 $\leq 100$ V 2000	8 x 11.5 to 10 x 20 $\leq 100$ V 3000	12.5 x 20 to 18 x 40 $\leq 100$ V 5000	160 to 450V 2000
Lifetime at 105 $^{\circ}$ C and $I_R$	[h]	3000	4000	6000	3000
Lifetime at 85 $^{\circ}$ C and $I_R$	[h]	12000	15000	22000	12000
Lifetime at 40 $^{\circ}$ C and $I_R$	[h]	250000	300000	500000	250000
Sectional Specifications		IEC 384-4, CECC 30300, LL grade			
Climatic Category IEC 68 DIN 40040		55 / 105 / 56 FMF	40 / 105 / 56 GMF	25 / 105 / 56 HMF	
Failure Rate	[10 $^{-9}$ /h]	$\leq 30$	$\leq 20$	$\leq 10$	$\leq 20$

<b>DIMENSIONS</b>												
Nominal size D x L [in millimeters]												
CAP. [μF]	RATED VOLTAGE [V]											
	10	16	25	35	50	63	100	160	200	250	400	450
0.47							5 x 11					
1.0							5 x 11					
2.2							5 x 11					10 x 16
3.3							5 x 11				10 x 20	10 x 20
4.7							5 x 11			10 x 16	10 x 25	12.5 x 20
10						5 x 11	6.3 x 11	10 x 16	10 x 16	10 x 20	12.5 x 25	12.5 x 25
22					5 x 11	6.3 x 11	8 x 11.5	10 x 20	10 x 20	12.5 x 25	16 x 25	16 x 31.5
33				5 x 11		6.3 x 11	10 x 12.5	12.5 x 20	12.5 x 20	12.5 x 25	16 x 31.5	18 x 35.5
47			5 x 11		6.3 x 11	8 x 11.5	10 x 16	12.5 x 25	12.5 x 25	16 x 25		
100	5 x 11		6.3 x 11		8 x 11.5	10 x 12.5	12.5 x 20	16 x 25	16 x 31.5	18 x 35.5		
220	6.3 x 11		8 x 11.5	10 x 12.5	10 x 16	10 x 20	16 x 25	18 x 35.5	18 x 35.5	18 x 40		
330		8 x 11.5	10 x 12.5	10 x 16	10 x 20	12.5 x 20	16 x 25					
470	8 x 11.5	10 x 12.5	10 x 16	10 x 20	12.5 x 20	12.5 x 25	16 x 31.5					
1000	10 x 16	10 x 20	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5						
2200	12.5 x 20	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5							
3300	12.5 x 25	16 x 25	16 x 31.5	18 x 35.5								
4700	16 x 25	16 x 31.5	18 x 35.5	18 x 40								
6800	16 x 31.5	18 x 35.5	18 x 40									
10000	18 x 35.5	18 x 40										

•10% capacitance tolerance on request

**LEAKAGE CURRENT**

Formula for the calculation of the maximum leakage current for acceptance tests  $I_L$ :

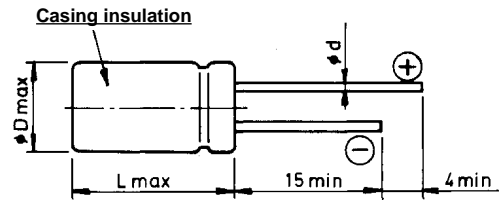
(Test conditions:  $U_R$ , 20°C, 2 minutes)

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

**DIMENSIONS AND LEAD CONFIGURATION**
 $5 \leq \varnothing D \leq 18$ 

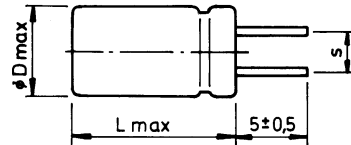
Long leads

EKE 00 ...


 $5 \leq \varnothing D \leq 18$ 

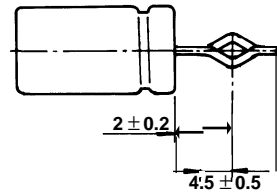
 Shortened leads  
 (S = 2 / 2.5 / 3.5 / 5 / 7.5mm)

EKE 05...


 $10 \leq \varnothing D \leq 18$ 

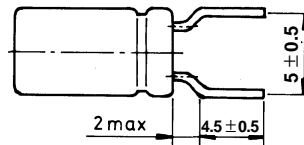
 Leads shortened and formed  
 (S = 5 / 7.5 mm)

EKE 06...


 $5 \leq \varnothing D \leq 8$ 

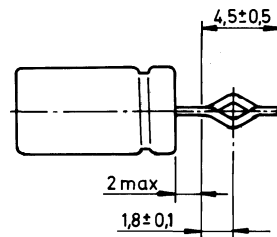
 Leads bent open, shortened  
 (S = 5mm)

EKE 09...


 $5 \leq \varnothing D \leq 8$ 

 Leads bent open,  
 shortened and formed  
 (S = 5mm)

EKE 06...


**DIMENSIONS** [in millimeters]

 Leads are solder-coated steel safety vent for  $\varnothing D \geq 6.3\text{mm}$ 

NOMINAL SIZE D x L	MAXIMUM SIZE $D_{max.} \times L_{max.}$	LEAD $\varnothing d \pm 0.05$	LEAD SPACING S $\pm 0.5$
5 x 11	5.5 x 12.5	0.5	2.0
6.3 x 11	6.8 x 12.5	0.5	2.5
8 x 11.5	8.5 x 13	0.6	3.5
10 x 12.5	10.5 x 14.0	0.6	5.0
10 x 16	10.5 x 17.5	0.6	5.0
10 x 20	10.5 x 21.5	0.6	5.0
12.5 x 20	13.5 x 21.5	0.6	5.0
12.5 x 25	13.5 x 26.5	0.6	5.0
16 x 25	16.5 x 26.5	0.8	7.5
16 x 31.5	16.5 x 33	0.8	7.5
18 x 35.5	18.5 x 37	0.8	7.5
18 x 40	18.5 x 41.5	0.8	7.5

## TECHNICAL AND ORDERING INFORMATION

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

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

$C_R$	Rated capacitance at 120Hz
$U_R$	Rated voltage
$\tan \delta$	Max. dissipation factor at 120Hz
Z	Max. impedance
$I_R$	Rated alternating current at 100KHz and upper category temperature

### Ordering example:

EKE 6800  $\mu\text{F}$  / 10V,  $\pm 20\%$ , Size: 16mm x 31.5mm

Leads: Long

Ordering code: EKE00JS468C00

Leads: Short ( $5 \pm 0.5$ )

Ordering code: EKE 05...

Leads: Bent open, shortened

Ordering code: EKE 09...

Leads: Bent open, shortened and formed

Ordering code: EKE 06...

## ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE

CAPACITANCE 120Hz $C_R$ [ $\mu\text{F}$ ]	RATED VOLTAGE $U_R$ [V]	DIMENSIONS D x L [mm]	DISSIPATION FACTOR 120Hz	IMPEDANCE 100KHz 20°C [ $\Omega$ ]	RATED CURRENT $I_R$ 100KHz, 105°C [mA]	ORDERING CODE
100	10	5.0 x 11.0	0.19	1.30	154	EKE00AA310C00
220	10	6.3 x 11.0	0.19	0.60	260	EKE00BA322C00
470	10	8.0 x 11.5	0.19	0.33	400	EKE00PB347C00
1000	10	10.0 x 16.0	0.19	0.19	635	EKE00DD410C00
2200	10	12.5 x 20.0	0.21	0.085	1120	EKE00FE422C00
3300	10	12.5 x 25.0	0.23	0.070	1320	EKE00FG433C00
4700	10	16.0 x 25.0	0.25	0.060	1570	EKE00JG447C00
6800	10	16.0 x 31.5	0.29	0.048	1810	EKE00JS468C00
10000	10	18.0 x 35.5	0.37	0.037	2240	EKE00KL510C00
330	16	8.0 x 11.5	0.16	0.33	400	EKE00PB333D00
470	16	10.0 x 12.5	0.16	0.25	510	EKE00DC347D00
1000	16	10.0 x 20.0	0.16	0.14	860	EKE00DE410D00
2200	16	12.5 x 25.0	0.18	0.070	1320	EKE00FG422D00
3300	16	16.0 x 25.0	0.20	0.060	1570	EKE00JG433D00
4700	16	16.0 x 31.5	0.22	0.048	1810	EKE00JS447D00
6800	16	18.0 x 35.5	0.26	0.037	2240	EKE00KL468D00
10000	16	18.0 x 40.0	0.34	0.034	2460	EKE00KK510D00



<b>ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE</b>						
<b>CAPACITANCE 120Hz CR [μF]</b>	<b>RATED VOLTAGE UR [V]</b>	<b>DIMENSIONS D x L [mm]</b>	<b>DISSIPATION FACTOR 120Hz</b>	<b>IMPEDANCE 100KHz 20°C [Ω]</b>	<b>RATED CURRENT IR 100KHz, 105°C [mA]</b>	<b>ORDERING CODE</b>
47	25	5.0 x 11.0	0.14	1.30	154	EKE00AA247E00
100	25	6.3 x 11.0	0.14	0.60	260	EKE00BA310E00
220	25	8.0 x 11.5	0.14	0.33	400	EKE00PB322E00
330	25	10.0 x 12.5	0.14	0.25	510	EKE00DC333E00
470	25	10.0 x 16.0	0.14	0.19	635	EKE00DD347E00
1000	25	12.5 x 20.0	0.14	0.085	1120	EKE00FE410E00
2200	25	16.0 x 25.0	0.16	0.060	1570	EKE00JG422E00
3300	25	16.0 x 31.5	0.18	0.048	1810	EKE00JS433E00
4700	25	18.0 x 35.5	0.20	0.037	2240	EKE00KL447E00
6800	25	18.0 x 40.0	0.24	0.034	2460	EKE00KK468E00
33	35	5.0 x 11.0	0.12	1.30	154	EKE00AA233F00
220	35	10.0 x 12.5	0.12	0.25	510	EKE00DC322F00
330	35	10.0 x 16.0	0.12	0.19	635	EKE00DD333F00
470	35	10.0 x 20.0	0.12	0.14	860	EKE00DE347F00
1000	35	12.5 x 25.0	0.12	0.07	1320	EKE00FG410F00
2200	35	16.0 x 31.5	0.14	0.048	1810	EKE00JS422F00
3300	35	18.0 x 35.5	0.16	0.037	2240	EKE00KL433F00
4700	35	18.0 x 40.0	0.18	0.034	2460	EKE00KK447F00
22	50	5.0 x 11.0	0.10	1.30	154	EKE00AA222H00
47	50	6.3 x 11.0	0.10	0.60	260	EKE00BA247H00
100	50	8.0 x 11.5	0.10	0.33	400	EKE00PB310H00
220	50	10.0 x 16.0	0.10	0.19	635	EKE00DD322H00
330	50	10.0 x 20.0	0.10	0.14	860	EKE00DE333H00
470	50	12.5 x 20.0	0.10	0.085	1120	EKE00FE347H00
1000	50	16.0 x 25.0	0.10	0.060	1570	EKE00JG410H00
2200	50	18.0 x 35.5	0.12	0.037	2240	EKE00KL422H00
10	63	5.0 x 11.0	0.09	2.50	124	EKE00AA210J00
22	63	6.3 x 11.0	0.09	1.20	180	EKE00BA222J00
33	63	6.3 11.0	0.09	1.20	180	EKE00BA233J00
47	63	8.0 x 11.5	0.09	0.56	305	EKE00PB247J00
100	63	10.0 12.5	0.09	0.50	380	EKE00DC310J00
220	63	10.0 x 20.0	0.09	0.27	620	EKE00DE322J00
330	63	12.5 x 20.0	0.09	0.16	890	EKE00FE333J00
470	63	12.5 x 25.0	0.09	0.14	1040	EKE00FG347J00
1000	63	16.0 x 31.5	0.09	0.06	1790	EKE00JS410J00

<b>ELECTRICAL CHARACTERISTICS, WEIGHT AND ORDERING CODE</b>						
<b>CAPACITANCE 120Hz CR [μF]</b>	<b>RATED VOLTAGE UR [V]</b>	<b>DIMENSIONS D x L [mm]</b>	<b>DISSIPATION FACTOR 120Hz</b>	<b>IMPEDANCE 100KHz 20°C [Ω]</b>	<b>RATED CURRENT IR 100KHz, 105°C [mA]</b>	<b>ORDERING CODE</b>
0.47	100	5.0 x 11.0	0.08	10.00	55	EKE00AA047L00
1	100	5.0 x 11.0	0.08	7.00	66	EKE00AA110L00
2.2	100	5.0 x 11.0	0.08	6.00	72	EKE00AA122L00
3.3	100	5.0 x 11.0	0.08	5.00	78	EKE00AA133L00
4.7	100	5.0 x 11.0	0.08	4.00	88	EKE00AA147L00
10	100	6.3 x 11.0	0.08	1.20	180	EKE00BA210L00
22	100	8.0 x 11.5	0.08	0.56	282	EKE00PB222L00
33	100	10.0 x 12.5	0.08	0.50	380	EKE00DC233L00
47	100	10.0 x 16.0	0.08	0.32	500	EKE00DD247L00
100	100	12.5 x 20.0	0.08	0.16	890	EKE00FE310L00
220	100	16.0 x 25.0	0.08	0.09	1440	EKE00JG322L00
330	100	16.0 x 25.0	0.08	0.09	1440	EKE00JG333L00
470	100	16.0 x 31.5	0.08	0.06	1790	EKE00JS347L00
10	160	10.0 x 16.0	0.20	1.50	250	EKE00DD210M00
22	160	10.0 x 20.0	0.20	1.10	350	EKE00DE222M00
33	160	12.5 x 20.0	0.20	0.71	440	EKE00FE233M00
47	160	12.5 x 25.0	0.20	0.46	600	EKE00FG247M00
100	160	16.0 x 25.0	0.20	0.24	910	EKE00JG310M00
220	160	18.0 x 35.5	0.20	0.14	1370	EKE00KL322M00
10	200	10.0 x 16.0	0.20	1.50	250	EKE00DD210S00
22	200	10.0 x 20.0	0.20	1.10	350	EKE00DE222S00
33	200	12.5 x 20.0	0.20	0.71	440	EKE00FE233S00
47	200	12.5 x 25.0	0.20	0.46	600	EKE00FG247S00
100	200	16.0 x 31.5	0.20	0.17	1160	EKE00JS310S00
220	200	18.0 x 35.5	0.20	0.14	1370	EKE00KL322S00
4.7	250	10.0 x 16.0	0.20	3.50	165	EKE00DD147N00
10	250	10.0 x 20.0	0.20	2.80	230	EKE00DE210N00
22	250	12.5 x 25.0	0.20	1.20	360	EKE00FG222N00
33	250	12.5 x 25.0	0.20	1.20	360	EKE00FG233N00
47	250	16.0 x 25.0	0.20	0.60	570	EKE00JG247N00
100	250	18.0 x 35.5	0.20	0.30	935	EKE00KL310N00
220	250	18.0 x 40.0	0.20	0.27	1000	EKE00KK322N00
3.3	400	10.0 x 20.0	0.24	2.90	195	EKE00DE133X00
4.7	400	10.0 x 25.0	0.24	2.30	220	EKE00DG147X00
10	400	12.5 x 25.0	0.24	1.20	360	EKE00FG210X00
22	400	16.0 x 25.0	0.24	0.61	570	EKE00JG222X00
33	400	16.0 x 31.5	0.24	0.46	700	EKE00JS233X00
2.2	450	10.0 x 16.0	0.24	7.90	110	EKE00DD122P00
3.3	450	10.0 x 20.0	0.24	6.20	135	EKE00DE123P00
4.7	450	12.5 x 20.0	0.24	3.70	190	EKE00FE147P00
10	450	12.5 x 25.0	0.24	2.60	250	EKE00FG210P00
22	450	16.0 x 31.5	0.24	1.00	480	EKE00JG222P00
33	450	18.0 x 35.5	0.24	0.62	650	EKE00KL233P00

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Datasheets for electronics components.