Series AD(U) – 85°C 15.000 h

Capacitors screw terminal type – Low ESR

- AD- Flat Bottom
- ADU- Mounting Stud
- Capacitance Tolerance: -20 + 20% – standard (M)
- Capacitance Tolerance: -10 + 30% - on request (X)
- Climatic category: 40/85/56
- Case: 51x83 – 90x240
- Temperature – 40°C + 85°C
- All welded construction reliable electrical contact

Mechanical Outlines

- Case: aluminium made
- Terminals: screw
- Sealing: hermetic by EPR gasket, on a resin cover
- Pressure Release Vent: silicone-rubber
- Sleeve: self-extinguishing thermo shrinkable
- Size: see enclosed drawings
- Mounting Hardware: see hardware section
- External Material UL94-V0

Ordering Code: Example

AD(U)X 472 M 400 DF 1

Itelcond Capacitor Series
AD-flat bottom
ADU-mounting stud
Capacitance: [µF] significant digit plus multiplying factor:
1=x10, 2=x100, 3=x1.000, 4=x10.000

1= Sleeve – 0 = not Sleeve
Case Size Code see tables
Voltage – DC rated [V]
Tolerance range:
M=(±20%) X=(-10+30%)

Ripple Current

The allowable values of ripple current in Ampères, are related to the temperature and frequency by following equation:

$$I_{Ripple} = K_t \bullet K_f \bullet I_{Ripple@85\ ^\circ C}$$

Where:

- IRipple@85°C is the limit given by tables, @ 85°C/100HZ
- Kt is the Temperature Correlation Factor
- Kf is the Frequency Correlation Factor

Note. Superimposed alternating voltage summed to DC voltage must not exceed rated voltage, rated ripple current must not be exceeded and no reverse polarity is allowed

°C	40	55	65	75	85
Kt	1.55	1.40	1.20	1.10	1.00

Table 1-Kt Values

Hz	Kf
50	0.78
100	1.00
120	1.02
200	1.06
300	1.08
400	1.09
500	1.32
>1000	1.37

Table 2-Kf Values

Expected Lifetime End of Life Criteria

During useful life typical electrical parameters of electrolytic capacitor are subject to change.

End of Life criteria, when rated temperature, voltage and ripple are applied, are:

$\frac{\Delta C}{C_{t0}} \leq 30\%$ *Equation 1*

$ESR \leq 3 \bullet ESR_{t0}$ *Equation 2*

$I_f \leq I_{ft0}$ *Equation 3*

where t_0 is the initial value

Voltage Endurance Test Requirements

On Voltage Endurance Test are based Expected Lifetime Curves.

End of Life criteria, when rated temperature, and voltage are applied for 2'000hrs, are

$\frac{\Delta C}{C_{t0}} \leq 15\%$ *Equation 4*

$ESR \leq 1{,}3 \bullet ESR_{t0}$ *Equation 5*

$I_f \leq I_{ft0}$ *Equation 6*

where t_0 is the initial value

Expected Lifetime Vs Temperature and Ripple Current

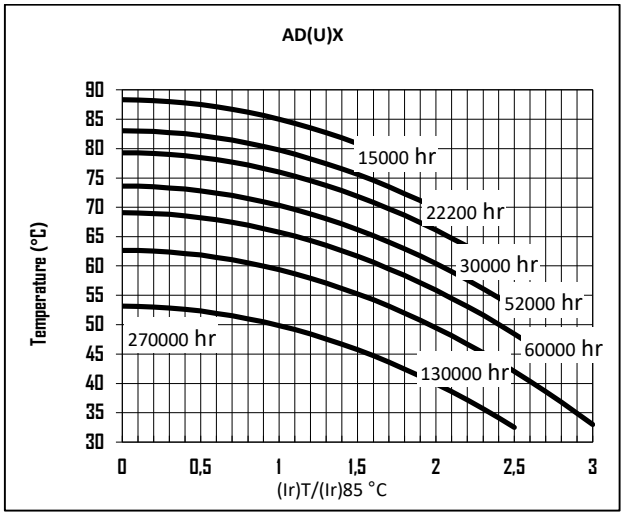

Table 3

Leakage Current

After the rated voltage has been applied to the capacitor for 5 minutes the leakage current must be within those limits.

Maximum limit	@25°C	If≤0,004xCxV
Operating limit	@25°C	If≤0,001xCxV

Where: If=leakage current [µA], C=capacitance [µF], V=rated voltage [V]

Surge Voltage

Working Voltage	160	200	250	350	400	420	450
Surge Voltage	185	230	290	385	440	460	495

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	Capacitance	Case	Diam	Height	Tan⍰	ESRmax | typ		Zmax	Iripple @100Hz		Ordering Code
	[uF]@100Hz		[mm]	[mm]	[%]@100Hz	[mΩ]@100Hz		[mΩ]@10KHz	[A]@55°C	[A]@85°C	(U) for mounting stud
160	4700	BC	51	105	0,09	30	24	23	14,9	10,6	AD(U)X472M160BC1
		CC	63	105	0,09	30	24	23	16,9	12,0	AD(U)X472M160CC1
	6800	DC	76	105	0,09	21	17	16	22,6	16,1	AD(U)X682M160DC1
	10000	DC	76	105	0,09	14	11	11	27,4	19,5	AD(U)X103M160DC1
	15000	DF	76	145	0,09	10	8	7	38,5	27,5	AD(U)X153M160DF1
	22000	DF	76	145	0,09	7	5	5	46,6	33,3	AD(U)X223M160DF1
		EF	90	222	0,09	7	5	5	61,3	43,8	AD(U)X223M160EF1
200	3300	BC	51	105	0,08	39	31	29	13,2	9,4	AD(U)X332M200BC1
	4700	CC	63	105	0,08	27	22	20	17,9	12,8	AD(U)X472M200CC1
		DC	76	105	0,08	27	22	20	19,9	14,2	AD(U)X472M200DC1
	6800	DC	76	105	0,08	19	15	14	23,9	17,1	AD(U)X682M200DC1
	10000	DF	76	145	0,08	13	10	10	33,3	23,8	AD(U)X103M200DF1
	15000	DF	76	145	0,08	8	7	6	40,8	29,1	AD(U)X153M200DF1
	22000	DF	76	145	0,08	6	5	4	49,4	35,3	AD(U)X223M200DF1
		DK	76	167	0,08	6	5	4	52,3	37,4	AD(U)X223M200DK1
	33000	DK	76	167	0,08	4	3	3	64,1	45,8	AD(U)X333M200DK1
250	2200	BB	51	83	0,07	51	41	38	10,4	7,4	AD(U)X222M250BB1
		BC	51	105	0,07	51	41	38	11,5	8,2	AD(U)X222M250BC1
	3300	BC	51	105	0,07	34	27	25	14,1	10,1	AD(U)X332M250BC1
		CC	63	105	0,07	34	27	25	16,0	11,4	AD(U)X332M250CC1
	4700	DC	76	105	0,07	24	19	18	21,3	15,2	AD(U)X472M250DC1
	6800	DC	76	105	0,07	16	13	12	25,6	18,3	AD(U)X682M250DC1
	10000	DF	76	145	0,07	11	9	8	35,6	25,4	AD(U)X103M250DF1
		EC	90	105	0,07	11	9	8	34,2	24,5	AD(U)X103M250EC1
	15000	DF	76	145	0,07	7	6	6	43,6	31,2	AD(U)X153M250DF1
		EJ	90	222	0,07	7	6	6	57,6	41,1	AD(U)X153M250EJ1
350	4700	DC	76	105	0,06	20	16	15	23,0	16,4	AD(U)X472M350DC1
		DF	76	145	0,06	20	16	15	26,4	18,8	AD(U)X472M350DF1
	6800	DF	76	145	0,06	14	11	11	31,7	22,7	AD(U)X682M350DF1
		EC	90	105	0,06	14	11	11	30,5	21,8	AD(U)X682M350EC1
	10000	DF	76	145	0,06	10	8	7	38,5	27,5	AD(U)X103M350DF1
		DJ	76	222	0,06	10	8	7	46,4	33,1	AD(U)X103M350DJ1
		EC	90	105	0,06	10	8	7	37,0	26,4	AD(U)X103M350EC1
	15000	DJ	76	222	0,06	6	5	5	56,8	40,5	AD(U)X153M350DJ1
		EF	90	145	0,06	6	5	5	51,8	37,0	AD(U)X153M350EF1
		EJ	90	222	0,06	6	5	5	62,2	44,4	AD(U)X153M350EJ1
	22000	EJ	90	222	0,06	4	3	3	75,4	53,8	AD(U)X223M350EJ1
	25000	EL	90	240	0,06	4	3	3	83,2	59,5	AD(U)X253M350EL1

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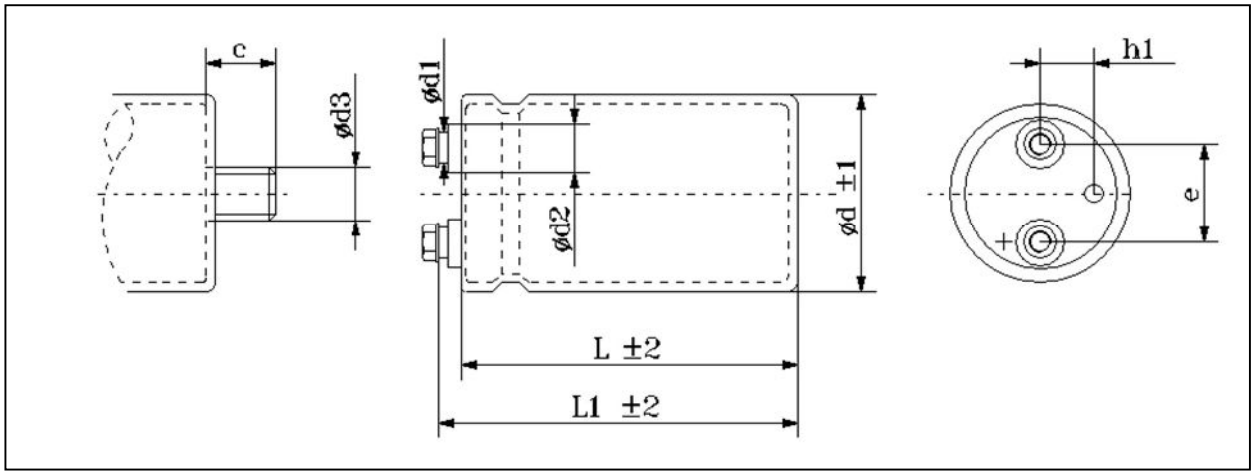
	Capacitance	Case	Diam	Height	Tan	ESRmax | typ		Zmax	Iripple @100Hz		Ordering Code
	[uF]@100Hz		[mm]	[mm]	[%]@100Hz	[mΩ]@100Hz		[mΩ]@10KHz	[A]@55°C	[A]@85°C	(U) for mounting stud
400	3300	DC	76	105	0,06	29	23	22	19,3	13,8	AD(U)X332M400DC1
	4700	DC	76	105	0,06	20	16	15	23,0	16,4	AD(U)X472M400DC1
	4700	DF	76	145	0,06	20	16	15	26,4	18,8	AD(U)X472M400DF1
	6800	DF	76	145	0,06	14	11	11	31,7	22,7	AD(U)X682M400DF1
	10000	DJ	76	222	0,06	10	8	7	46,4	33,1	AD(U)X103M400DJ1
		EF	90	145	0,06	10	8	7	42,3	30,2	AD(U)X103M400EF1
	15000	EJ	90	222	0,06	6	5	5	62,2	44,4	AD(U)X153M400EJ1
	20000	EL	90	240	0,06	5	4	4	74,4	53,2	AD(U)X203M400EL1
450	2200	CC	63	105	0,07	51	41	38	13,1	9,3	AD(U)X222M450CC1
		DC	76	105	0,07	51	41	38	14,6	10,4	AD(U)X222M450DC1
	3300	DC	76	105	0,07	34	27	25	17,8	12,7	AD(U)X332M450DC1
		DF	76	145	0,07	34	27	25	20,5	14,6	AD(U)X332M450DF1
	4700	DF	76	145	0,07	24	19	18	24,4	17,4	AD(U)X472M450DF1
		EC	90	105	0,07	24	19	18	23,5	16,8	AD(U)X472M450EC1
	6800	DF	76	145	0,07	16	13	12	29,4	21,0	AD(U)X682M450DF1
		DJ	76	222	0,07	16	13	12	35,4	25,3	AD(U)X682M450DJ1
	10000	DJ	76	222	0,07	11	9	8	42,9	30,7	AD(U)X103M450DJ1
		EJ	90	222	0,07	11	9	8	47,0	33,6	AD(U)X103M450EJ1
	15000	EJ	90	222	0,07	7	6	6	57,6	41,1	AD(U)X153M450EJ1
	18000	EL	90	240	0,07	6	5	5	65,4	46,7	AD(U)X183M450EL1

Dimension, Quantity and Weight for box



Case				Connections							Mounting Stud			Packaging	
Code	DxL	L1	h1	d1	d2	e	Terminal	Screw			Screw			Pcs/Box	Weight/box
							Code	Thread	Torque	Length	d3	c	Torque		
BB	51x83	85	13	13	18	22.2	X	M5	2,0	10	M12	16	10Nm	30	6-9
BC	51x105	109	13	13	18	22.2	X	M5	2,0	10	M12	16	10Nm	30	6-9
CC	63x105	111	16	13	18	28.6	X	M5	2,0	10	M12	16	10Nm	20	6-8
DC	76x105	111	19	13	18	31.8	X	M5	2,0	10	M12	16	10Nm	12	5-7
DF	76x145	151	19	13	18	31.8	X	M5	2,0	10	M12	16	10Nm	12	6-14
				18	23		G	M6	2,5						
DK	76x165	173	19	13	18	31.8	X	M5	2,0	10	M12	16	10Nm	12	6-14
				18	23		G	M6	2,5						
DJ	76x222	222	19	13	18	31.8	X	M5	2,0	10	M12	16	10Nm	8	9-11
				18	23		G	M6	2,5						
EC	90x105	112	19	18	23	31,8	G	M6	2,5	10	M12	16	10Nm	6	7-9
EF	90x145	151	19	18	23	31,8	G	M6	2,5	10	M12	16	10Nm	6	9-11
EJ	90x222	227	19	18	23	31,8	G	M6	2,5	10	M12	16	10Nm	6	8-12
EL	90x240	245	19	18	23	31,8	G	M6	2,5	10	M12	16	10Nm	6	9-13

All dimensions in mm, torque in Nm, weight in kg