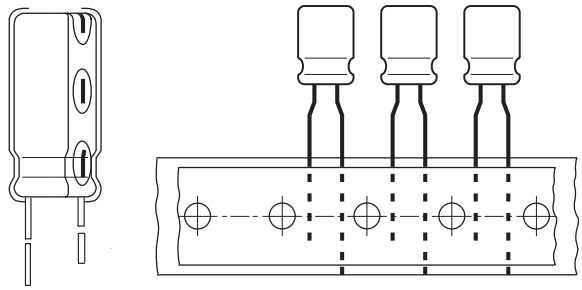
Aluminum Capacitors
Radial Style



Component outlines.

FEATURES

- Polarized Aluminum 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

QUICK REFERENCE DATA

DESCRIPTION	UNIT	VALUE			
Nominal case size (ØD × L)	mm	5 x 11 to 18 x 40			
Rated capacitance range C_R	µF	0.47 to 10000			
Capacitance tolerance	%	± 20			
Rated voltage range	V	6.3 to 450			
Category temperature range	°C	6.3 to 100V - 55 to + 105	160 to 400 V - 40 to + 105	- 450 V - 25 to + 105	
Endurance test at upper category temperature	h	5 x 11 to 6.3 x 11 ≤ 100 V 2000	8 x 11.5 to 10 x 20 ≤ 100 V 3000	12.5 x 20 to 18 x 40 ≤ 100 V 6000	160 to 450 V 2000
Useful life at 105 °C and I_R applied	h	3000	4000	6000	3000
Useful life at 85 °C and I_R applied	h	12000	15000	22000	12000
Useful life at 40 °C and I_R applied	h	250000	300000	500000	250000
Failure rate	10^{-9}/h	≤ 30	≤ 20	≤ 10	≤ 20
Based on sectional specification		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	

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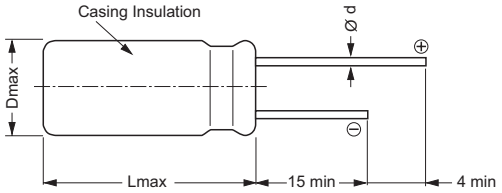
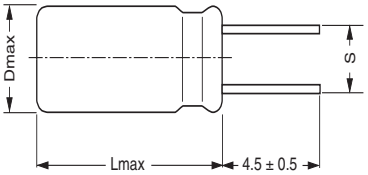
SELECTION CHART FOR C_R, U_R AND RELEVANT NOMINAL CASE SIZES (ØD x L in mm)												
C_R (µF)	RATED VOLTAGE [V]											
	10	16	25	35	50	63	100	160	200	250	400	450
0.47	-	-	-	-	-	-	5 x 11	-	-	-	-	-
1.0	-	-	-	-	-	-	5 x 11	-	-	-	-	-
2.2	-	-	-	-	-	-	5 x 11	-	-	-	-	10 x 16
3.3	-	-	-	-	-	-	5 x 11	-	-	-	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	18x 35.5	18 x 40	-	-	-	-	-	-	-	-	-	-

10 % capacitance tolerance on request

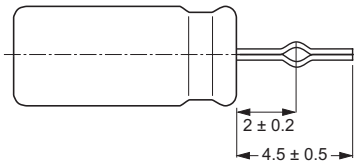
DIMENSIONS in millimeters AND AVAILABLE FORMS



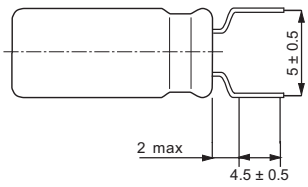
5 ≤ ØD ≤ 18 Long leads EKE 00...



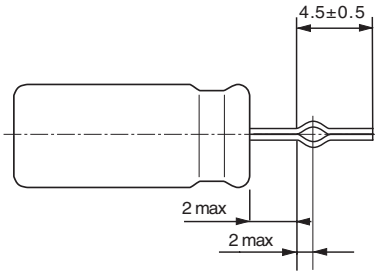
5 ≤ ØD ≤ 18 Shortened leads EKE 05...
(S = 2 / 2.5 / 3.5 / 5 / 7.5 mm)



10 ≤ ØD ≤ 18 Leads shortened and formed EKE 06...
(S = 5 / 7.5 mm)



5 ≤ ØD ≤ 8 Leads bent open, shortened EKE 09...
(S = 5 mm)



5 ≤ ØD ≤ 8 Leads bent open, shortened and formed EKE 06...
(S = 5 mm)

Leads are solder-coated steel
Safety vent for ØD ≥ 6.3 mm

RADIAL STYLE: DIMENSIONS in millimeters

NOMINAL CASE SIZE ∅D x L	MAXIMUM SIZE $D_{MAX.}$ x $L_{MAX.}$	LEAD ∅d ± 0.05	LEAD SPACING S ± 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	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	0.8	7.5
18 x 35.5	18.5 x 37.0	0.8	7.5
18 x 40	18.5 x 41.5	0.8	7.5

ELECTRICAL DATA

SYMBOL	DESCRIPTION
C_R	rated capacitance at 120 Hz
U_R	rated voltage
tan δ	max. dissipation factor at 120 Hz
Z	max. impedance
I_R	rated alternating current (rms) at 100 KHz and upper category temperature

Note

1. Unless otherwise specified, all electrical values at T_a = 20 °C, P = 80 to 120 kPa, RH = 45 to 75%.

ORDERING EXAMPLE

EKE 6800 µF / 10 V, ± 20 %, size: 16mm x 31.5mm

Leads: Long - Ordering code: EKE00JS468C00

Leads: Short (5 ± 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 DATA AND ORDERING INFORMATION

U_R (V)	C_R 120 Hz (µF)	NOMINAL CASE SIZE ∅D x L (mm)	Tan δ 120 Hz	R_{ESR} 100 KHz/20°C (Ω)	I_R 100 kHz/105 °C (mA)	CATALOG NUMBER
10	100	5.0 x 11.0	0.19	1.30	154	EKE00AA310C00
	220	6.3 x 11.0	0.19	0.60	260	EKE00BA322C00
	470	8.0 x 11.5	0.19	0.33	400	EKE00PB347C00
	1000	10.0 x 16.0	0.19	0.19	635	EKE00DD410C00
	2200	12.5 x 20.0	0.21	0.085	1120	EKE00FE422C00
	3300	12.5 x 25.0	0.23	0.070	1320	EKE00FG433C00
	4700	16.0 x 25.0	0.25	0.060	1570	EKE00JG447C00
	6800	16.0 x 31.5	0.29	0.048	1810	EKE00JS468C00
	10000	18.0 x 35.5	0.37	0.037	2240	EKE00KL510C00
16	330	8.0 x 11.5	0.16	0.33	400	EKE00PB333D00
	470	10.0 x 12.5	0.16	0.25	510	EKE00DC347D00
	1000	10.0 x 20.0	0.16	0.14	860	EKE00DE410D00
	2200	12.5 x 25.0	0.18	0.070	1320	EKE00FG422D00
	3300	16.0 x 25.0	0.20	0.060	1570	EKE00JG433D00
	4700	16.0 x 31.5	0.22	0.048	1810	EKE00JS447D00
	6800	18.0 x 35.5	0.26	0.037	2240	EKE00KL468D00
	10000	18.0 x 40.0	0.34	0.034	2460	EKE00KK510D00

ELECTRICAL DATA AND ORDERING INFORMATION

U_R (V)	C_R 120 Hz (μF)	NOMINAL CASE SIZE ∅D x L (mm)	Tan δ 120 Hz	R_{ESR} 100 KHz/20°C (Ω)	I_R 100 kHz/105 °C (mA)	CATALOG NUMBER
25	47	5.0 x 11.0	0.14	1.30	154	EKE00AA247E00
	100	6.3 x 11.0	0.14	0.60	260	EKE00BA310E00
	220	8.0 x 11.5	0.14	0.33	400	EKE00PB322E00
	330	10.0 x 12.5	0.14	0.25	510	EKE00DC333E00
	470	10.0 x 16.0	0.14	0.19	635	EKE00DD347E00
	1000	12.5 x 20.0	0.14	0.085	1120	EKE00FE410E00
	2200	16.0 x 25.0	0.16	0.060	1570	EKE00JG422E00
	3300	16.0 x 31.5	0.18	0.048	1810	EKE00JS433E00
	4700	18.0 x 35.5	0.20	0.037	2240	EKE00KL447E00
	6800	18.0 x 40.0	0.24	0.034	2460	EKE00KK468E00
35	33	5.0 x 11.0	0.12	1.30	154	EKE00AA233F00
	220	10.0 x 12.5	0.12	0.25	510	EKE00DC322F00
	330	10.0 x 16.0	0.12	0.19	635	EKE00DD333F00
	470	10.0 x 20.0	0.12	0.14	860	EKE00DE347F00
	1000	12.5 x 25.0	0.12	0.07	1320	EKE00FG410F00
	2200	16.0 x 31.5	0.14	0.048	1810	EKE00JS422F00
	3300	18.0 x 35.5	0.16	0.037	2240	EKE00KL433F00
	4700	18.0 x 40.0	0.18	0.034	2460	EKE00KK447F00
50	22	5.0 x 11.0	0.10	1.30	154	EKE00AA222H00
	47	6.3 x 11.0	0.10	0.60	260	EKE00BA247H00
	100	8.0 x 11.5	0.10	0.33	400	EKE00PB310H00
	220	10.0 x 16.0	0.10	0.19	635	EKE00DD322H00
	330	10.0 x 20.0	0.10	0.14	860	EKE00DE333H00
	470	12.5 x 20.0	0.10	0.085	1120	EKE00FE347H00
	1000	16.0 x 25.0	0.10	0.060	1570	EKE00JG410H00
	2200	18.0 x 35.5	0.12	0.037	2240	EKE00KL422H00
63	10	5.0 x 11.0	0.09	2.50	124	EKE00AA210J00
	22	6.3 x 11.0	0.09	1.20	180	EKE00BA222J00
	33	6.3 x 11.0	0.09	1.20	180	EKE00BA233J00
	47	8.0 x 11.5	0.09	0.56	305	EKE00PB247J00
	100	10.0 x 12.5	0.09	0.50	380	EKE00DC310J00
	220	10.0 x 20.0	0.09	0.27	620	EKE00DE322J00
	330	12.5 x 20.0	0.09	0.16	890	EKE00FE333J00
	470	12.5 x 25.0	0.09	0.14	1040	EKE00FG347J00
	1000	16.0 x 31.5	0.09	0.06	1790	EKE00JS410J00
100	0.47	5.0 x 11.0	0.08	10.00	55	EKE00AA047L00
	1	5.0 x 11.0	0.08	7.00	66	EKE00AA110L00
	2.2	5.0 x 11.0	0.08	6.00	72	EKE00AA122L00
	3.3	5.0 x 11.0	0.08	5.00	78	EKE00AA133L00
	4.7	5.0 x 11.0	0.08	4.00	88	EKE00AA147L00
	10	6.3 x 11.0	0.08	1.20	180	EKE00BA210L00
	22	8.0 x 11.5	0.08	0.56	282	EKE00PB222L00
	33	10.0 x 12.5	0.08	0.50	380	EKE00DC233L00
	47	10.0 x 16.0	0.08	0.32	500	EKE00DD247L00
	100	12.5 x 20.0	0.08	0.16	890	EKE00FE310L00
	220	16.0 x 25.0	0.08	0.09	1440	EKE00JG322L00
	330	16.0 x 25.0	0.08	0.09	1440	EKE00JG333L00
	470	16.0 x 31.5	0.08	0.06	1790	EKE00JS347L00

ELECTRICAL DATA AND ORDERING INFORMATION

U_R (V)	C_R 120 Hz (µF)	NOMINAL CASE SIZE ∅D x L (mm)	Tan δ 120 Hz	R_{ESR} 100 KHz/20°C (Ω)	I_R 100 kHz/105 °C (mA)	CATALOG NUMBER
160	10	10.0 x 16.0	0.20	1.50	250	EKE00DD210M00
	22	10.0 x 20.0	0.20	1.10	350	EKE00DE222M00
	33	12.5 x 20.0	0.20	0.71	440	EKE00FE233M00
	47	12.5 x 25.0	0.20	0.46	600	EKE00FG247M00
	100	16.0 x 25.0	0.20	0.24	910	EKE00JG310M00
	220	18.0 x 35.5	0.20	0.14	1370	EKE00KL322M00
200	10	10.0 x 16.0	0.20	1.50	250	EKE00DD210S00
	22	10.0 x 20.0	0.20	1.10	350	EKE00DE222S00
	33	12.5 x 20.0	0.20	0.71	440	EKE00FE233S00
	47	12.5 x 25.0	0.20	0.46	600	EKE00FG247S00
	100	16.0 x 31.5	0.20	0.17	1160	EKE00JS310S00
	220	18.0 x 35.5	0.20	0.14	1370	EKE00KL322S00
250	4.7	10.0 x 16.0	0.20	3.50	165	EKE00DD147N00
	10	10.0 x 20.0	0.20	2.80	230	EKE00DE210N00
	22	12.5 x 25.0	0.20	1.20	360	EKE00FG222N00
	33	12.5 x 25.0	0.20	1.20	360	EKE00FG233N00
	47	16.0 x 25.0	0.20	0.60	570	EKE00JG247N00
	100	18.0 x 35.5	0.20	0.30	935	EKE00KL310N00
	220	18.0 x 40.0	0.20	0.27	1000	EKE00KK322N00
	560	12.5 x 30 .0	0.10	0.039	1720	EKC00FJ356H00
	680	12.5 x 35 .0	0.10	0.033	1890	EKC00FU368H00
	680	16.0 x 20 .0	0.10	0.050	1420	EKC00JE368H00
	820	12.5 x 40 .0	0.10	0.029	2030	EKC00FK382H00
	820	16.0 x 25 .0	0.10	0.034	1880	EKC00JG382H00
	1000	16.0 x 30 .0	0.10	0.030	2150	EKC00JJ410H00
	1200	16.0 x 35 .0	0.10	0.027	2320	EKC00JU412H00
	1500	16.0 x 40 .0	0.11	0.024	2540	EKC00JK415H00
400	3.3	10.0 x 20.0	0.24	2.90	195	EKE00DE133X00
	4.7	10.0 x 25.0	0.24	2.30	220	EKE00DG147X00
	10	12.5 x 25.0	0.24	1.20	360	EKE00FG210X00
	22	16.0 x 25.0	0.24	0.61	570	EKE00JG222X00
	33	16.0 x 31.5	0.24	0.46	700	EKE00JS233X00
450	2.2	10.0 x 16.0	0.24	7.90	110	EKE00DD122P00
	3.3	10.0 x 20.0	0.24	6.20	135	EKE00DE123P00
	4.7	12.5 x 20.0	0.24	3.70	190	EKE00FE147P00
	10	12.5 x 25.0	0.24	2.60	250	EKE00FG210P00
	22	16.0 x 31.5	0.24	1.00	480	EKE00JG222P00
	33	18.0 x 35.5	0.24	0.62	650	EKE00KL233P00

LEAKAGE CURRENT

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

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

I_{L2} [µA] ≤ 0.01 • C_R [µF] • U_R [V] or 3 µA (whichever is greater)