AKS SERIES

ALUMINIUM ELECTROLYTIC CAPACITORS FOR PRINTED WIRING BOARD

Series	Capacitance range	Voltage range	Temperature range	Case Φ x H	Applications
AKS	100 - 47000	40 - 450	-40°C , +85°C	30 x40 40 x 100	Solder pin mounting Industrial applications

MECHANICAL OUTLINES:
CASE: cylindrical aluminium made
TERMINALS: to be soldered, for printed wiring board
SEALING: hermetic by beading on a Rubber Bakelite covers
PRESSURE RELEASE VENT: directly on to the aluminium case
SLEEVE: self-extinguishing thermoshrinkable sleeve
MOUNTING: vertical, by soldering to printed circuit board.
SIZE: see enclosed drawings

SPECIFICATIONS	**TEMPERATURE RANGE**	**CAPACITANCE**
CECC 30301-805 IEC 384-4 ("long life grade") DIN 40010 DIN 41240 / DIN 41238	Operating: -40 °C/ +85 °C Climatic Category (IEC 68): 40/85/56	Tolerance shall be within the following limits: -20% + 20% (standard tolerance) or -10% +30% (available on request)

LEAKAGE CURRENT:
After the rated voltage has been applied to the capacitor for 5 minutes the leakage current must be:

Maximum limit	at 25 °C	$I_f \leq 0{,}004 * C * V$
Operating limit	at 25 °C:	$I_f \leq 0{,}002 * C * V$

where I_f = leakage current (μA)
C= capacitance (μF)
V= rated voltage (V)

IMPORTANT
When using high-capacitance and high-voltage electrolytic capacitors it is important to remember that the inner part (the rolled section) is notinsulated from can: between the negative pole and the aluminium can there is a variable and not defined resistance essentially due to the electrolyte used in capacitor manufacture.

SURGE VOLTAGE

Working Voltage	25	40	50	63	100	160	200	250	400	420	450
Surge Voltage	29	46	58	73	115	185	230	290	440	460	490

RIPPLE CURRENT:
The allowable values of ripple current in amperes, are related to the temperature and frequency by the formula:

$$I_r = K_t * K_f * I_{r85}$$

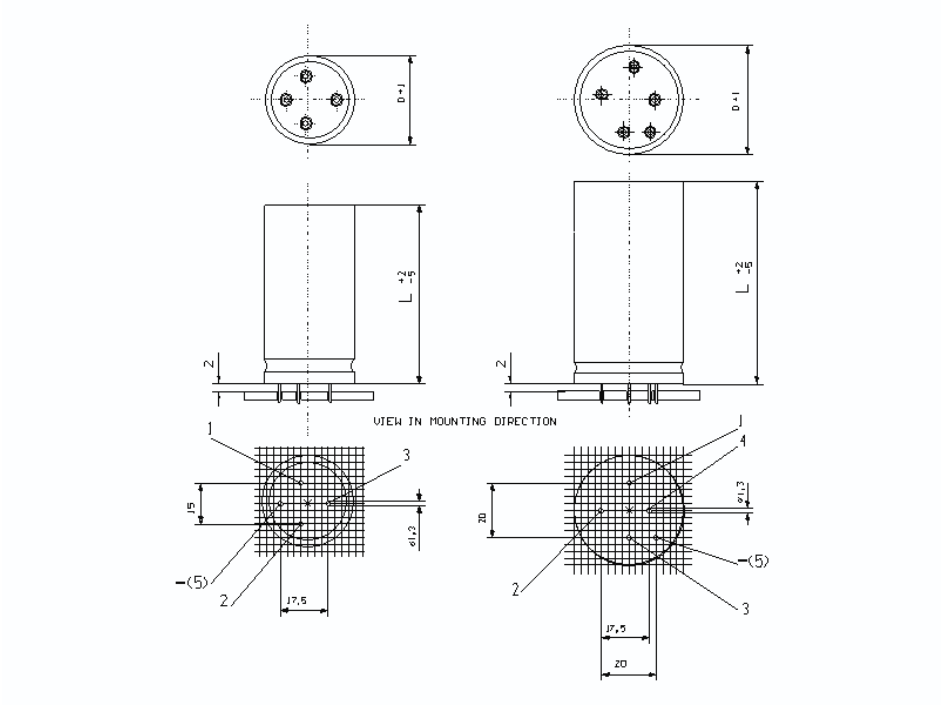
Where I_{r85} is the limit given by tables, referred to a temperature of 85 °C and to a frequency of 100 Hz and K_t or K_f are values here below tabulated:

°C	40	50	65	75	85
K_t	2.3	1.9	1.7	1.4	1.0

V_N	Hz	50	100	300	400	500	>1KHz
V≤50	K_f	0.90	1.00	1.14	1.18	1.20	1.25
50<V≤100		0.88	1.00	1.20	1.25	1.35	1.40
V>100		0.88	1.00	1.20	1.25	1.35	1.40

CAPACITORS DIMENSIONS AND DRILLING PLAN OF PRINTED WIRING BOARD

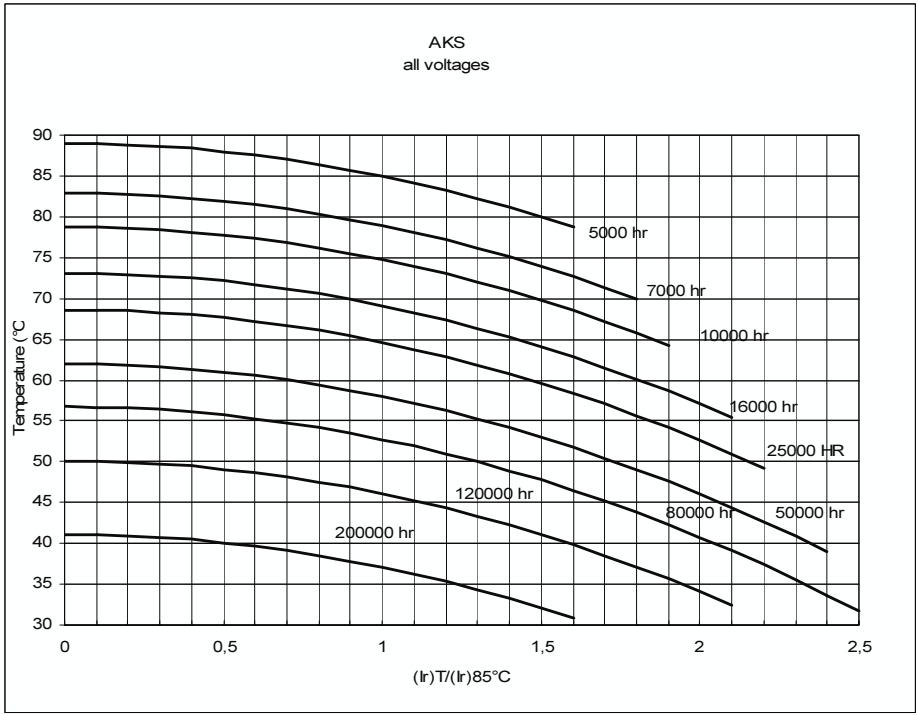
D= 30 / 35 mm. **D= 40 mm.**



CASE	Φ X L	CASE	Φ X L	CASE	Φ X L	CASE	Φ X L
MB	30 x 40	**NC**	35 x 50	**PB**	40 x 40	**PE**	40 x 75
NB	35 x 40	**NE**	35 x 75	**PC**	40 x 50	**PG**	40 x 100

- *Positive pole marked with << 1 >>*
- *The terminals marked with "2", "3", "4» are to be considered only as mechanical connections and must be soldered to insulated pads.*

EXPECTED LIFE AS A FUNCTION OF TEMPERATURE AND RIPPLE CURRENT



Expected life criteria: see introduction

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
6800		MB	30 x 40	0,18	32	24	30	11,1	5,9	AKS682M040MB1
10000		NB	35 x 40	0,22	26	20	26	13,2	7,0	AKS103M040NB1
15000	**40**	NC	35 x 50	0,34	27	20	26	14,1	7,4	AKS153M040NC1
22000		PC	40 x 50	0,40	22	16	21	17,2	9,0	AKS223M040PC1
33000		PE	40 x 75	0,46	17	12	16	22,4	11,8	AKS333M040PE1
47000		PG	40 x 100	0,55	14	10	14	27,8	14,6	AKS473M040PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
4700		MB	30 x 40	0,24	61	46	58	8,0	4,2	AKS472M063MB1
6800		NB	35 x 40	0,24	42	32	40	10,5	5,5	AKS682M063NB1
10000		NC	35 x 50	0,26	31	23	30	13,1	6,9	AKS103M063NC1
10000	**63**	PC	40 x 50	0,24	29	21	27	14,9	7,9	AKS103M063PC1
15000		PE	40 x 75	0,29	23	17	22	18,9	10,0	AKS153M063PE1
22000		PG	40 x 100	0,32	17	13	25	25,0	13,1	AKS223M063PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
1500		MB	30 x 40	0,09	72	54	58	7,4	3,9	AKS152M100MB1
2200		NB	35 x 40	0,11	60	45	47	8,9	4,7	AKS222M100NB1
3300		NC	35 x 50	0,11	40	30	31	11,9	6,3	AKS332M100NC1
4700	**100**	PC	40 x 50	0,13	33	25	28	13,7	7,2	AKS472M100PC1
6800		PE	40 x 75	0,13	23	17	19	18,9	10,0	AKS682M100PE1
10000		PG	40 x 100	0,13	16	12	13	26,1	13,7	AKS103M100PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
330		MB	30 x 40	0,09	326	244	252	3,6	1,9	AKS331M200MB1
470		NB	35 x 40	0,09	229	172	176	4,7	2,5	AKS471M200NB1
680	**200**	NC	35 x 50	0,09	158	119	122	6,2	3,3	AKS681M200NC1
1000		PC	40 x 50	0,09	107	81	82	8,1	4,3	AKS102M200PC1
1500		PE	40 x 75	0,09	72	54	55	11,4	6,0	AKS152M200PE1
2200		PG	40 x 100	0,09	49	37	38	15,7	8,3	AKS222M200PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
220		MB	30 x 40	0,09	489	366	406	3,0	1,6	AKS221M250MB1
330		NB	35 x 40	0,09	326	244	270	4,0	2,1	AKS331M250NB1
470		NC	35 x 50	0,09	229	172	190	5,2	2,7	AKS471M250NC1
680	**250**	PC	40 x 50	0,09	158	119	131	6,7	3,5	AKS681M250PC1
1000		PE	40 x 75	0,09	107	81	89	9,3	4,9	AKS102M250PE1
1500		PG	40 x 100	0,09	72	54	59	13,0	6,8	AKS152M250PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
150		MB	30 x 40	0,09	717	537	587	2,5	1,3	AKS151M385MB1
220		NB	35 x 40	0,09	489	366	405	3,2	1,7	AKS221M385NB1
330		NC	35 x 50	0,09	326	244	270	4,3	2,3	AKS331M385NC1
470	**385**	PB	40x 40	0,09	229	172	190	5,6	2,8	AKS471M385PB1
680		PC	40 x 50	0,09	158	119	130	8,6	4,5	AKS681M385PC1
1000		NE	40 x 75	0,09	107	81	130	9,3	4,9	AKS102M385NE1
1000		PE	40 x 75	0,09	107	81	89	10,6	5,6	AKS102M385PE1
1000		PG	40 x 100	0,09	107	81	89	11,0	5,8	AKS102M385PG1
1500		PG	40 x 100	0,09	72	54	66	12,4	6,5	AKS152M385PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
150		MB	30 x 40	0,09	717	537	587	2,5	1,3	AKS151M400MB1
220		NB	35 x 40	0,09	489	366	405	3,2	1,7	AKS221M400NB1
330		NC	35 x 50	0,09	326	244	270	4,3	2,3	AKS331M400NC1
470		PB	40x 40	0,09	229	172	190	5,6	2,8	AKS471M400PB1
680	**400**	PC	40 x 50	0,09	158	119	130	8,6	4,5	AKS681M400PC1
1000		NE	40 x 75	0,09	107	81	130	9,3	4,9	AKS102M400NE1
1000		PE	40 x 75	0,09	107	81	89	10,6	5,6	AKS102M400PE1
1000		PG	40 x 100	0,09	107	81	89	11,0	5,8	AKS102M400PG1
1500		PG	40 x 100	0,09	72	54	66	12,4	6,5	AKS152M400PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
150		MB	30 x 40	0,09	717	537	587	2,5	1,3	AKS151M420MB1
220		NB	35x 40	0,09	489	366	405	3,2	1,7	AKS221M420NB1
330		NC	35 x 50	0,09	326	244	270	4,3	2,3	AKS331M420NC1
680		PC	40 x 50	0,09	158	119	118	7,4	3,9	AKS681M420PC1
1000	**420**	NE	35 x 75	0,09	107	81	130	8,2	4,3	AKS102M420NE1
1000		PE	40 x 75	0,09	107	81	130	8,9	4,7	AKS102M420PE1
1000		PG	40 x 100	0,09	107	81	89	10,6	5,6	AKS102M420PG1
1500		PG	40 x 100	0,09	72	54	66	12,4	6,5	AKS152M420PG1

CAP (µF)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER
100		MB	30 x 40	0,10	1194	896	869	1,9	1,0	AKS101M450MB1
150		NB	35 x 40	0,10	796	597	579	2,6	1,3	AKS151M450NB1
220		NC	35 x 50	0,10	543	407	394	3,4	1,8	AKS221M450NC1
330		NC	35 x 50	0,10	362	271	263	4,1	2,2	AKS331M450NC1
330	**450**	PC	40 x 50	0,10	362	271	263	4,5	2,3	AKS331M450PC1
470		NC	35 x 50	0,10	254	191	185	4,9	2,6	AKS471M450NC1
470		PC	40 x 50	0,10	254	191	185	5,3	2,8	AKS471M450PC1
680		NE	35 x 75	0,10	176	132	139	6,5	3,4	AKS681M450NE1
680		PE	40 x 75	0,10	176	132	127	7,3	3,8	AKS681M450PE1
1000		PE	40 x 75	0,10	119	90	108	8,2	4,3	AKS102M450PE1
1000		PG	40 x 100	0,10	119	90	94	9,7	5,1	AKS102M450PG1
1500		PG	40 x 100	0,10	80	60	80	11,2	5,8	AKS152M450PG1