

# EAG

Downsized, Endurance 1.500h to 2.500h at 105°C  
 Rated voltage range: 6,3V to 100V, Nominal capacitance range: 3,3µF to 12.000µF  
 Size range: Ø 8,5 x 16,0mm to Ø 14,0 x 30,5mm  
 RoHS compliant  
 Special types on request



## Specifications

	Characteristics									
<b>Temperature range</b>	- 40°C to +105°C									
<b>Rated voltage range</b>	6,3V to 100V									
<b>Capacitance tolerance</b>	±20%, other on request (at 20°C, 100Hz)									
<b>Leakage current I<sub>ra</sub></b>	I <sub>ra</sub> =0,0015·C <sub>R</sub> ·V <sub>R</sub> + 2µA or 5µA, whichever is greater, (I <sub>ra</sub> [µA], C <sub>R</sub> : Rated capacitance [µF], V <sub>R</sub> : Rated voltage [V]) (at 20°C, after 5 minutes)									
<b>Dissipation factor tan δ (D.F.)</b>	Rated voltage (V <sub>R</sub> )	6,3V	10V	16V	25V	40V	50V	63V	100V	(at 20°C, 100Hz)
	tan δ <sub>max</sub>	0,25	0,20	0,16	0,14	0,12	0,10	0,08	0,07	
When nominal capacitance exceeds 1.000µF, add 0,02 to the value above for each 1.000µF increase										
<b>Equivalent resistance (R<sub>ESR</sub>)</b>	Rated voltage (V <sub>R</sub> )	6,3V	10V	16V	25V	40V	50V	63V	100V	(at 20°C, 100Hz)
	factor R [Ω·µF]	400	320	260	220	190	160	130	120	
$R_{ESR} = \frac{\text{factor R}}{C_R}$										
<b>Low temperature characteristics Z<sub>max</sub>-factor</b>	Rated voltage (V <sub>R</sub> )	6,3V	10V	16V	25V	40V	50V	63V	100V	(100Hz)
	Z(-40°C)/(20°C)	2	2	2	2	2	2	2	2	
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 1.500 hours to 2.500 hours at 105°C.									
	Capacitance change					ΔC/C0 ≤ ±30%				
	D.F. (tan δ)					Δtan δ ≤ +200%				
	Leakage current (I <sub>ra</sub> )					I <sub>ra</sub> ≤ the initial specified value				
<b>Shelf life</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1.000 hours at 105°C without voltage applied									
	Capacitance change					ΔC/C0 ≤ ±30%				
	D.F. (tan δ)					Δtan δ ≤ +200%				
	Leakage current (I <sub>ra</sub> )					I <sub>ra</sub> ≤ +200% of the initial specification value				
<b>Surge voltage test</b>	The capacitors shall be subjected to 1.000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (R=0,1/C <sub>R</sub> ) and open-circuiting for 330 seconds at 105°C. The following specifications shall be satisfied when the capacitors are restored to 20°C.									
	Rated voltage (V <sub>R</sub> )		6,3V	10V	16V	25V	40V	50V	63V	100V
	Surge voltage (V <sub>S</sub> )		7,2V	11,5V	18,4V	28,8V	46V	57,5V	72,5V	115V
	Appearance					No significant damage				
	Capacitance change					ΔC/C0 ≤ ±10%				
	D.F. (tan δ)					Δtan δ ≤ the initial specified value				
	Leakage current (I <sub>ra</sub> )					I <sub>ra</sub> ≤ the initial specified value				

## FROLYT Kondensatoren und Bauelemente GmbH

ISO 9001

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Aluminum-electrolytic capacitors, axial, downsized, insulated, polarized, pulse proof  
Endurance at least 1.500h to 2.500h at +105°C

EAG

The EAG series is universally applicable for horizontal mounting in printed boards.

The application is designed for industrial electronics, automotive electronics, audio and video systems and switching power supplies.

**Generic specification:**  
DIN EN 60384-1

**Sectional specification:**  
DIN 45910 part 126  
without quality assessment

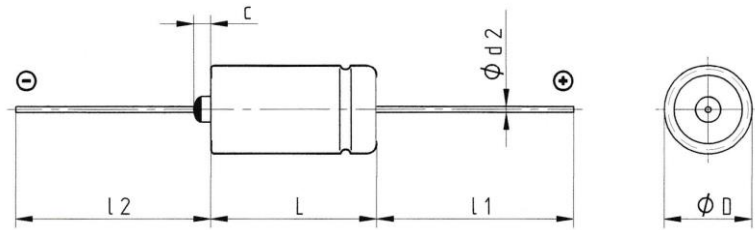
**Operating temperature range:**  
- 40°C to +105°C

**Climatic category:**  
40/105/56

**Capacitance range:**  
±20% (other on request)

**Surge voltage  $V_s$ :**  
 $V_s = 1,15 \cdot V_R$

**Leakage current  $I_{ra}$ :**  
measured at  $V_R$  at +20°C  
 $I_{ra} \leq 0,0015 \cdot C_R \cdot V_R + 2\mu A$   
or 5μA  
whichever is greater  
(after 5 minutes)



The identification of polarity is carried out by the stamp image.  
Taping specifications on request

Dimensions (mm)					
D x L	8,5 x 16,0	8,5 x 20,0	14,0 x 25,5	14,0 x 30,5	tolerance
D	8,5	8,5	14,0	14,0	+0,5
L	16,0	20,0	25,5	30,5	+1,5
c	1,5	1,5	1,5	1,5	±0,3
d 2	0,6	0,6	0,8(*)	0,8(*)	±0,05
l 1	38,0	38,0	38,0	38,0	±3,0
l 2	45,0	45,0	45,0	45,0	±3,0
Endurance at least					
Ambient temperature		Ø 8,5 mm		Ø 14,0 mm	
≤ +40°C		150.000h		250.000h	
+85°C		6.000h		10.000h	
+105°C		1.500h		2.500h	

(\*) 1,0 mm on request

Dimensions Overview D x L								
Capacitance $C_R$ [μF]	Rated voltage $V_R$ [V]							
	6,3	10	16	25	40	50	63	100
3,3							8,5 x 16,0	8,5 x 16,0
4,7						8,5 x 16,0	8,5 x 16,0	8,5 x 16,0
10					8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0
22				8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0
33			8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0
47		8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0
100	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5
150	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5
220	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5
330	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5
390	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	8,5 x 16,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5
470	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5
560	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	
820	8,5 x 16,0	8,5 x 16,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5	
1 000	8,5 x 16,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5	
1 200	8,5 x 20,0	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5	14,0 x 30,5	14,0 x 30,5	
1 500	8,5 x 20,0	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5	14,0 x 30,5		
1 800	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5	14,0 x 30,5		
2 200	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5				
3 300	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5				
4 700	14,0 x 25,5	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5				
5 600	14,0 x 25,5	14,0 x 25,5	14,0 x 30,5					
6 800	14,0 x 25,5	14,0 x 30,5	14,0 x 30,5					
8 200	14,0 x 30,5	14,0 x 30,5						
10 000	14,0 x 30,5	14,0 x 30,5						
12 000	14,0 x 30,5							

**Technical specifications**

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	ESR [ $\Omega$ ] 100Hz +20°C (max)	Z [ $\Omega$ ] 10kHz +20°C (max)	I~ [mA]* 100Hz +85°C (max)
100	6,3	8,5 x 16,0	0,25	3,98	1,65	138
150	6,3	8,5 x 16,0	0,25	2,65	1,31	169
220	6,3	8,5 x 16,0	0,25	1,81	0,98	204
330	6,3	8,5 x 16,0	0,25	1,21	0,76	250
390	6,3	8,5 x 16,0	0,25	1,02	0,60	272
470	6,3	8,5 x 16,0	0,25	0,85	0,53	299
560	6,3	8,5 x 16,0	0,25	0,71	0,49	326
820	6,3	8,5 x 16,0	0,25	0,49	0,45	394
1 000	6,3	8,5 x 16,0	0,25	0,40	0,40	436
1 200	6,3	8,5 x 20,0	0,25	0,33	0,40	490
1 500	6,3	8,5 x 20,0	0,25	0,27	0,36	548
1 800	6,3	14,0 x 25,5	0,28	0,25	0,36	652
2 200	6,3	14,0 x 25,5	0,28	0,20	0,31	720
3 300	6,3	14,0 x 25,5	0,28	0,14	0,29	882
4 700	6,3	14,0 x 25,5	0,28	0,09	0,27	1 053
5 600	6,3	14,0 x 25,5	0,28	0,08	0,24	1 149
6 800	6,3	14,0 x 25,5	0,28	0,07	0,22	1 266
8 200	6,3	14,0 x 30,5	0,28	0,05	0,20	1 391
10 000	6,3	14,0 x 30,5	0,28	0,04	0,15	1 691
12 000	6,3	14,0 x 30,5	0,28	0,04	0,09	1 853
47	10	8,5 x 16,0	0,20	6,77	2,64	106
100	10	8,5 x 16,0	0,20	3,18	1,50	154
150	10	8,5 x 16,0	0,20	2,12	1,15	189
220	10	8,5 x 16,0	0,20	1,45	0,88	228
330	10	8,5 x 16,0	0,20	0,96	0,67	280
390	10	8,5 x 16,0	0,20	0,82	0,48	304
470	10	8,5 x 16,0	0,20	0,68	0,38	334
560	10	8,5 x 16,0	0,20	0,57	0,37	364
820	10	8,5 x 16,0	0,20	0,39	0,36	441
1 000	10	8,5 x 20,0	0,20	0,32	0,35	501
1 200	10	8,5 x 20,0	0,20	0,27	0,35	548
1 500	10	14,0 x 25,5	0,24	0,25	0,34	642
1 800	10	14,0 x 25,5	0,24	0,21	0,34	704
2 200	10	14,0 x 25,5	0,24	0,17	0,29	778
3 300	10	14,0 x 25,5	0,24	0,12	0,27	953
4 700	10	14,0 x 25,5	0,24	0,08	0,25	1 137
5 600	10	14,0 x 25,5	0,24	0,07	0,22	1 241
6 800	10	14,0 x 30,5	0,24	0,06	0,20	1 368
8 200	10	14,0 x 30,5	0,24	0,05	0,18	1 654
10 000	10	14,0 x 30,5	0,24	0,04	0,16	1 827
33	16	8,5 x 16,0	0,16	7,72	1,66	99
47	16	8,5 x 16,0	0,16	5,42	1,53	118
100	16	8,5 x 16,0	0,16	2,55	1,45	172
150	16	8,5 x 16,0	0,16	1,70	1,00	211
220	16	8,5 x 16,0	0,16	1,16	0,66	255
330	16	8,5 x 16,0	0,16	0,77	0,44	313
390	16	8,5 x 16,0	0,16	0,65	0,39	340
470	16	8,5 x 20,0	0,16	0,54	0,31	384
560	16	8,5 x 20,0	0,16	0,45	0,30	419
820	16	8,5 x 20,0	0,16	0,31	0,29	507
1 000	16	14,0 x 25,5	0,19	0,30	0,28	590
1 200	16	14,0 x 25,5	0,19	0,25	0,27	646
1 500	16	14,0 x 25,5	0,19	0,20	0,26	722
1 800	16	14,0 x 25,5	0,19	0,17	0,25	791
2 200	16	14,0 x 25,5	0,19	0,14	0,24	874
3 300	16	14,0 x 25,5	0,19	0,09	0,23	1 071
4 700	16	14,0 x 25,5	0,19	0,06	0,21	1 278
5 600	16	14,0 x 30,5	0,19	0,05	0,20	1 395
6 800	16	14,0 x 30,5	0,19	0,04	0,18	1 693

\* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request  
 Rated ripple current at 105°C: temperature multipliers 0,6

### Technical specifications

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	ESR [ $\Omega$ ] 100Hz +20°C (max)	Z [ $\Omega$ ] 10kHz +20°C (max)	I~ [mA]* 100Hz +85°C (max)
22	25	8,5 x 16,0	0,14	10,13	1,79	86
33	25	8,5 x 16,0	0,14	6,75	1,42	106
47	25	8,5 x 16,0	0,14	4,74	1,13	126
100	25	8,5 x 16,0	0,14	2,23	1,00	184
150	25	8,5 x 16,0	0,14	1,49	0,66	225
220	25	8,5 x 16,0	0,14	1,01	0,45	273
330	25	8,5 x 16,0	0,14	0,68	0,40	334
390	25	8,5 x 16,0	0,14	0,57	0,35	364
470	25	8,5 x 20,0	0,14	0,47	0,30	410
560	25	8,5 x 20,0	0,14	0,40	0,25	448
820	25	14,0 x 25,5	0,18	0,35	0,19	548
1 000	25	14,0 x 25,5	0,18	0,29	0,15	606
1 200	25	14,0 x 25,5	0,18	0,24	0,12	663
1 500	25	14,0 x 25,5	0,18	0,19	0,10	742
1 800	25	14,0 x 25,5	0,18	0,16	0,09	813
2 200	25	14,0 x 25,5	0,18	0,13	0,08	898
3 300	25	14,0 x 30,5	0,18	0,09	0,07	1 100
4 700	25	14,0 x 30,5	0,18	0,06	0,06	1 446
10	40	8,5 x 16,0	0,12	19,10	9,90	63
22	40	8,5 x 16,0	0,12	8,68	1,60	93
33	40	8,5 x 16,0	0,12	5,79	1,30	114
47	40	8,5 x 16,0	0,12	4,06	1,60	136
100	40	8,5 x 20,0	0,12	1,91	0,75	204
150	40	8,5 x 20,0	0,12	1,27	0,60	250
220	40	8,5 x 20,0	0,12	0,87	0,34	303
330	40	14,0 x 25,5	0,16	0,77	0,30	369
390	40	14,0 x 25,5	0,16	0,65	0,26	401
470	40	14,0 x 25,5	0,16	0,54	0,24	440
560	40	14,0 x 25,5	0,16	0,45	0,18	481
820	40	14,0 x 25,5	0,16	0,31	0,13	582
1 000	40	14,0 x 25,5	0,16	0,25	0,08	642
1 200	40	14,0 x 30,5	0,16	0,21	0,06	704
1 500	40	14,0 x 30,5	0,16	0,17	0,05	787
1 800	40	14,0 x 30,5	0,16	0,14	0,04	949
4,7	50	8,5 x 16,0	0,10	33,86	9,00	47
10	50	8,5 x 16,0	0,10	15,92	8,00	69
22	50	8,5 x 16,0	0,10	7,23	2,95	102
33	50	8,5 x 16,0	0,10	4,82	1,97	125
47	50	8,5 x 16,0	0,10	3,39	1,38	149
100	50	8,5 x 20,0	0,10	1,59	0,65	224
150	50	8,5 x 20,0	0,10	1,06	0,55	274
220	50	8,5 x 20,0	0,10	0,72	0,29	332
330	50	14,0 x 25,5	0,14	0,68	0,26	395
390	50	14,0 x 25,5	0,14	0,57	0,22	429
470	50	14,0 x 25,5	0,14	0,47	0,20	471
560	50	14,0 x 25,5	0,14	0,40	0,17	514
820	50	14,0 x 25,5	0,14	0,27	0,11	622
1 000	50	14,0 x 25,5	0,14	0,22	0,06	687
1 200	50	14,0 x 30,5	0,14	0,19	0,05	752
1 500	50	14,0 x 30,5	0,14	0,15	0,04	926
1 800	50	14,0 x 30,5	0,14	0,12	0,04	1 015

\* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request  
 Rated ripple current at 105°C: temperature multipliers 0,6

### Technical specifications

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	ESR [ $\Omega$ ] 100Hz +20°C (max)	Z [ $\Omega$ ] 10kHz +20°C (max)	$I_{\sim}$ [mA]* 100Hz +85°C (max)
3,3	63	8,5 x 16,0	0,08	38,58	9,80	44
4,7	63	8,5 x 16,0	0,08	27,09	8,50	53
10	63	8,5 x 16,0	0,08	12,73	6,00	77
22	63	8,5 x 16,0	0,08	5,79	2,73	114
33	63	8,5 x 16,0	0,08	3,86	1,82	140
47	63	8,5 x 16,0	0,08	2,71	1,28	167
100	63	8,5 x 20,0	0,08	1,27	0,60	250
150	63	8,5 x 20,0	0,08	0,85	0,53	307
220	63	14,0 x 25,5	0,08	0,58	0,25	426
330	63	14,0 x 25,5	0,08	0,39	0,22	522
390	63	14,0 x 25,5	0,08	0,33	0,19	567
470	63	14,0 x 25,5	0,08	0,27	0,17	623
560	63	14,0 x 25,5	0,08	0,23	0,15	680
820	63	14,0 x 30,5	0,08	0,16	0,10	823
1 000	63	14,0 x 30,5	0,08	0,13	0,05	1 001
1 200	63	14,0 x 30,5	0,08	0,11	0,04	1 096
3,3	100	8,5 x 16,0	0,07	33,76	9,00	47
4,7	100	8,5 x 16,0	0,07	23,70	8,00	56
10	100	8,5 x 16,0	0,07	11,14	4,00	82
22	100	8,5 x 20,0	0,07	5,06	1,80	126
33	100	8,5 x 20,0	0,07	3,38	1,20	154
47	100	8,5 x 20,0	0,07	2,37	0,85	183
100	100	14,0 x 25,5	0,07	1,11	0,55	307
150	100	14,0 x 25,5	0,07	0,74	0,50	376
220	100	14,0 x 25,5	0,07	0,51	0,23	456
330	100	14,0 x 30,5	0,07	0,34	0,21	558
390	100	14,0 x 30,5	0,07	0,29	0,18	668
470	100	14,0 x 30,5	0,07	0,24	0,16	733

\*  $I_{\sim}$  (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request  
 Rated ripple current at 105°C: temperature multipliers 0,6

### Ordering information for FROLYT electrolytic capacitors

- Series
- Rated capacitance / Rated voltage
- Capacitance tolerance
- Dimensions (Diameter x Length)
- Additional requirements

Ordering example: EAG 100 $\mu$ F 40V  $\pm$ 20%, 8,5 x 20,0mm

**Special requirements or special types on request**

All information provided in printed form requires a written confirmation in order to be legally binding within the meaning of §§463 and 480 II BGB (German Civil Code). Hence, the given data imply exclusively a product description and are not to be understood as assured qualities.