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Aluminum electrolytic capacitors

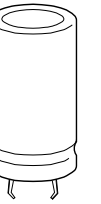
Snap-in capacitors

Series/Type: **B43644**
Date: December 2013

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Long-life grade capacitors



Applications
- Frequency converters
- Solar inverters
- Uninterruptible power supplies
- Professional power supplies
- Medical appliances
- Telecommunications

Features
- Extremely high CV product, ultra compact
- High reliability
- Long useful life
- High ripple current capability
- Different case sizes available for each capacitance value
- Capacitors with all insulation versions pass the needle flame test according to IEC 60695-11-5 for all flame exposure times up to 120 s
- RoHS-compatible

Construction
- Charge/discharge-proof, polar
- Aluminum case, fully insulated with PVC
- Version with PET insulation available
- Version with additional PET insulation cap on terminal side available for insulating the capacitor from the PCB
- Snap-in solder pins to hold component in place on PC-board
- Minus pole marking on case surface
- Minus pole not insulated from case
- Overload protection by safety vent on the base

Terminals
- Standard version with 2 terminals, 2 lengths available: 6.3 and 4.5 mm
- 3 terminals to ensure correct insertion: length 4.5 mm

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Specifications and characteristics in brief

Rated voltage V_R Surge voltage V_S	200 ... 500 V DC 1.15 · V_R (for $V_R \leq$ 250 V DC) 1.10 · V_R (for $V_R \geq$ 400 V DC)	
Rated capacitance C_R Capacitance tolerance	39 ... 2700 µF ±20% ≙ M	
Dissipation factor tan δ (20 °C, 120 Hz)	$V_R \leq$ 250 V DC: tan δ ≤ 0.15 $V_R \geq$ 400 V DC: tan δ ≤ 0.20	
Leakage current I_{leak} (5 min, 20 °C)	$I_{leak} \leq 0.3\ \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right)^{0.7} + 4\ \mu A$	
Self-inductance ESL	Approx. 20 nH	
Useful life[1)] 105 °C; V_R; $I_{AC,R}$ 85 °C; V_R; $I_{AC,R}$ 50 °C; V_R; 1.4 · $I_{AC,R}$	 > 5000 h > 20000 h > 175000 h	Requirements: ΔC/C ≤ ±20% of initial value tan δ ≤ 2 times initial specified limit I_{leak} ≤ initial specified limit
Voltage endurance test 105 °C; V_R	2000 h	Post test requirements: ΔC/C ≤ ±10% of initial value tan δ ≤ 1.3 times initial specified limit I_{leak} ≤ initial specified limit
Vibration resistance test	To IEC 60068-2-6, test Fc: Frequency range 10 Hz ... 55 Hz, displacement amplitude 0.35 mm, acceleration max. 5 *g*, duration 3 × 2 h. Capacitor mounted by its body which is rigidly clamped to the work surface.	
Characteristics at low temperature	Max. impedance ratio at 100 Hz	

V_R	≤ 250 V	400 V ... 450 V	500 V
$Z_{-25\,°C} / Z_{20\,°C}$	4	7	7
$Z_{-40\,°C} / Z_{20\,°C}$	7	14	20

IEC climatic category	To IEC 60068-1: ■ $V_R \leq$ 250 V DC: 40/105/56 (−40 °C/+105 °C/56 days damp heat test) ■ $V_R \geq$ 400 V DC: 25/105/56 (−25 °C/+105 °C/56 days damp heat test) The capacitors can be operated in the temperature range of −40 °C to +105 °C but the impedance at −40 °C should be taken into consideration.
Detail specification Sectional specification	Similar to CECC 30301-809 IEC 60384-4

1) Refer to chapter "General technical information, 5 Useful life" on how to interpret useful life.

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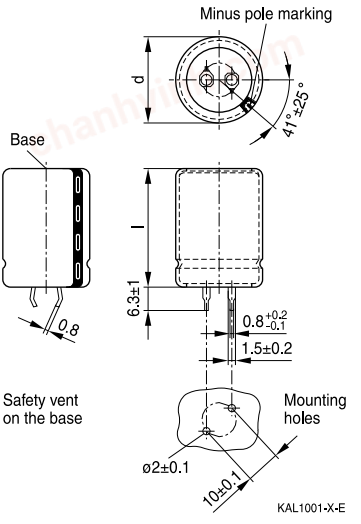


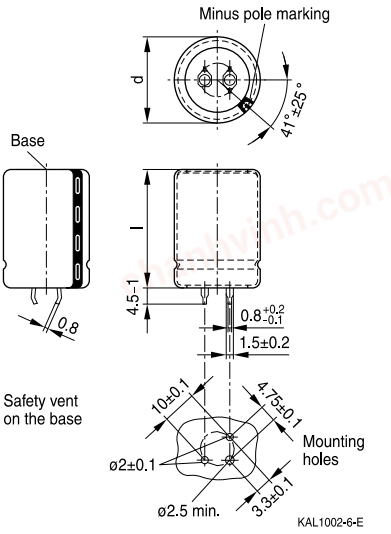
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Ultra compact, long useful life – 105 °C

Dimensional drawings

Snap-in capacitors with standard insulation (PVC or PET)





Snap-in terminals, length (6.3 ±1) mm. Also available in a shorter version with a length of (4.5 –1) mm. PET insulation is marked with label "PET" on the sleeve.

Dimensions (mm)		Approx.	Packing
d +1	l ±2	weight (g)	units (pcs.)
22	25	9	160
22	30	12	160
22	35	15	160
22	40	18	160
22	45	20	160
22	50	24	160
25	25	13	130
25	30	17	130
25	35	19	130
25	40	22	130
25	45	25	130
25	50	29	130
25	55	32	130

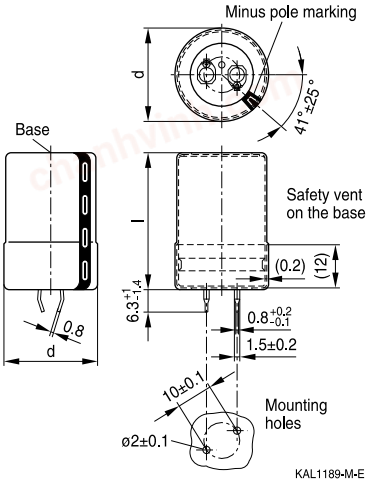
Snap-in capacitors are also available with 3 terminals (length (4.5 –1) mm). PET insulation is marked with label "PET" on the sleeve.

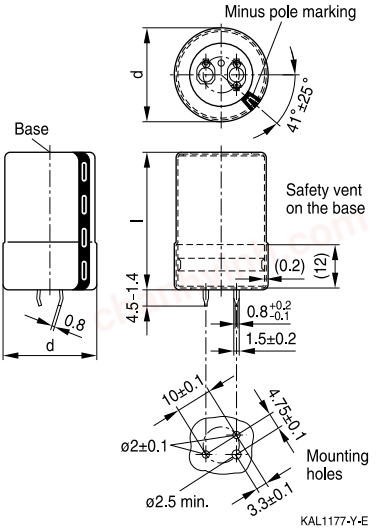
Dimensions (mm)		Approx.	Packing
d +1	l ±2	weight (g)	units (pcs.)
30	25	17	80
30	30	23	80
30	35	29	80
30	40	36	80
30	45	41	80
30	50	46	80
30	55	53	80
35	25	22	60
35	30	29	60
35	35	36	60
35	40	41	60
35	45	56	60
35	50	70	60
35	55	81	60

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Snap-in capacitors with PVC insulation and PET insulation cap on terminal side





Snap-in terminals, length (6.3 +1/−1.4) mm. Also available in a shorter version with a length of (4.5 −1.4) mm. PET insulation cap is positioned under the insulation sleeve.

Dimensions (mm)		Approx.	Packing
d +1.4	l +2.2/−2	weight (g)	units (pcs.)
22	25	9	160
22	30	12	160
22	35	15	160
22	40	18	160
22	45	20	160
22	50	24	160
25	25	13	115
25	30	17	115
25	35	19	115
25	40	22	115
25	45	25	115
25	50	29	115
25	55	32	115

Snap-in capacitors are also available with 3 terminals (length (4.5 −1.4) mm). PET insulation cap is positioned under the insulation sleeve.

Dimensions (mm)		Approx.	Packing
d +1.4	l +2.2/−2	weight (g)	units (pcs.)
30	25	17	80
30	30	23	80
30	35	29	80
30	40	36	80
30	45	41	80
30	50	46	80
30	55	53	80
35	25	22	60
35	30	29	60
35	35	36	60
35	40	41	60
35	45	56	60
35	50	70	60
35	55	81	60

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Packing of snap-in capacitors



For ecological reasons the packing is pure cardboard. Components can be withdrawn (in full or in part) in the correct position for insertion.

Ordering codes for terminal styles and insulation features

Identification in 3rd block of ordering code

Snap-in capacitors

Terminal version	Insulation version		
	PVC	PET	PVC plus PET cap
Standard terminals 6.3 mm	M000	M060	M080
Short terminals 4.5 mm	M007	M067	M087
3 terminals 4.5 mm	M002	M062	M082

Ordering examples:

B43644A5107M007 } snap-in capacitor with short terminals and standard PVC insulation

B43644A5107M062 } snap-in capacitor with 3 terminals and PET insulation

B43644A5107M080 } snap-in capacitor with standard terminals and PVC insulation with additional PET insulation cap on terminal side

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Overview of available types

V_R (V DC)	200	250	400	450	500
	Case dimensions d × l (mm)				
C_R (µF)					
39					22 × 25
47					22 × 30
56					22 × 30 25 × 25
68				22 × 25	22 × 35 25 × 30
82				22 × 30	22 × 40 25 × 30 30 × 25
100			22 × 25	22 × 30 25 × 25	22 × 45 25 × 35 30 × 30
120			22 × 30 25 × 25	22 × 35 25 × 30	22 × 50 25 × 40 30 × 30 35 × 25
150			22 × 35 25 × 30	22 × 40 25 × 35 30 × 25	25 × 50 30 × 35 35 × 30
180			22 × 40 25 × 30 30 × 25	22 × 45 25 × 35 30 × 30	25 × 55 30 × 40 35 × 35
220		22 × 25	22 × 45 25 × 35 30 × 30	25 × 45 30 × 30 35 × 25	30 × 50 35 × 35
270		22 × 30	22 × 50 25 × 40 30 × 30 35 × 25	25 × 50 30 × 35 35 × 30	30 × 55 35 × 45
330	22 × 25	22 × 30 25 × 25	25 × 50 30 × 35 35 × 30	30 × 40 35 × 35	35 × 50
390	22 × 30	22 × 35 25 × 30	25 × 55 30 × 40 35 × 30	30 × 50 35 × 35	35 × 55

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V_R (V DC)	200	250	400	450	500
	Case dimensions d × l (mm)				
C_R (µF)					
470	22 × 30 25 × 25	22 × 40 25 × 30 30 × 25	30 × 45 35 × 35	30 × 55 35 × 40	
560	22 × 35 25 × 30	22 × 45 25 × 35 30 × 30	30 × 50 35 × 40	35 × 50	
680	22 × 40 25 × 35 30 × 25	22 × 50 25 × 40 30 × 30 35 × 25	35 × 45	35 × 55	
820	22 × 45 25 × 40 30 × 30	25 × 45 30 × 35 35 × 30	35 × 55		
1000	25 × 45 30 × 35 35 × 25	25 × 55 30 × 40 35 × 30			
1200	25 × 50 30 × 35 35 × 30	30 × 45 35 × 35			
1500	30 × 45 35 × 35	30 × 55 35 × 40			
1800	30 × 50 35 × 40	35 × 50			
2200	30 × 55 35 × 45	35 × 55			
2700	35 × 50				

The capacitance and voltage ratings listed above are available in different cases upon request. Other voltage and capacitance ratings are also available upon request.

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Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{typ} 300 Hz 60 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,max}$ 100 Hz 85 °C A	$I_{AC,R}$ [1] 100 Hz 105 °C A	Ordering code (composition see below)
V_R = 200 V DC								
330	22 × 25	290	100	440	2.71	2.01	1.10	B43644A2337M0*#
390	22 × 30	250	80	370	3.08	2.29	1.25	B43644A2397M0*#
470	22 × 30	210	70	310	3.54	2.62	1.42	B43644A2477M0*#
470	25 × 25	220	80	330	3.31	2.46	1.34	B43644B2477M0*#
560	22 × 35	170	60	260	4.07	3.01	1.64	B43644A2567M0*#
560	25 × 30	180	65	270	3.80	2.82	1.54	B43644B2567M0*#
680	22 × 40	140	50	220	4.75	3.51	1.91	B43644A2687M0*#
680	25 × 35	150	50	220	4.42	3.28	1.79	B43644B2687M0*#
680	30 × 25	170	75	260	3.87	2.88	1.56	B43644C2687M0*#
820	22 × 45	120	40	180	5.53	4.09	2.22	B43644A2827M0*#
820	25 × 40	120	45	190	5.11	3.80	2.07	B43644B2827M0*#
820	30 × 30	130	55	210	4.51	3.36	1.83	B43644C2827M0*#
1000	25 × 45	100	36	160	5.97	4.43	2.41	B43644A2108M0*#
1000	30 × 35	110	45	170	5.23	3.90	2.12	B43644B2108M0*#
1000	35 × 25	140	80	220	4.33	3.22	1.74	B43644C2108M0*#
1200	25 × 50	85	32	130	6.89	5.10	2.77	B43644A2128M0*#
1200	30 × 35	100	45	160	5.74	4.27	2.31	B43644B2128M0*#
1200	35 × 30	110	60	170	5.09	3.80	2.19	B43644C2128M0*#
1500	30 × 45	75	34	120	7.03	5.23	3.02	B43644A2158M0*#
1500	35 × 35	90	50	140	5.95	4.44	2.56	B43644B2158M0*#
1800	30 × 50	65	30	100	8.02	5.96	3.43	B43644A2188M0*#
1800	35 × 40	75	40	120	6.80	5.07	2.92	B43644B2188M0*#
2200	30 × 55	55	26	85	9.24	6.86	3.94	B43644A2228M0*#
2200	35 × 45	60	36	100	7.76	5.79	3.33	B43644B2228M0*#
2700	35 × 50	55	32	85	8.86	6.59	3.78	B43644A2278M0*#

Composition of ordering code

* = Insulation feature
- 0 = PVC insulation
- 6 = PET insulation
- 8 = PVC insulation with additional PET insulation cap on terminal side

\# = Terminal style
- 0 = snap-in standard terminals (6.3 mm)
- 2 = snap-in 3 terminals (4.5 mm)
- 7 = snap-in short terminals (4.5 mm)

1) 120-Hz conversion factor of ripple current: I_{AC} (120 Hz) = 1.03 · I_{AC} (100 Hz)

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Ultra compact, long useful life – 105 °C

Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{typ} 300 Hz 60 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,max}$ 100 Hz 85 °C A	$I_{AC,R}$ [2] 100 Hz 105 °C A	Ordering code (composition see below)
V_R = 250 V DC								
220	22 × 25	350	110	500	2.25	1.68	0.91	B43644E2227M0*#
270	22 × 30	290	90	400	2.63	1.96	1.07	B43644E2277M0*#
330	22 × 30	240	80	340	3.07	2.28	1.24	B43644E2337M0*#
330	25 × 25	250	90	350	2.91	2.17	1.18	B43644F2337M0*#
390	22 × 35	200	65	290	3.50	2.60	1.41	B43644E2397M0*#
390	25 × 30	210	70	290	3.31	2.47	1.34	B43644F2397M0*#
470	22 × 40	170	55	240	4.07	3.02	1.64	B43644E2477M0*#
470	25 × 30	180	65	250	3.78	2.80	1.52	B43644F2477M0*#
470	30 × 25	190	80	270	3.47	2.59	1.40	B43644G2477M0*#
560	22 × 45	140	45	200	4.70	3.48	1.89	B43644E2567M0*#
560	25 × 35	150	55	210	4.33	3.22	1.74	B43644F2567M0*#
560	30 × 30	150	60	220	3.99	2.98	1.62	B43644G2567M0*#
680	22 × 50	120	40	170	5.51	4.08	2.21	B43644E2687M0*#
680	25 × 40	120	45	180	5.05	3.75	2.03	B43644F2687M0*#
680	30 × 30	130	60	200	4.44	3.31	1.79	B43644G2687M0*#
680	35 × 25	150	80	230	4.00	2.99	1.61	B43644H2687M0*#
820	25 × 45	100	40	150	5.87	4.35	2.35	B43644E2827M0*#
820	30 × 35	110	50	170	5.13	3.82	2.07	B43644F2827M0*#
820	35 × 30	120	60	180	4.68	3.50	2.02	B43644G2827M0*#
1000	25 × 55	80	30	120	6.95	5.16	2.79	B43644E2108M0*#
1000	30 × 40	90	40	140	5.96	4.44	2.56	B43644F2108M0*#
1000	35 × 30	110	65	170	5.04	3.76	2.16	B43644G2108M0*#
1200	30 × 45	75	36	120	6.85	5.09	2.93	B43644E2128M0*#
1200	35 × 35	90	50	140	5.82	4.34	2.49	B43644F2128M0*#
1500	30 × 55	60	28	95	8.24	6.13	3.53	B43644E2158M0*#
1500	35 × 40	75	45	120	6.78	5.05	2.89	B43644F2158M0*#
1800	35 × 50	60	32	90	8.06	6.02	3.46	B43644E2188M0*#
2200	35 × 55	50	30	80	9.21	6.85	3.93	B43644E2228M0*#

Composition of ordering code

* = Insulation feature
- 0 = PVC insulation
- 6 = PET insulation
- 8 = PVC insulation with additional PET insulation cap on terminal side

\# = Terminal style
- 0 = snap-in standard terminals (6.3 mm)
- 2 = snap-in 3 terminals (4.5 mm)
- 7 = snap-in short terminals (4.5 mm)

2) 120-Hz conversion factor of ripple current: I_{AC} (120 Hz) = 1.03 · I_{AC} (100 Hz)

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Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{typ} 300 Hz 60 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,max}$ 100 Hz 85 °C A	$I_{AC,R}$ [3] 100 Hz 105 °C A	Ordering code (composition see below)
V_R = 400 V DC								
100	22 × 25	870	230	1250	1.62	1.20	0.65	B43644A9107M0*#
120	22 × 30	730	190	1040	1.85	1.38	0.75	B43644A9127M0*#
120	25 × 25	730	200	1050	1.81	1.35	0.73	B43644B9127M0*#
150	22 × 35	580	160	840	2.21	1.64	0.89	B43644A9157M0*#
150	25 × 30	580	160	840	2.13	1.59	0.87	B43644B9157M0*#
180	22 × 40	480	130	700	2.56	1.90	1.03	B43644A9187M0*#
180	25 × 30	490	140	710	2.47	1.83	0.99	B43644B9187M0*#
180	30 × 25	500	150	730	2.39	1.78	0.97	B43644C9187M0*#
220	22 × 45	400	110	570	3.03	2.24	1.22	B43644A9227M0*#
220	25 × 35	400	110	580	2.88	2.14	1.16	B43644B9227M0*#
220	30 × 30	410	120	590	2.75	2.05	1.12	B43644C9227M0*#
270	22 × 50	320	90	470	3.60	2.66	1.44	B43644A9277M0*#
270	25 × 40	330	90	480	3.40	2.52	1.37	B43644B9277M0*#
270	30 × 30	340	110	500	3.19	2.37	1.28	B43644C9277M0*#
270	35 × 25	350	120	520	3.05	2.27	1.23	B43644D9277M0*#
330	25 × 50	270	75	390	4.00	2.97	1.61	B43644A9337M0*#
330	30 × 35	280	85	410	3.71	2.75	1.49	B43644B9337M0*#
330	35 × 30	290	100	420	3.54	2.64	1.52	B43644C9337M0*#
390	25 × 55	230	65	330	4.60	3.41	1.85	B43644A9397M0*#
390	30 × 40	230	70	340	4.22	3.14	1.81	B43644B9397M0*#
390	35 × 30	250	90	370	3.91	2.90	1.67	B43644C9397M0*#
470	30 × 45	200	60	290	4.89	3.63	2.09	B43644A9477M0*#
470	35 × 35	210	75	310	4.49	3.34	1.92	B43644B9477M0*#
560	30 × 50	170	55	240	5.63	4.18	2.41	B43644A9567M0*#
560	35 × 40	170	60	260	5.13	3.81	2.20	B43644B9567M0*#
680	35 × 45	140	55	220	5.92	4.40	2.53	B43644A9687M0*#
820	35 × 55	120	45	180	6.92	5.15	2.97	B43644A9827M0*#

Composition of ordering code

* = Insulation feature
- 0 = PVC insulation
- 6 = PET insulation
- 8 = PVC insulation with additional PET insulation cap on terminal side

\# = Terminal style
- 0 = snap-in standard terminals (6.3 mm)
- 2 = snap-in 3 terminals (4.5 mm)
- 7 = snap-in short terminals (4.5 mm)

3) 120-Hz conversion factor of ripple current: I_{AC} (120 Hz) = 1.03 · I_{AC} (100 Hz)

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Ultra compact, long useful life – 105 °C

Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{typ} 300 Hz 60 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,max}$ 100 Hz 85 °C A	$I_{AC,R}$ [4] 100 Hz 105 °C A	Ordering code (composition see below)
V_R = 450 V DC								
68	22 × 25	1430	360	2140	1.26	0.94	0.51	B43644A5686M0*#
82	22 × 30	1180	300	1770	1.45	1.08	0.59	B43644A5826M0*#
100	22 × 30	970	250	1460	1.70	1.26	0.69	B43644A5107M0*#
100	25 × 25	980	260	1470	1.67	1.24	0.67	B43644B5107M0*#
120	22 × 35	810	210	1220	1.96	1.45	0.79	B43644A5127M0*#
120	25 × 30	810	210	1220	1.90	1.41	0.77	B43644B5127M0*#
150	22 × 40	650	170	980	2.35	1.74	0.95	B43644A5157M0*#
150	25 × 35	650	170	980	2.25	1.67	0.91	B43644B5157M0*#
150	30 × 25	670	190	1010	2.20	1.63	0.89	B43644C5157M0*#
180	22 × 45	540	140	810	2.74	2.02	1.10	B43644A5187M0*#
180	25 × 35	550	150	820	2.62	1.94	1.05	B43644B5187M0*#
180	30 × 30	550	150	830	2.50	1.86	1.02	B43644C5187M0*#
220	25 × 45	450	120	670	3.06	2.27	1.24	B43644A5227M0*#
220	30 × 30	460	130	700	2.90	2.15	1.17	B43644B5227M0*#
220	35 × 25	470	150	720	2.80	2.08	1.13	B43644C5227M0*#
270	25 × 50	360	100	550	3.63	2.69	1.46	B43644A5277M0*#
270	30 × 35	370	110	570	3.38	2.51	1.36	B43644B5277M0*#
270	35 × 30	380	120	580	3.25	2.41	1.40	B43644C5277M0*#
330	30 × 40	310	90	470	3.97	2.94	1.70	B43644A5337M0*#
330	35 × 35	310	100	480	3.75	2.79	1.62	B43644B5337M0*#
390	30 × 50	260	75	390	4.53	3.37	1.95	B43644A5397M0*#
390	35 × 35	270	90	420	4.21	3.12	1.80	B43644B5397M0*#
470	30 × 55	220	60	330	5.28	3.91	2.26	B43644A5477M0*#
470	35 × 40	230	75	350	4.84	3.59	2.07	B43644B5477M0*#
560	35 × 50	190	60	290	5.58	4.15	2.40	B43644A5567M0*#
680	35 × 55	160	50	240	6.47	4.81	2.77	B43644A5687M0*#

Composition of ordering code

* = Insulation feature
- 0 = PVC insulation
- 6 = PET insulation
- 8 = PVC insulation with additional PET insulation cap on terminal side

\# = Terminal style
- 0 = snap-in standard terminals (6.3 mm)
- 2 = snap-in 3 terminals (4.5 mm)
- 7 = snap-in short terminals (4.5 mm)

4) 120-Hz conversion factor of ripple current: I_{AC} (120 Hz) = 1.03 · I_{AC} (100 Hz)

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Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{typ} 300 Hz 60 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,max}$ 100 Hz 85 °C A	$I_{AC,R}$ [5] 100 Hz 105 °C A	Ordering code (composition see below)
V_R = 500 V DC								
39	22 × 25	2150	520	3040	1.02	0.76	0.36	B43644A6396M0*#
47	22 × 30	1790	430	2520	1.16	0.86	0.41	B43644A6476M0*#
56	22 × 30	1500	360	2120	1.32	0.97	0.47	B43644A6566M0*#
56	25 × 25	1510	370	2140	1.33	0.99	0.47	B43644B6566M0*#
68	22 × 35	1240	300	1750	1.52	1.12	0.54	B43644A6686M0*#
68	25 × 30	1240	300	1760	1.52	1.12	0.54	B43644B6686M0*#
82	22 × 40	1030	250	1450	1.74	1.29	0.62	B43644A6826M0*#
82	25 × 30	1030	250	1470	1.73	1.28	0.61	B43644B6826M0*#
82	30 × 25	1040	270	1480	1.78	1.31	0.63	B43644C6826M0*#
100	22 × 45	840	200	1190	2.03	1.50	0.72	B43644A6107M0*#
100	25 × 35	850	210	1200	2.00	1.48	0.71	B43644B6107M0*#
100	30 × 30	850	210	1210	2.02	1.50	0.72	B43644C6107M0*#
120	22 × 50	700	170	1000	2.34	1.74	0.83	B43644A6127M0*#
120	25 × 40	710	170	1000	2.29	1.69	0.81	B43644B6127M0*#
120	30 × 30	720	180	1020	2.28	1.69	0.81	B43644C6127M0*#
120	35 × 25	730	200	1040	2.33	1.72	0.82	B43644D6127M0*#
150	25 × 50	560	140	800	2.72	2.01	0.97	B43644A6157M0*#
150	30 × 35	570	150	820	2.66	1.97	0.95	B43644B6157M0*#
150	35 × 30	580	160	830	2.70	2.00	1.02	B43644C6157M0*#
180	25 × 55	470	120	670	3.13	2.32	1.12	B43644A6187M0*#
180	30 × 40	480	120	680	3.04	2.25	1.15	B43644B6187M0*#
180	35 × 35	480	130	690	3.05	2.26	1.16	B43644C6187M0*#
220	30 × 50	390	100	560	3.53	2.62	1.34	B43644A6227M0*#
220	35 × 35	400	110	580	3.45	2.55	1.30	B43644B6227M0*#
270	30 × 55	320	80	460	4.12	3.05	1.56	B43644A6277M0*#
270	35 × 45	320	90	470	4.02	2.98	1.53	B43644B6277M0*#
330	35 × 50	270	75	380	4.64	3.44	1.75	B43644A6337M0*#
390	35 × 55	230	65	330	5.23	3.87	1.98	B43644A6397M0*#

Composition of ordering code

* = Insulation feature
- 0 = PVC insulation
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\# = Terminal style
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5) 120-Hz conversion factor of ripple current: I_{AC} (120 Hz) = 1.03 · I_{AC} (100 Hz)

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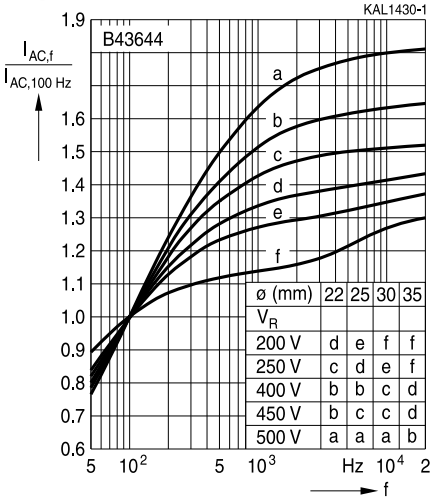
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Useful life[1)]

The useful life graph is calculated for each individual capacitor and is available upon request.

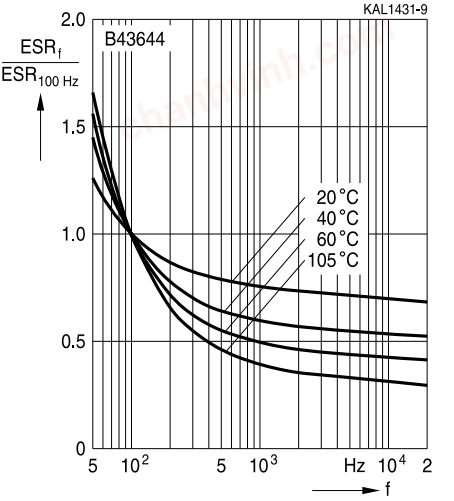
Frequency factor of permissible ripple current I_{AC} versus frequency f

Typical behavior



Frequency characteristics of ESR

Typical behavior



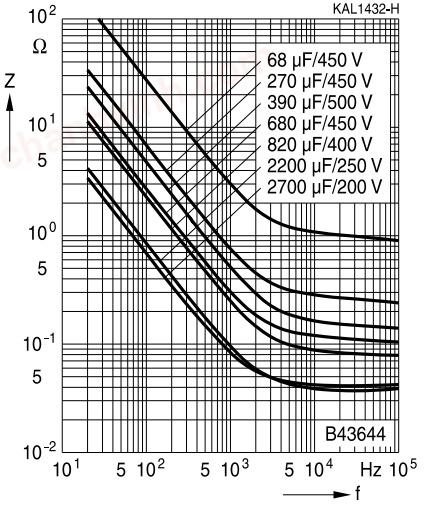
1) Refer to chapter "General technical information, 5 Useful life" on how to interpret useful life.

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Impedance Z versus frequency f

Typical behavior at 20 °C



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Cautions and warnings

Personal safety

The electrolytes used by EPCOS have been optimized both with a view to the intended application and with regard to health and environmental compatibility. They do not contain any solvents that are detrimental to health, e.g. dimethyl formamide (DMF) or dimethyl acetamide (DMAC).
Furthermore, some of the high-voltage electrolytes used by EPCOS are self-extinguishing.

As far as possible, EPCOS does not use any dangerous chemicals or compounds to produce operating electrolytes. However, in exceptional cases, such materials must be used in order to achieve specific physical and electrical properties because no alternative materials are currently known. However, the amount of dangerous materials used in our products is limited to an absolute minimum.

Materials and chemicals used in EPCOS aluminum electrolytic capacitors are continuously adapted in compliance with the EPCOS Corporate Environmental Policy and the latest EU regulations and guidelines such as RoHS, REACH/SVHC, GADSL, and ELV.

MDS (Material Data Sheets) are available on the EPCOS website for all types listed in the data book. MDS for customer specific capacitors are available upon request.
MSDS (Material Safety Data Sheets) are available for all of our electrolytes upon request.

Nevertheless, the following rules should be observed when handling aluminum electrolytic capacitors: No electrolyte should come into contact with eyes or skin. If electrolyte does come into contact with the skin, wash the affected areas immediately with running water. If the eyes are affected, rinse them for 10 minutes with plenty of water. If symptoms persist, seek medical treatment. Avoid inhaling electrolyte vapor or mists. Workplaces and other affected areas should be well ventilated. Clothing that has been contaminated by electrolyte must be changed and rinsed in water.

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Product safety

The table below summarizes the safety instructions that must be observed without fail. A detailed description can be found in the relevant sections of chapter "General technical information".

Topic	Safety information	Reference chapter "General technical information"
Polarity	Make sure that polar capacitors are connected with the right polarity.	1 "Basic construction of aluminum electrolytic capacitors"
Reverse voltage	Voltages polarity classes should be prevented by connecting a diode.	3.1.6 "Reverse voltage"
Mounting position of screw-terminal capacitors	Do not mount the capacitor with the terminals (safety vent) upside down.	11.1. "Mounting positions of capacitors with screw terminals"
Robustness of terminals	The following maximum tightening torques must not be exceeded when connecting screw terminals: M5: 2.5 Nm M6: 4.0 Nm	11.3 "Mounting torques"
Mounting of single-ended capacitors	The internal structure of single-ended capacitors might be damaged if excessive force is applied to the lead wires. Avoid any compressive, tensile or flexural stress. Do not move the capacitor after soldering to PC board. Do not pick up the PC board by the soldered capacitor. Do not insert the capacitor on the PC board with a hole space different to the lead space specified.	11.4 "Mounting considerations for single-ended capacitors"
Soldering	Do not exceed the specified time or temperature limits during soldering.	11.5 "Soldering"
Soldering, cleaning agents	Do not allow halogenated hydrocarbons to come into contact with aluminum electrolytic capacitors.	11.6 "Cleaning agents"
Upper category temperature	Do not exceed the upper category temperature.	7.2 "Maximum permissible operating temperature"
Passive flammability	Avoid external energy, such as fire or electricity.	8.1 "Passive flammability"

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Topic	Safety information	Reference chapter "General technical information"
Active flammability	Avoid overload of the capacitors.	8.2 "Active flammability"
Maintenance	Make periodic inspections of the capacitors. Before the inspection, make sure that the power supply is turned off and carefully discharge the electricity of the capacitors. Do not apply any mechanical stress to the capacitor terminals.	10 "Maintenance"
Storage	Do not store capacitors at high temperatures or high humidity. Capacitors should be stored at +5 to +35 °C and a relative humidity of ≤ 75%.	7.3 Storage conditions
		Reference chapter "Capacitors with screw terminals"
Breakdown strength of insulating sleeves	Do not damage the insulating sleeve, especially when ring clips are used for mounting.	"Screw terminals – accessories"

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Symbols and terms

Symbol	English	German
C	Capacitance	Kapazität
C_R	Rated capacitance	Nennkapazität
C_S	Series capacitance	Serienkapazität
$C_{S,T}$	Series capacitance at temperature T	Serienkapazität bei Temperatur T
C_f	Capacitance at frequency f	Kapazität bei Frequenz f
d	Case diameter, nominal dimension	Gehäusedurchmesser, Nennmaß
d_{max}	Maximum case diameter	Maximaler Gehäusedurchmesser
ESL	Self-inductance	Eigeninduktivität
ESR	Equivalent series resistance	Ersatzserienwiderstand
ESR_f	Equivalent series resistance at frequency f	Ersatzserienwiderstand bei Frequenz f
ESR_T	Equivalent series resistance at temperature T	Ersatzserienwiderstand bei Temperatur T
f	Frequency	Frequenz
I	Current	Strom
I_{AC}	Alternating current (ripple current)	Wechselstrom
$I_{AC,rms}$	Root-mean-square value of alternating current	Wechselstrom, Effektivwert
$I_{AC,f}$	Ripple current at frequency f	Wechselstrom bei Frequenz f
$I_{AC,max}$	Maximum permissible ripple current	Maximal zulässiger Wechselstrom
$I_{AC,R}$	Rated ripple current	Nennwechselstrom
$I_{AC,R}$ (B)	Rated ripple current for base cooling	Nennwechselstromstrom für Bodenkühlung
I_{leak}	Leakage current	Reststrom
$I_{leak,op}$	Operating leakage current	Betriebsreststrom
l	Case length, nominal dimension	Gehäuselänge, Nennmaß
l_{max}	Maximum case length (without terminals and mounting stud)	Maximale Gehäuselänge (ohne Anschlüsse und Gewindebolzen)
R	Resistance	Widerstand
R_{ins}	Insulation resistance	Isolationswiderstand
R_{symm}	Balancing resistance	Symmetrierwiderstand
T	Temperature	Temperatur
ΔT	Temperature difference	Temperaturdifferenz
T_A	Ambient temperature	Umgebungstemperatur
T_C	Case temperature	Gehäusetemperatur
T_B	Capacitor base temperature	Temperatur des Becherbodens
t	Time	Zeit
Δt	Period	Zeitraum
t_b	Service life (operating hours)	Brauchbarkeitsdauer (Betriebszeit)

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Symbol	English	German
V	Voltage	Spannung
V_F	Forming voltage	Formierspannung
V_{op}	Operating voltage	Betriebsspannung
V_R	Rated voltage, DC voltage	Nennspannung, Gleichspannung
V_S	Surge voltage	Spitzenspannung
X_C	Capacitive reactance	Kapazitiver Blindwiderstand
X_L	Inductive reactance	Induktiver Blindwiderstand
Z	Impedance	Scheinwiderstand
Z_T	Impedance at temperature T	Scheinwiderstand bei Temperatur T
tan δ	Dissipation factor	Verlustfaktor
λ	Failure rate	Ausfallrate
ε_0	Absolute permittivity	Elektrische Feldkonstante
ε_r	Relative permittivity	Dielektrizitätszahl
ω	Angular velocity; $2 \cdot \pi \cdot f$	Kreisfrequenz; $2 \cdot \pi \cdot f$

Note

All dimensions are given in mm.

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Important notes

The following applies to all products named in this publication:

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2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or lifesaving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
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