

AZK SERIES

ALUMINIUM ELECTROLYTIC CAPACITORS FOR PRINTED WIRING BOARD

Series	Capacitance range	Voltage range	Temperature range	Case Φ x H	Applications
<u>AZK</u>	100 - 2200	200 - 450	-25°C , +105°C	30 x40 40 x 100	Extended temperature range Low ESR 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: -25 °C/ +105 °C Climatic Category (IEC 68): 25/105/56	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 (μ A)

C= capacitance (μ F)

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 not insulated 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	200	250	400	420	450
Surge Voltage	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:

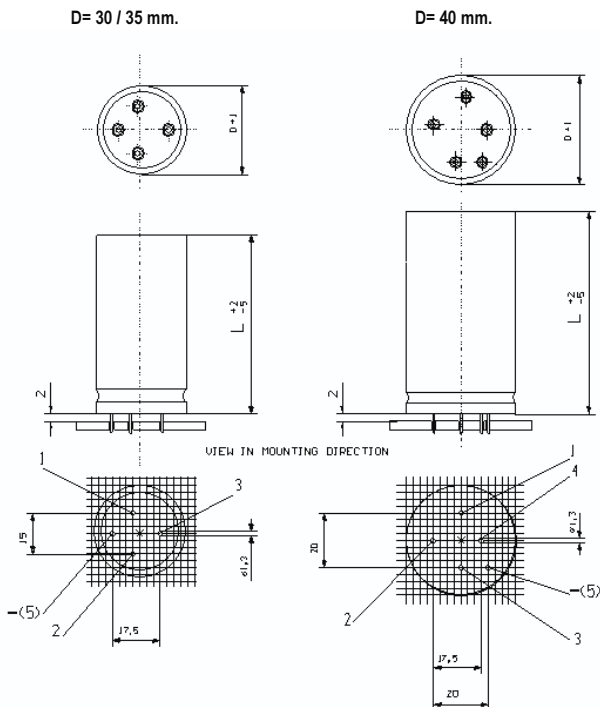
$$I_r = K_t * K_f * I_{r105}$$

Where I_{r105} is the limit given by tables, referred to a temperature of 105 °C and to a frequency of 100 Hz and K_t or K_f are values here below tabulated:

°C	50	65	75	85	95	105
K_t	2.4	2.2	2.1	1.8	1.3	1.0

V_n	Hz	50	100	300	400	500	>1KHz
$V > 160$		0.88	1.00	1.20	1.25	1.35	1.40

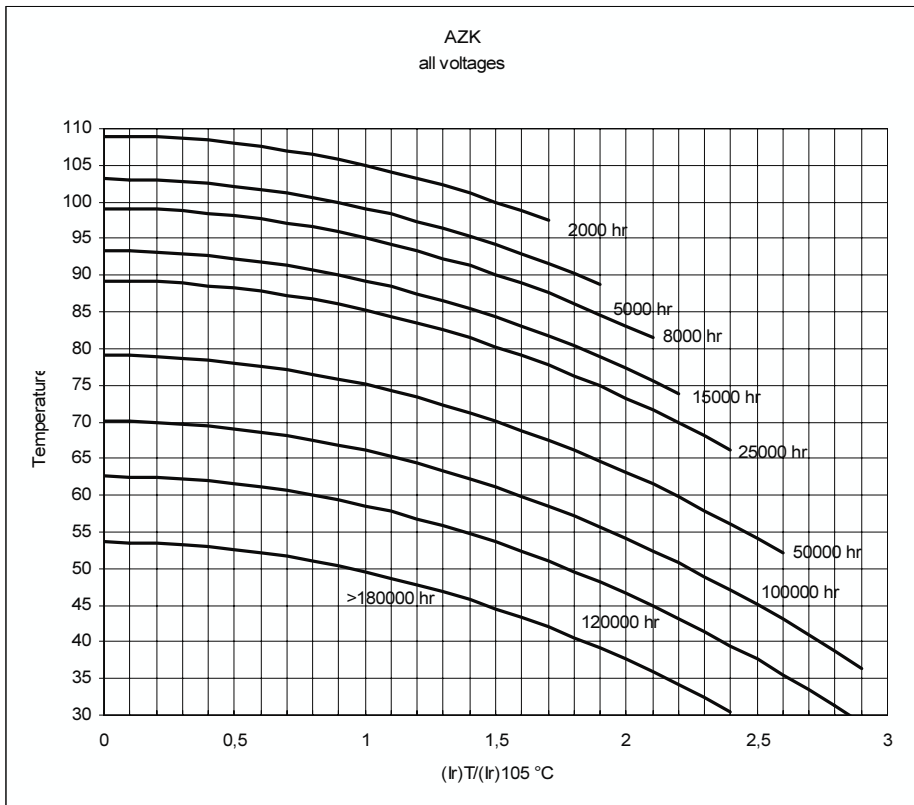
CAPACITORS DIMENSIONS AND DRILLING PLAN OF PRINTED WIRING BOARD



CASE	$\Phi \times L$	CASE	$\Phi \times L$	CASE	$\Phi \times L$	CASE	$\Phi \times L$
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 [μ F]	Rated Voltage [Vn]	Case Code	Φ x h [mm]	TG δ 100 Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz [A.]	CATALOGUE NUMBER
330	200	NB	35 x 40	0,10	362	271	221	3,0	1,4	AZK331M200NB1
470		NC	35 x 50	0,10	254	191	154	4,0	1,9	AZK471M200NC1
680		NC	35 x 50	0,10	176	132	106	5,2	2,5	AZK681M200NC1
1000		PC	40 x 50	0,10	119	90	72	6,8	3,2	AZK102M200PC1
1500		PE	40 x 75	0,10	80	60	48	9,5	4,5	AZK152M200PE1
2200		PG	40 x 100	0,10	54	41	33	13,1	6,2	AZK222M200PG1

CAP [μ F]	Rated Voltage [Vn]	Case Code	Φ x h [mm]	TG δ	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz [A.]	CATALOGUE NUMBER
220	250	MB	30 x 40	0,10	543	407	355	2,5	1,2	AZK221M250MB1
330		NB	35 x 40	0,10	362	271	237	3,3	1,6	AZK331M250NB1
470		NC	35 x 50	0,10	254	191	166	4,3	2,0	AZK471M250NC1
680		PC	40 x 50	0,10	176	132	115	5,6	2,7	AZK681M250PC1
1000		PE	40 x 75	0,10	119	90	78	7,7	3,7	AZK102M250PE1
1500		PG	40 x 100	0,10	80	60	52	10,8	5,1	AZK152M250PG1

CAP [μ F]	Rated Voltage [Vn]	Case Code	Φ x h [mm]	TG δ	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz [A.]	CATALOGUE NUMBER
150	385	MB	30 x 40	0,10	796	597	514	2,0	1,0	AZK151M385MB1
220		NB	35 x 40	0,10	543	407	354	2,7	1,3	AZK221M385NB1
330		NC	35 x 50	0,10	362	271	237	3,6	1,7	AZK331M385NC1
470		PC	40 x 50	0,10	254	191	166	4,6	2,2	AZK471M385PC1
680		PE	40 x 76	0,10	176	132	114	6,4	3,0	AZK681M385PE1
1000		PG	40 x 100	0,10	119	90	78	8,8	4,2	AZK102M385PG1

CAP [μF]	Rated Voltage [Vn]	Case Code	Φ x h	TG δ	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz [A.]	CATALOGUE NUMBER
150	400	MB	35 x 40	0,10	796	597	514	2,0	1,0	AZK151M400MB1
220		NB	35 x 40	0,10	543	407	354	2,7	1,3	AZK221M400NB1
330		NC	35 x 50	0,10	362	271	237	3,6	1,7	AZK331M400NC1
470		PC	40 x 50	0,10	254	191	166	4,6	2,2	AZK471M400PC1
1000		NE	35 x 75	0,10	119	90	114	7,2	3,4	AZK102M400NE1
680		PC	40 x 50	0,10	176	132	114	7,7	3,0	AZK681M400PC1
1000		PE	40 x 75	0,10	119	90	114	7,7	3,7	AZK102M400PE1
1000		PG	40 x 100	0,10	119	90	78	8,8	4,2	AZK102M400PG1
1200		PG	40 x 100	0,10	100	75	71	9,2	4,4	AZK122M400PG1
1500		PG	40 x 100	0,10	80	60	57	10,2	4,9	AZK152M400PG1

CAP [μF]	Rated Voltage [Vn]	Case NB	Φ x h	TG δ	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz 1.71734	CATALOGUE NUMBER
150	420	MB	30 x 40	0,10	796	597	514	2,0	1,0	AZK151M420MB1
220		NB	35 x 40	0,10	543	407	354	2,7	1,3	AZK221M420NB1
330		NC	35 x 50	0,10	362	271	237	3,6	1,7	AZK331M420NC1
470		PC	40 x 50	0,10	254	191	166	4,6	2,2	AZK471M420PC1
1000		NE	35 x 75	0,10	119	90	114	6,9	3,3	AZK102M420NE1
1000		PE	40 x 75	0,10	119	90	114	7,4	3,5	AZK102M420PE1
1000		PG	40 x 100	0,10	119	90	78	8,8	4,2	AZK102M420PG1
1200		PG	40 x 100	0,10	100	75	71	9,2	4,4	AZK122M420PG1
1500		PG	40 x 100	0,10	80	60	57	10,3	4,9	AZK152M420PG1

CAP [μF]	Rated Voltage [Vn]	Case NB	Φ x h	TG δ	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 75°C 100Hz [A.]	I ripple 105°C 100Hz 1.71734	CATALOGUE NUMBER
100	450	MB	30 x 40	0,10	1194	896	760	1,6	0,8	AZK101M450MB1
150		NB	30 x 40	0,10	796	597	507	2,1	1,0	AZK151M450NB1
220		NC	35 x 50	0,10	543	407	345	2,8	1,3	AZK221M450NC1
330		NC	35 x 50	0,10	362	271	230	3,4	1,6	AZK331M450NC1
330		PC	40 x 50	0,10	362	271	230	3,7	1,8	AZK331M450PC1
470		NC	35 x 50	0,10	254	191	162	4,1	2,0	AZK471M450NC1
470		PC	40 x 50	0,10	254	191	162	4,4	2,1	AZK471M450PC1
680		NE	35 x 75	0,10	176	132	122	5,4	2,6	AZK681M450NE1
680		PE	40 x 75	0,10	176	132	111	6,1	2,9	AZK681M450PE1
1000		PE	40 x 75	0,10	119	90	95	6,8	3,2	AZK102M450PE1
1000		PG	40 x 100	0,10	119	90	83	8,0	3,8	AZK102M450PG1
1200		PG	40 x 100	0,10	100	75	70	8,8	4,2	AZK122M450PG1