Aluminum electrolytic capacitors

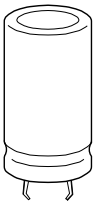
Snap-in capacitors

Series/Type: **B43601**

Date: December 2013

EPCOS AG is a TDK Group Company.

Long-life grade capacitors



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

Features
- Voltage derating ($0.93 \cdot V_R$) enables 105 °C operation, more details available upon request
- Extremly high C/V product, ultra compact
- Long useful life
- High reliability
- 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

Specifications and characteristics in brief

Rated voltage V_R Surge voltage V_S	200 ... 450 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	82 ... 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)] 85 °C; V_R; $I_{AC,R}$ 40 °C; V_R; 1.15 · $I_{AC,R}$	 > 10000 h > 250000 h	Requirements: ΔC/C ≤ ±20% of initial value tan δ ≤ 2 times initial specified limit I_{leak} ≤ initial specified limit
Voltage endurance test 85 °C; V_R	 5000 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: $Z_{-25\,°C} / Z_{20\,°C}$ = 4; $Z_{-40\,°C} / Z_{20\,°C}$ = 7 V_R ≥ 400 V: $Z_{-25\,°C} / Z_{20\,°C}$ = 7; $Z_{-40\,°C} / Z_{20\,°C}$ = 12
IEC climatic category	To IEC 60068-1: $V_R \leq 250$ V DC: 40/085/56 (−40 °C/+85 °C/56 days damp heat test) $V_R \geq 400$ V DC: 25/085/56 (−25 °C/+85 °C/56 days damp heat test) The capacitors can be operated in the temperature range of −40 °C to +85 °C but the impedance at −40 °C should be taken into consideration.	
Detail specification Sectional specification	Similar to CECC 30301-811 IEC 60384-4	

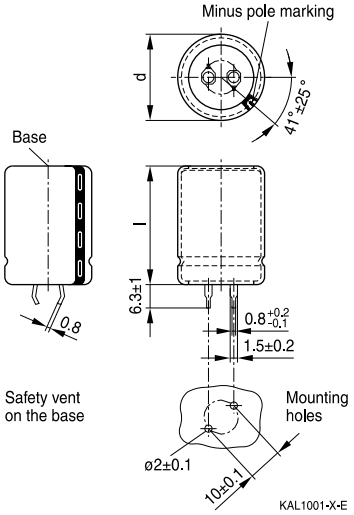
1) Refer to chapter "General technical information, 5 Useful life" on how to interpret useful life.

B43601

Long useful life and ultra compact − 85 °C

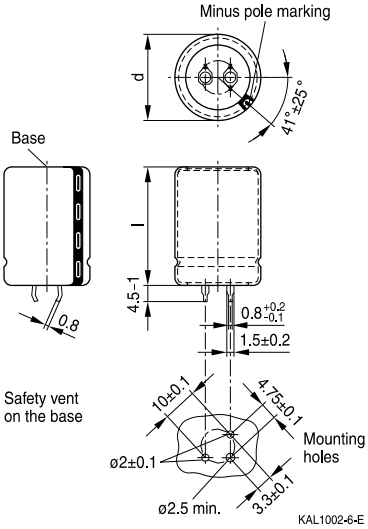
Dimensional drawings

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



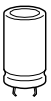
Snap-in terminals, length (6.3 ±1) mm. Also available in a shorter version with a length of (4.5 −1) mm. PET insulation is marked with label "PET" on the sleeve.

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

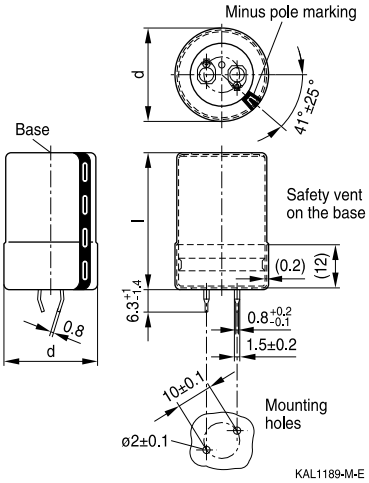


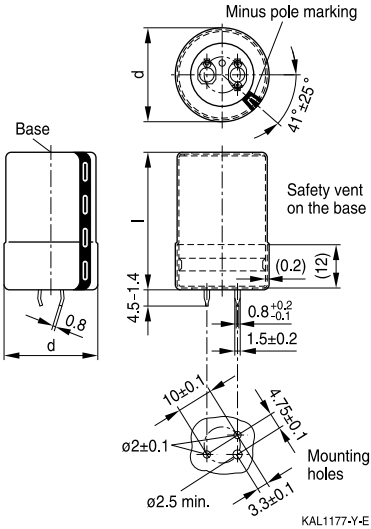
Snap-in capacitors are also available with 3 terminals (length (4.5 −1) mm). PET insulation is marked with label "PET" on the sleeve.

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



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

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:

B43601A5107M007 } snap-in capacitor with short terminals and standard PVC insulation
B43601A5107M062 } snap-in capacitor with 3 terminals and PET insulation
B43601A5107M080 } snap-in capacitor with standard terminals and PVC insulation with additional PET insulation cap on terminal side

Overview of available types

V_R (V DC)	200	250	400	450
	Case dimensions d × l (mm)			
C_R (µF)				
82				22 × 25
100			22 × 25	22 × 30
120			22 × 30	22 × 30 25 × 25
150			22 × 30 25 × 25	22 × 35 25 × 30
180			22 × 35 25 × 30	22 × 40 25 × 35 30 × 25
220			22 × 40 25 × 35 30 × 25	22 × 50 25 × 40 30 × 30 35 × 25
270		22 × 25	22 × 45 25 × 40 30 × 30	25 × 45 30 × 35 35 × 30
330	22 × 25	22 × 30 25 × 25	25 × 45 30 × 35 35 × 25	25 × 50 30 × 40 35 × 30
390	22 × 30	22 × 35 25 × 30	25 × 50 30 × 35 35 × 30	30 × 45 35 × 35
470	22 × 35 25 × 25	22 × 40 25 × 30	25 × 55 30 × 40 35 × 35	30 × 50 35 × 40
560	22 × 35 25 × 30	22 × 45 25 × 35 30 × 25	30 × 45 35 × 35	30 × 55 35 × 45
680	22 × 40 25 × 35 30 × 25	22 × 50 25 × 40 30 × 30 35 × 25	30 × 55 35 × 40	35 × 50
820	22 × 50 25 × 40 30 × 30	25 × 45 30 × 35 35 × 30	35 × 50	

B43601

Long useful life and ultra compact − 85 °C

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

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

Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,R}$ 100 Hz 85 °C A	Ordering code (composition see below)
V_R = 200 V DC						
330	22 × 25	290	400	2.79	1.42	B43601A2337M0*#
390	22 × 30	250	340	3.17	1.61	B43601A2397M0*#
470	22 × 35	200	280	3.60	1.84	B43601A2477M0*#
470	25 × 25	200	280	3.43	1.75	B43601B2477M0*#
560	22 × 35	170	240	3.93	2.00	B43601A2567M0*#
560	25 × 30	170	240	3.91	1.99	B43601B2567M0*#
680	22 × 40	140	190	4.47	2.28	B43601A2687M0*#
680	25 × 35	140	190	4.46	2.27	B43601B2687M0*#
680	30 × 25	140	190	4.12	2.10	B43601C2687M0*#
820	22 × 50	120	160	5.17	2.63	B43601A2827M0*#
820	25 × 40	120	160	5.06	2.58	B43601B2827M0*#
820	30 × 30	120	160	4.72	2.40	B43601C2827M0*#
1000	25 × 45	100	130	5.74	2.93	B43601A2108M0*#
1000	30 × 35	100	130	5.40	2.75	B43601B2108M0*#
1000	35 × 25	100	130	4.56	2.33	B43601C2108M0*#
1200	25 × 50	80	110	6.44	3.28	B43601A2128M0*#
1200	30 × 40	80	110	6.50	3.31	B43601B2128M0*#
1200	35 × 30	80	110	5.55	2.83	B43601C2128M0*#
1500	30 × 45	65	90	7.47	3.81	B43601A2158M0*#
1500	35 × 35	65	90	6.42	3.28	B43601B2158M0*#
1800	30 × 50	55	75	8.39	4.28	B43601A2188M0*#
1800	35 × 40	55	75	7.26	3.70	B43601B2188M0*#
2200	35 × 45	45	60	8.26	4.21	B43601A2228M0*#
2700	35 × 55	35	50	9.60	4.89	B43601A2278M0*#
V_R = 250 V DC						
270	22 × 25	330	460	2.68	1.37	B43601E2277M0*#
330	22 × 30	270	370	3.09	1.57	B43601E2337M0*#
330	25 × 25	270	370	3.04	1.55	B43601F2337M0*#
390	22 × 35	230	320	3.48	1.77	B43601E2397M0*#
390	25 × 30	230	320	3.44	1.75	B43601F2397M0*#
470	22 × 40	190	260	3.94	2.01	B43601E2477M0*#
470	25 × 30	190	260	3.78	1.93	B43601F2477M0*#

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)

B43601

Long useful life and ultra compact – 85 °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	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,R}$ 100 Hz 85 °C A	Ordering code (composition see below)
V_R = 250 V DC						
560	22 × 45	160	220	4.42	2.25	B43601E2567M0*#
560	25 × 35	160	220	4.28	2.18	B43601F2567M0*#
560	30 × 25	160	220	3.91	1.99	B43601G2567M0*#
680	22 × 50	130	180	4.99	2.54	B43601E2687M0*#
680	25 × 40	130	180	4.86	2.48	B43601F2687M0*#
680	30 × 30	130	180	4.49	2.29	B43601G2687M0*#
680	35 × 25	130	180	3.88	1.98	B43601H2687M0*#
820	25 × 45	110	150	5.49	2.80	B43601E2827M0*#
820	30 × 35	110	150	5.11	2.61	B43601F2827M0*#
820	35 × 30	110	150	4.73	2.41	B43601G2827M0*#
1000	25 × 55	90	130	6.35	3.24	B43601E2108M0*#
1000	30 × 40	90	130	6.21	3.16	B43601F2108M0*#
1000	35 × 30	90	130	5.23	2.66	B43601G2108M0*#
1200	30 × 45	75	110	6.99	3.56	B43601E2128M0*#
1200	35 × 35	75	110	5.93	3.02	B43601F2128M0*#
1500	30 × 55	60	85	8.20	4.18	B43601E2158M0*#
1500	35 × 40	60	85	6.84	3.49	B43601F2158M0*#
1800	35 × 45	50	70	7.71	3.93	B43601E2188M0*#
2200	35 × 55	40	60	8.94	4.56	B43601E2228M0*#
V_R = 400 V DC						
100	22 × 25	1090	1470	1.68	0.86	B43601A9107M0*#
120	22 × 30	900	1220	1.92	0.98	B43601A9127M0*#
150	22 × 30	720	980	2.15	1.09	B43601A9157M0*#
150	25 × 25	720	980	2.15	1.10	B43601B9157M0*#
180	22 × 35	600	820	2.44	1.24	B43601A9187M0*#
180	25 × 30	600	820	2.46	1.25	B43601B9187M0*#
220	22 × 40	490	670	2.78	1.42	B43601A9227M0*#
220	25 × 35	490	670	2.82	1.44	B43601B9227M0*#
220	30 × 25	490	670	2.69	1.37	B43601C9227M0*#
270	22 × 45	400	550	3.17	1.61	B43601A9277M0*#
270	25 × 40	400	550	3.22	1.64	B43601B9277M0*#
270	30 × 30	400	550	3.11	1.58	B43601C9277M0*#

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)

Technical data and ordering codes

C_R 100 Hz 20 °C µF	Case dimensions d × l mm	ESR_{typ} 100 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,R}$ 100 Hz 85 °C A	Ordering code (composition see below)
V_R = 400 V DC						
330	25 × 45	330	450	3.66	1.87	B43601A9337M0*#
330	30 × 35	330	450	3.56	1.81	B43601B9337M0*#
330	35 × 25	330	450	3.19	1.63	B43601C9337M0*#
390	25 × 50	280	380	4.08	2.08	B43601A9397M0*#
390	30 × 35	280	380	3.87	1.97	B43601B9397M0*#
390	35 × 30	280	380	3.85	1.96	B43601C9397M0*#
470	25 × 55	230	320	4.58	2.33	B43601A9477M0*#
470	30 × 40	230	320	4.67	2.38	B43601B9477M0*#
470	35 × 35	230	320	4.38	2.23	B43601C9477M0*#
560	30 × 45	190	270	5.25	2.67	B43601A9567M0*#
560	35 × 35	190	270	4.78	2.44	B43601B9567M0*#
680	30 × 55	160	220	6.06	3.09	B43601A9687M0*#
680	35 × 40	160	220	5.44	2.77	B43601B9687M0*#
820	35 × 50	130	180	6.30	3.21	B43601A9827M0*#
1000	35 × 55	110	150	7.11	3.63	B43601A9108M0*#
V_R = 450 V DC						
82	22 × 25	1320	1860	1.58	0.80	B43601A5826M0*#
100	22 × 30	1090	1520	1.82	0.92	B43601A5107M0*#
120	22 × 30	900	1270	1.99	1.01	B43601A5127M0*#
120	25 × 25	900	1270	1.99	1.01	B43601B5127M0*#
150	22 × 35	720	1020	2.31	1.17	B43601A5157M0*#
150	25 × 30	720	1020	2.32	1.18	B43601B5157M0*#
180	22 × 40	600	850	2.61	1.33	B43601A5187M0*#
180	25 × 35	600	850	2.63	1.34	B43601B5187M0*#
180	30 × 25	600	850	2.61	1.33	B43601C5187M0*#
220	22 × 50	490	700	3.03	1.54	B43601A5227M0*#
220	25 × 40	490	700	3.00	1.53	B43601B5227M0*#
220	30 × 30	490	700	3.01	1.53	B43601C5227M0*#
220	35 × 25	490	700	2.83	1.44	B43601D5227M0*#
270	25 × 45	400	570	3.42	1.74	B43601A5277M0*#
270	30 × 35	400	570	3.46	1.76	B43601B5277M0*#
270	35 × 30	400	570	3.48	1.77	B43601C5277M0*#

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)

B43601

Long useful life and ultra compact – 85 °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	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,max}$ 100 Hz 60 °C A	$I_{AC,R}$ 100 Hz 85 °C A	Ordering code (composition see below)
V_R = 450 V DC						
330	25 × 50	330	470	3.88	1.98	B43601A5337M0*#
330	30 × 40	330	470	4.20	2.14	B43601B5337M0*#
330	35 × 30	330	470	3.85	1.96	B43601C5337M0*#
390	30 × 45	280	390	4.70	2.39	B43601A5397M0*#
390	35 × 35	280	390	4.33	2.21	B43601B5397M0*#
470	30 × 50	230	330	5.29	2.70	B43601A5477M0*#
470	35 × 40	230	330	4.91	2.50	B43601B5477M0*#
560	30 × 55	190	280	5.91	3.01	B43601A5567M0*#
560	35 × 45	190	280	5.51	2.81	B43601B5567M0*#
680	35 × 50	160	230	6.22	3.17	B43601A5687M0*#

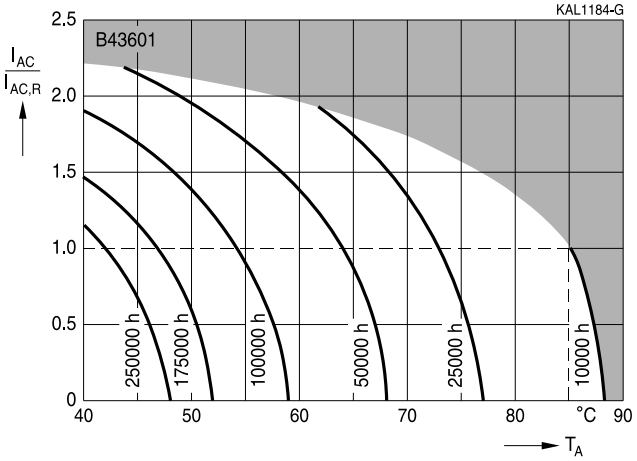
Composition of ordering code

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

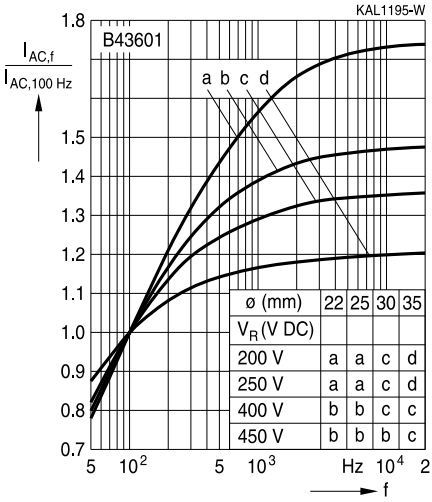
\# = Terminal style
- 0 = snap-in standard terminals (6.3 mm)
- 2 = snap-in 3 terminals (4.5 mm)
- 7 = snap-in short terminals (4.5 mm)

Useful life[1)]

depending on ambient temperature T_A under ripple current operating conditions
Voltage derating (0.93 · V_R) enables 105 °C operation



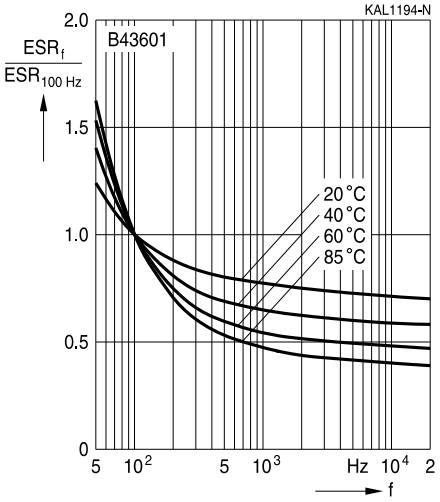
Frequency factor of permissible ripple current I_{AC} versus frequency f



ø (mm)	22	25	30	35
V_R (V DC)				
200 V	a	a	c	d
250 V	a	a	c	d
400 V	b	b	c	c
450 V	b	b	b	c

Frequency characteristics of ESR

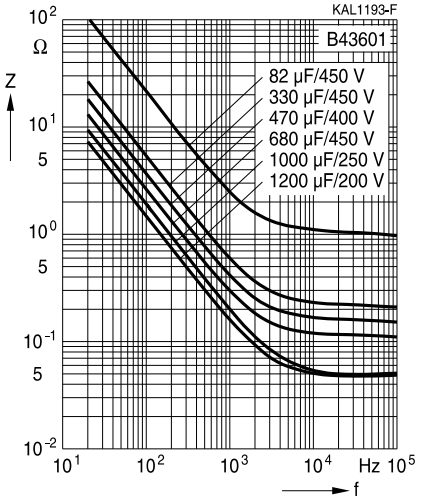
Typical behavior



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

Impedance Z versus frequency f

Typical behavior at 20 °C



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.

B43601

Long useful life and ultra compact – 85 °C

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"

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"

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)

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.

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.
5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the "General Terms of Delivery for Products and Services in the Electrical Industry" published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, CeraLink, CeraPlas, CSMP, CSSP, CTVS, DeltaCap, DigiSiMic, DSSP, FilterCap, FormFit, MiniBlue, MiniCell, MKD, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.epcos.com/trademarks.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

EPCOS / TDK:

B43601A5687M067 B43601A5687M062 B43601A5687M060 B43601A5687M000 B43601C2687M087
B43601C2687M082 B43601C2687M080 B43601C2687M067 B43601C2687M062 B43601C2687M060
B43601A5687M087 B43601A5687M082 B43601A5687M080 B43601B2687M087 B43601B2687M082
B43601B2687M080 B43601B2687M067 B43601B2687M062 B43601B2687M060 B43601A2687M087
B43601A2687M082 B43601A2687M080 B43601A2687M067 B43601A2687M062 B43601A2687M060
B43601B9687M087 B43601B9687M082 B43601B9687M080 B43601B9687M067 B43601H2687M087
B43601H2687M082 B43601H2687M080 B43601H2687M067 B43601H2687M062 B43601H2687M060
B43601G2687M087 B43601G2687M082 B43601G2687M080 B43601B9687M062 B43601B9687M060
B43601A9687M087 B43601G2687M067 B43601G2687M062 B43601G2687M060 B43601A9687M082
B43601A9687M080 B43601A9687M067 B43601A9687M062 B43601A9687M060 B43601F2687M087
B43601F2687M082 B43601F2687M080 B43601F2687M067 B43601F2687M062 B43601F2687M060
B43601E2687M087 B43601E2687M082 B43601E2687M080 B43601E2687M067 B43601E2687M062
B43601E2687M060 B43601A5826M087 B43601A5826M082 B43601A5826M080 B43601A5826M067
B43601A5826M062 B43601A5826M060 B43601A5826M000 B43601C2827M087 B43601C2827M082
B43601C2827M080 B43601C2827M067 B43601C2827M062 B43601C2827M060 B43601B2827M087
B43601B2827M082 B43601B2827M080 B43601B2827M067 B43601B2827M062 B43601B2827M060
B43601A2827M087 B43601A2827M082 B43601A2827M080 B43601A2827M067 B43601A2827M062
B43601A2827M060 B43601A9827M087 B43601A9827M082 B43601A9827M080 B43601A9827M067
B43601A9827M062 B43601A9827M060 B43601A9827M000 B43601G2827M087 B43601G2827M082
B43601G2827M080 B43601G2827M067 B43601G2827M062 B43601G2827M060 B43601F2827M087