

AT-/ATU- SERIES

ALUMINIUM ELECTROLYTIC CAPACITORS LONG LIFE GRADE

Series	Capacitance range	Voltage range	Temperature Range	Case Φ x H	Applications
<u>AT</u> <u>ATU</u>	220-150000	25 - 350	-55°C, +105°C	35 x 56 76 x 217	Extended temperature range High surge voltage High reliability Telecom, Railways applications

MECHANICAL OUTLINES:

CASE: aluminium made

TERMINALS: standard screw inserts

SEALING: hermetic by beading on a SILICON gasket, housed on a resin that can withstand high temperature without sensible mechanical or chemical wear-out

PRESSURE RELEASE VENT: made in silicone-rubber

SLEEVE: self-extinguishing thermoshrinkable sleeve

SIZE: see enclosed drawings

MOUNTING HARDWARE: see hardware section

SPECIFICATIONS	TEMPERATURE RANGE	CAPACITANCE
CECC 30300 IEC 384-4 ("long life grade") DIN 45910 p.128	Operating: -55 °C/ +105 °C Climatic Category (IEC 68): 55/105/56	Tolerance shall be within the following limits: -10% +30%

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	$I_f \leq 1.3 \cdot \sqrt{C \cdot V}$
Operating limit	at 25 °C:	$I_f \leq 1.2 \cdot \sqrt{C \cdot V}$

where I_f = leakage current (μ A)

C= capacitance (μ F)

V= rated voltage (V)

IMPORTANT:

1) 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	63	100	160	200	250	350
Surge Voltage	84	130	215	250	300	425

RIPPLE CURRENT:

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

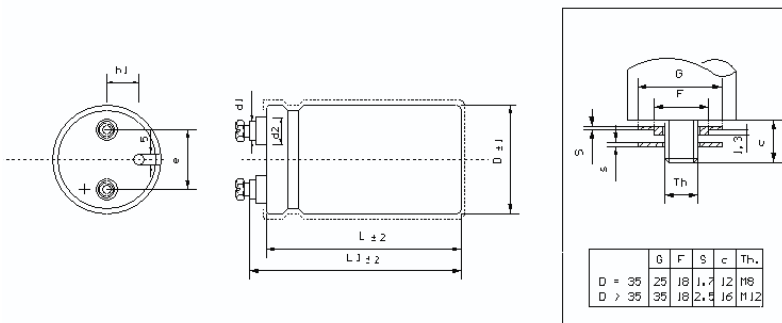
$$I_r = K_t * K_f * I_r 105$$

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	40	55	65	75	85	95	105
K_t	2.6	2.5	2.3	2.1	1.8	1.3	1.0

V_n	Kf					
	$V \leq 50$	$50 < V \leq 300$	$V > 300$	$V \leq 50$	$50 < V \leq 300$	$V > 300$
	Diameter Code A,B			Diameter Code C,D		
Hz						
50	0.82	0.79	0.76	0.86	0.87	0.78
100	1	1	1	1	1	1
120	1.02	1.04	1.04	1.01	1.02	1.05
200	1.08	1.12	1.17	1.03	1.06	1.14
300	1.12	1.16	1.28	1.03	1.08	1.24
400	1.12	1.20	1.26	1.03	1.09	1.31
500	1.15	1.22	1.39	1.03	1.09	1.32
>1000	1.17	1.25	1.47	1.03	1.09	1.41

DIMENSIONS

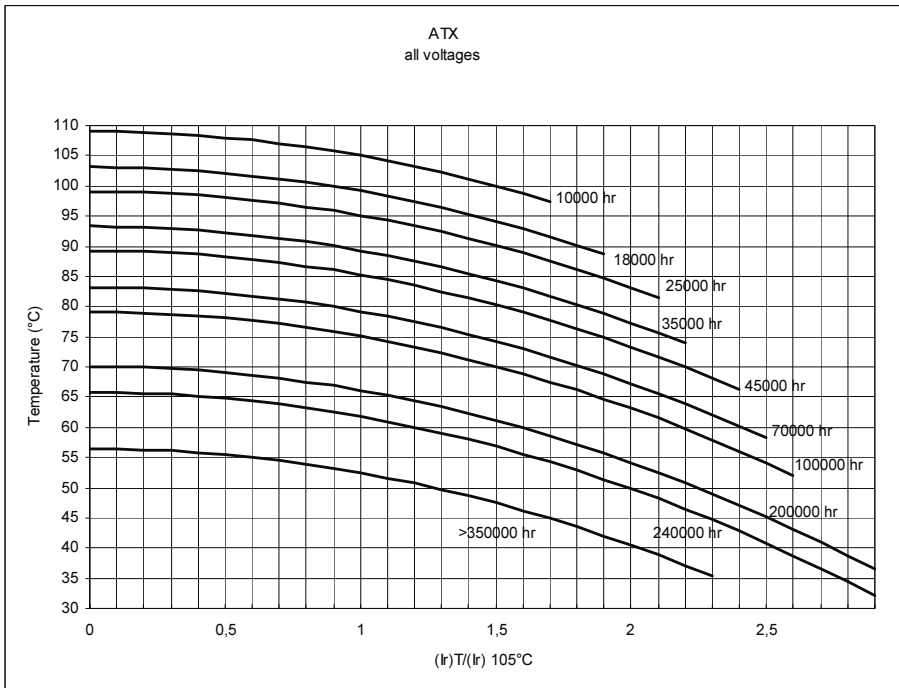


Insert Screw Thread = M5	Insert Screw Length = 10 mm.
Insert Screw Torque Max. (M5) = 2 Nm.	Screw Torque For Hex Nuts M8 = 4 Nm.
Screw Torque For Hex Nuts M12 = 10 Nm.	

CASE CODE	Φ X L (mm)	l1	d1 ±0.5	d2 ±0.5	h1	e	CASE CODE	Φ X L (mm)	l1	d1 ±0.5	d2 ±0.5	h1	e
							DF	76 x 147	151	13	18	19	31.8
							DK	76 x 168	173	13	18	19	31.8
AC	35 X 105	109	8	12	8	12.7	DJ	76 x 217	222	13	18	19	31.8
BB	51 x 79	86	13	18	13	22.2	EC	90 x 108	112	17	23	19	31.8
BC	51 x 105	108	13	18	13	22.2	EF	90 x 149	153	17	23	19	31.8
CC	63 x 107	111	13	18	16	28.6	EJ	90 x 222	227	17	23	19	31.8
DC	76 x 107	111	13	18	19	31.8							

- STANDARD MOUNTING STUD HARDWARE: - INSULATING PLASTIC WASHERS AND METALLIC NUT

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 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Iripple 75°C 100 Hz (A)	Iripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
4700	63	AC	35 x 105	0,11	37	28	28	8,8	4,2	ATX472X100AC1	ATUX472X100AC1
6800		BB	51 x 79	0,12	28	21	22	11,0	5,2	ATX682X100BB1	ATUX682X100BB1
10000		BC	51 x 105	0,13	21	16	17	14,3	6,8	ATX103X100BC1	ATUX103X100BC1
15000		CC	63 x 105	0,14	15	11	13	19,1	9,1	ATX153X100CC1	ATUX153X100CC1
22000		DC	76 x 106	0,16	12	9	11	23,8	11,3	ATX223X100DC1	ATUX223X100DC1
33000		DF	76 x 147	0,18	9	7	8	33,3	15,8	ATX333X100DF1	ATUX333X100DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Iripple 75°C 100 Hz (A)	Iripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
1000	100	AB	35 x 79	0,07	111	84	80	4,5	2,1	ATX102X100AB1	ATUX102X100AB1
1500		AB	35 x 79	0,07	74	56	54	5,5	2,6	ATX152X100AB1	ATUX152X100AB1
2200		AC	35 x 105	0,07	51	38	37	7,5	3,6	ATX222X100AC1	ATUX222X100AC1
3300		BB	51 x 79	0,08	39	29	30	9,3	4,4	ATX332X100BB1	ATUX332X100BB1
4700		BC	51 x 105	0,08	27	20	21	12,7	6,0	ATX472X100BC1	ATUX472X100BC1
6800		CC	63 x 105	0,08	19	14	15	17,0	8,1	ATX682X100CC1	ATUX682X100CC1
10000		DC	51 x 105	0,10	16	12	13	20,6	9,8	ATX103X100DC1	ATUX103X100DC1
15000		DF	63 x 105	0,10	11	8	9	28,4	13,5	ATX153X100DF1	ATUX153X100DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Iripple 75°C 100 Hz (A)	Iripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
1000	160	AC	35 x 105	0,07	111	84	81	5,0	2,4	ATX102X160AC1	ATUX102X160AC1
1500		BB	51 x 79	0,07	74	56	54	6,7	3,2	ATX152X160BB1	ATUX152X160BB1
2200		BC	51 x 105	0,08	58	43	37	8,6	4,1	ATX222X160BC1	ATUX222X160BC1
3300		BC	51 x 105	0,08	39	29	30	11,9	5,6	ATX332X160BC1	ATUX332X160BC1
4700		CC	63 x 105	0,08	27	20	21	15,9	7,5	ATX472X160CC1	ATUX472X160CC1
6800		DC	76 x 106	0,08	19	14	15	18,9	9,0	ATX682X160DC1	ATUX682X160DC1
10000		DF	76 x 147	0,09	14	11	13	25,2	12,0	ATX103X160DF1	ATUX103X160DF1
15000		DJ	76 x 147	0,19	20	15	10	28,4	13,5	ATX153X160DJ1	ATUX153X160DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Irripple 75°C 100 Hz (A)	Irripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
680	200	AC	35 x 105	0,06	141	105	99	4,5	2,1	ATX681X200AC1	ATUX681X200AC1
1000		BB	51 x 79	0,06	96	72	70	5,9	2,8	ATX102X200BB1	ATUX102X200BB1
1500		BB	51 x 79	0,07	74	56	54	6,7	3,2	ATX152X200BB1	ATUX152X200BB1
2200		BC	51 x 105	0,07	51	38	38	9,2	4,4	ATX222X200BC1	ATUX222X200BC1
3300		CC	63 x 105	0,07	34	25	26	12,7	6,0	ATX332X200CC1	ATUX332X200CC1
4700		DC	76 x 106	0,07	24	18	18	16,8	8,0	ATX472X200DC1	ATUX472X200DC1
6800		DF	76 x 147	0,08	19	14	16	21,6	10,3	ATX682X200DF1	ATUX682X200DF1
10000		DJ	76 x 147	0,10	16	12	14	23,5	11,2	ATX103X200DJ1	ATUX103X200DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Irripple 75°C 100 Hz (A)	Irripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
680	250	AC	35 x 105	0,07	164	123	118	4,2	2,0	ATX681X250AC1	ATUX681X250AC1
1000		BB	51 x 105	0,07	111	84	80	5,5	2,6	ATX102X250BB1	ATUX102X250BB1
1500		BC	51 x 105	0,07	74	56	54	7,6	2,6	ATX152X250BC1	ATUX152X250BC1
2200		CC	63 x 105	0,08	58	43	44	9,7	4,6	ATX222X250CC1	ATUX222X250CC1
3300		DC	76 x 106	0,08	39	29	30	13,2	6,3	ATX332X250DC1	ATUX332X250DC1
4700		DF	76 x 147	0,08	27	20	22	18,1	8,6	ATX472X250DF1	ATUX472X250DF1
6800		DJ	76x217	0,10	23	18	15	19,6	9,3	ATX682X250DJ1	ATUX682X250DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Irripple 75°C 100 Hz (A)	Irripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
330	350	AC	35 x 105	0,08	386	290	272	2,7	1,3	ATX331X350AC1	ATUX331X350AC1
470		BB	51 x 105	0,08	271	203	192	3,5	1,7	ATX471X350BB1	ATUX471X350BB1
680		BC	51 x 105	0,08	187	141	132	4,8	2,3	ATX681X350BC1	ATUX681X350BC1
1000		BC	51 x 105	0,08	127	96	90	6,8	2,8	ATX102X350BC1	ATUX102X350BC1
1500		CC	51 x 105	0,08	85	64	62	8,0	3,8	ATX152X350CC1	ATUX152X350CC1
2200		DC	63 x 105	0,08	58	43	43	10,8	5,2	ATX222X350DC1	ATUX222X350DC1
3300		DF	76 x 106	0,08	39	29	30	15,1	7,2	ATX332X350DF1	ATUX332X350DF1
4700		DF	76 x 147	0,08	27	20	23	18,1	8,6	ATX472X350DF1	ATUX472X350DF1
6800		DJ	76 x 217	0,08	19	14	21	21,6	10,3	ATX682X350DJ1	ATUX682X350DJ1
330		AC	35 x 105	0,08	386	290	272	2,7	1,3	ATX331X350AC1	ATUX331X350AC1