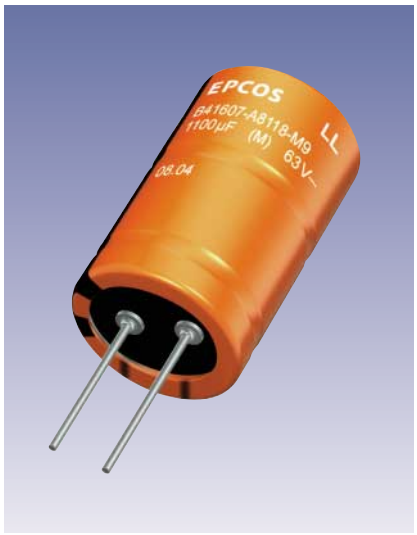
Large size
Aluminum electrolytic capacitors

Introduction

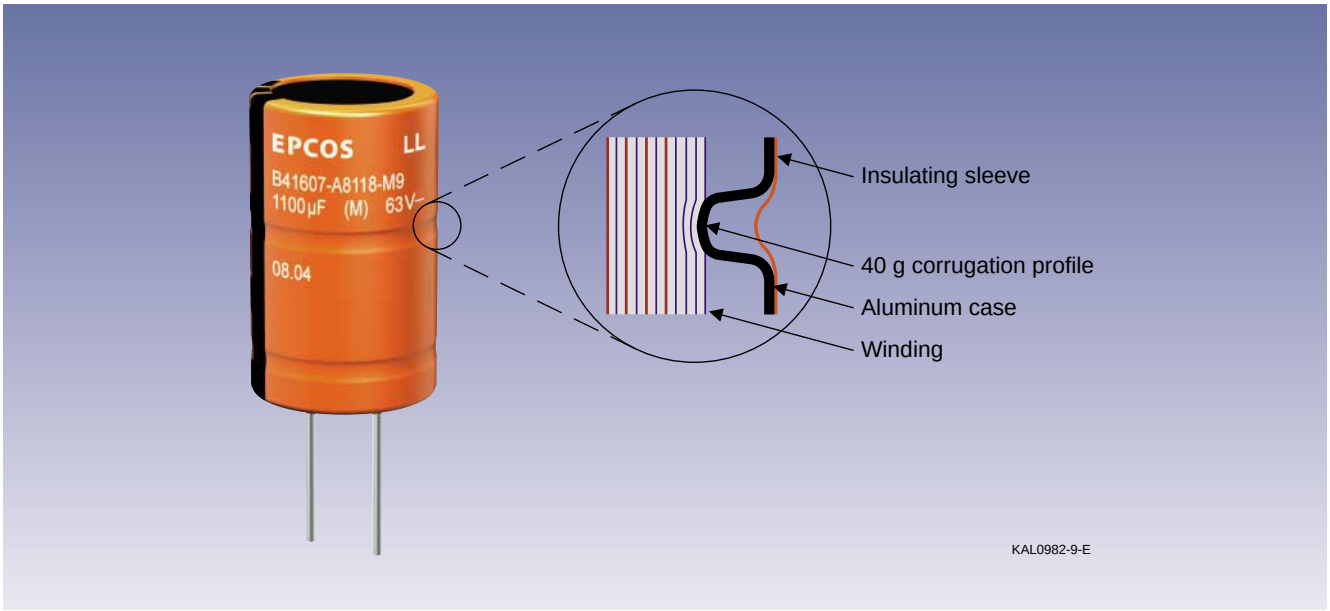
The B41605 and B41607 series were designed for applications with stringent demands for power and current carrying capacity at ambient temperatures ranging up to 150 °C. Tinned copper leads of 1.2 mm diameter, also allowing determination of the poles because of the different lead length, can be either welded or soldered.
To stand up to extreme demands for vibrational stability in an automobile, EPCOS developed a special process for these models, in the meantime patented, that fixes the capacitor winding so reliably by a sophisticated corrugation configuration that vibrational stability of **40 *g*** can be specified even for these large-sized models.

40 *g* vibration stability version



Snap-in version

Outstanding long-term 40 *g* vibrational strength thanks to rugged corrugation



Data sheet
B41605

Specifications and characteristics in brief

Rated voltage V_R	25 … 63 VDC		
Surge voltage V_{surge}	1.15 · V_R		
Rated capacitance C_R	1500 … 20000 µF		
Capacitance tolerance	±20% ≙ M		
Leakage current I_{leak} (5 min, 20 °C)	$I_{leak} \leq 0.006 \cdot \mu A \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right) + 4\ \mu A$		
Self-inductance ESL	10 nH		
Useful life 140 °C; V_R; 0.6 · $I_{\sim R}$ 125 °C; V_R; $I_{\sim R}$ 85 °C; V_R; 2.3 · $I_{\sim R}$ 40 °C; V_R; 2.0 · $I_{\sim R}$	 > 2 000 h > 5 000 h > 20 000 h > 500 000 h	Requirements: ΔC/C ESR I_{leak}	 ≤ ±30% of initial value ≤ 3 times initial specified limit ≤ initial specified limit
Voltage endurance test 125 °C; V_R	2 000 h	Post test requirements: ΔC/C ESR I_{leak}	 ≤ ±10% of initial value ≤ 1.3 times initial specified limit ≤ initial specified limit
Vibration resistance	To IEC 60068-2-6, test Fc:		
	40 *g* vibration stability version		Snap-in version with 3 terminals
	displacement amplitude 3 mm, frequency range at 10 Hz … 2 kHz, acceleration max. 40 *g*, duration 3 x 2 h		displacement amplitude 0.75 mm, frequency range at 10 Hz … 2 kHz, acceleration max. 10 *g*, duration 3 x 2 h
IEC climatic category	To IEC 60068-1: 55/125/56 (– 55 °C/+125 °C/56 days damp heat test)		
Detail specification Sectional specification	Similar to CECC 30301-809 IEC 60384-4		

Features

- Extremely high reliability and long useful life
- Very high ripple current capability optimized for high frequencies
- Can be operated at temperatures up to 140 °C
- Compact design
- Vibration resistance up to 40 *g*
- Shelf life more than 15 years
- Variable pin configurations
  - 40 *g* vibration stability version with wired terminals.
    Weldable and solderable terminals. Tinned copper leads (∅ 1.2 mm).
  - Snap-in with 3 terminals, protection against polarity reversal.
- Without insulation sleeve upon request

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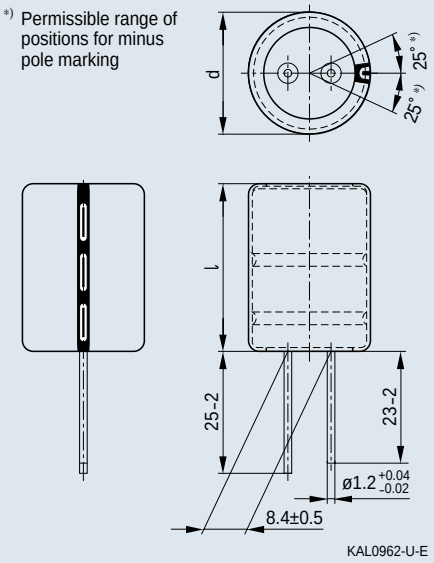
Large size capacitor, 40 *g* vibration stability version with wired terminals

Dimensional drawing



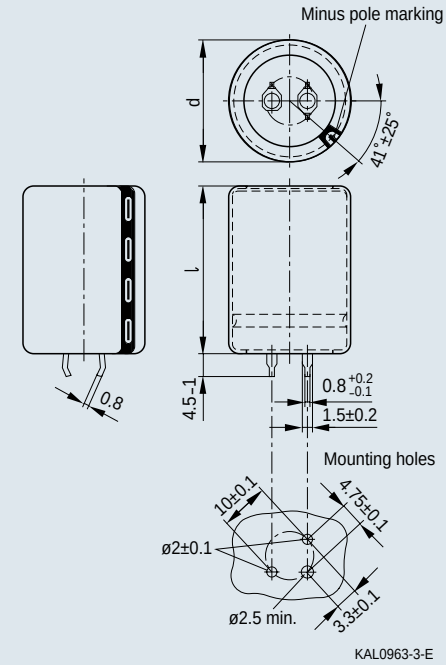
Dimensions and weights

Dimensions (mm) d +1	l ± 2	Approx. weight (g)
22	40	21
25	40	28
25	50	35
30	50	50
35	50	68

Packing units on request.

Large size capacitor, snap-in version with 3 terminals

Dimensional drawing



Dimensions, weights and packing units

Dimensions (mm) d +1	l ± 2	Approx. weight (g)	Paking units (pieces)
22	40	21	160
25	40	28	130
25	50	35	130
30	50	50	80
35	50	68	60

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Technical data, case dimensions and ordering codes

V_R VDC	C_R 100 Hz 20 °C µF	Case dimensions d x l mm	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{max} 100 Hz 20 °C mΩ	ESR_{max} 100 Hz –40 °C mΩ	ESR_{max} 10 kHz 20 °C mΩ	Z_{max} 100 kHz 20 °C mΩ	$I_{\sim max}$ 10 kHz 105 °C A	$I_{\sim R}$ 10 kHz 125 °C A	$I_{\sim max}$ 10 kHz 140 °C A	Ordering code
25	5000	22 x 40	22	30	115	28	27	10.0	5.1	3.1	B41605A5508M***
	6800	25 x 40	15	21	80	18	18	13.5	6.9	4.1	B41605A5688M***
	10000	25 x 50	11	15	55	13	13	17.2	8.8	5.3	B41605A5109M***
	13000	30 x 50	10	14	45	12	12	18.8	9.6	5.8	B41605A5139M***
	20000	35 x 50	9	12	32	12	12	19.0	9.7	5.8	B41605A5209M***
40	3000	22 x 40	25	35	115	29	27	9.8	5.0	3.0	B41605A7308M***
	3800	25 x 40	18	25	80	18	18	13.5	6.9	4.1	B41605A7388M***
	5400	25 x 50	13	18	60	14	14	17.2	8.8	5.3	B41605A7548M***
55	1800	22 x 40	30	43	115	29	27	9.8	5.0	3.0	B41605A0188M***
	2700	25 x 40	19	27	80	18	18	13.5	6.9	4.1	B41605A0278M***
	3600	25 x 50	15	21	60	13	13	17.2	8.8	5.3	B41605A0368M***
	5000	30 x 50	12	17	45	12	12	18.7	9.6	5.8	B41605A0508M***
	7000	35 x 50	11	15	35	12	12	19.1	9.8	5.9	B41605A0708M***
63	1500	22 x 40	32	44	115	28	27	9.6	4.9	2.9	B41605A8158M***
	2100	25 x 40	22	30	85	18	18	13.5	6.9	4.1	B41605A8218M***
	2700	25 x 50	17	24	65	14	14	17.2	8.8	5.3	B41605A8278M***
	4000	30 x 50	13	18	45	12	12	18.7	9.6	5.8	B41605A8408M***
	5600	35 x 50	11	16	35	12	12	19.1	9.8	5.9	B41605A8568M***

*** = "002" for snap-in version with 3 terminals (protection against polarity reversal), fully insulated.
"009" for 40 *g* vibration stability version with wired terminals, fully insulated.

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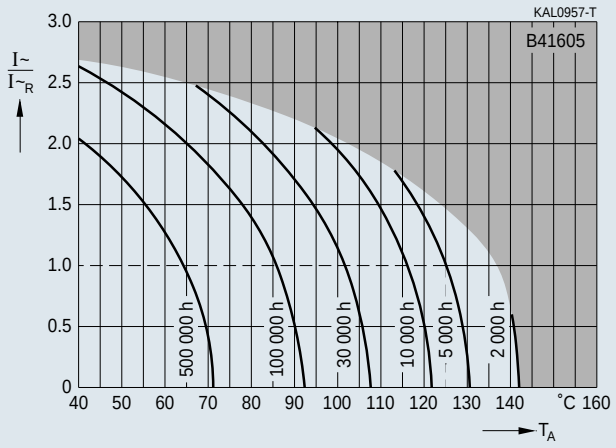
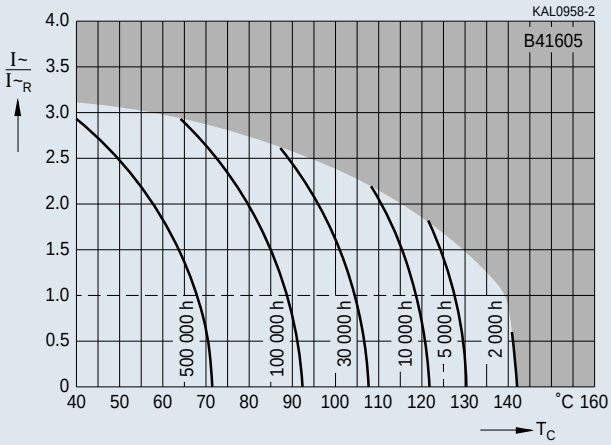
Characteristics

Useful life
depending on ambient temperature T_A under ripple current operating conditions at V_R

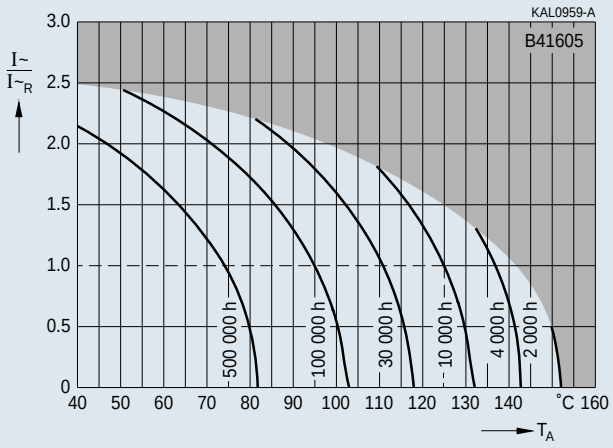


Useful life
depending on case temperature T_C under ripple current operating conditions at V_R



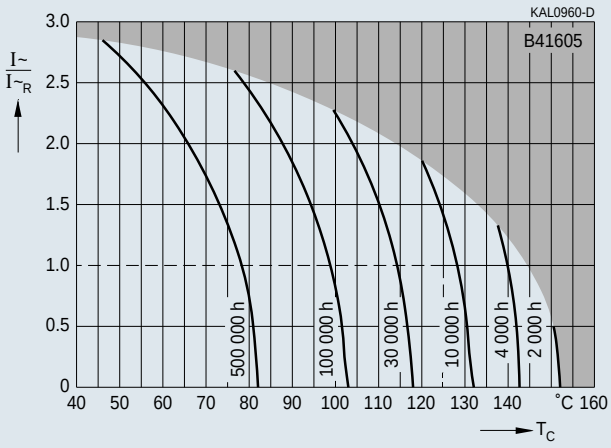
Useful life
depending on ambient temperature T_A under ripple current operating conditions at V_{op}

V_R = 25 V: $V_{op} \leq$ 20 V
V_R = 40 V: $V_{op} \leq$ 35 V
V_R = 55 V: $V_{op} \leq$ 48 V
V_R = 63 V: $V_{op} \leq$ 55 V



Useful life
depending on case temperature T_C under ripple current operating conditions at V_{op}

V_R = 25 V: $V_{op} \leq$ 20 V
V_R = 40 V: $V_{op} \leq$ 35 V
V_R = 55 V: $V_{op} \leq$ 48 V
V_R = 63 V: $V_{op} \leq$ 55 V



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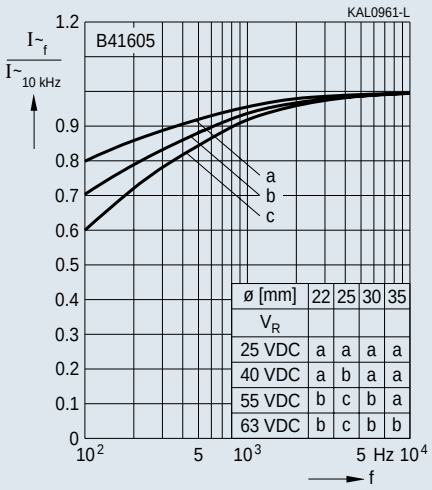
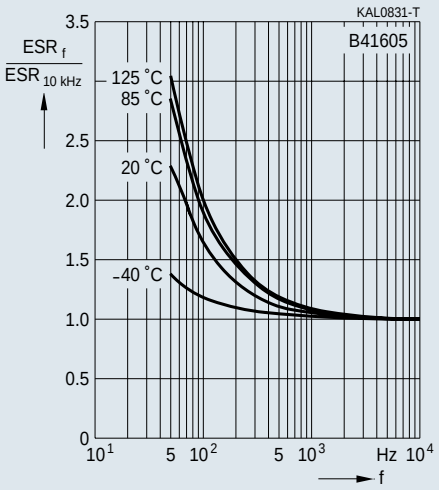
Characteristics

Frequency factor of permissible ripple current I~
versus frequency f

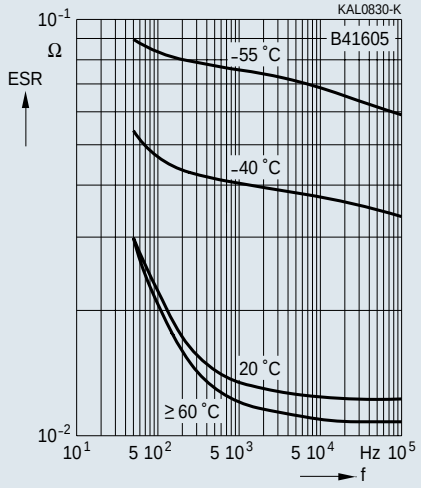


ø [mm]	22	25	30	35
V_R				
25 VDC	a	a	a	a
40 VDC	a	b	a	a
55 VDC	b	c	b	a
63 VDC	b	c	b	b

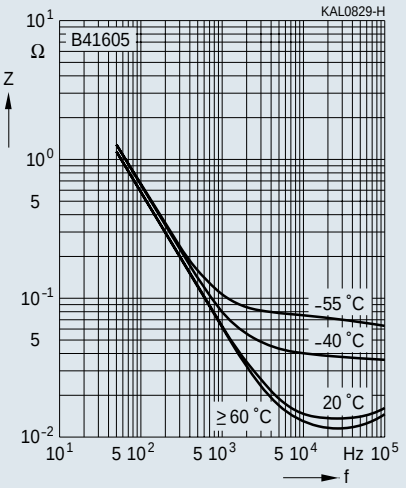
Frequency characteristics of ESR
versus frequency f at different temperatures T
Typical behavior



Equivalent series resistance ESR
versus frequency f at different temperatures
Typical behavior for 2700 µF/55 V



Impedance Z
versus frequency f at different temperatures
Typical behavior for 2700 µF/55 V



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