



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

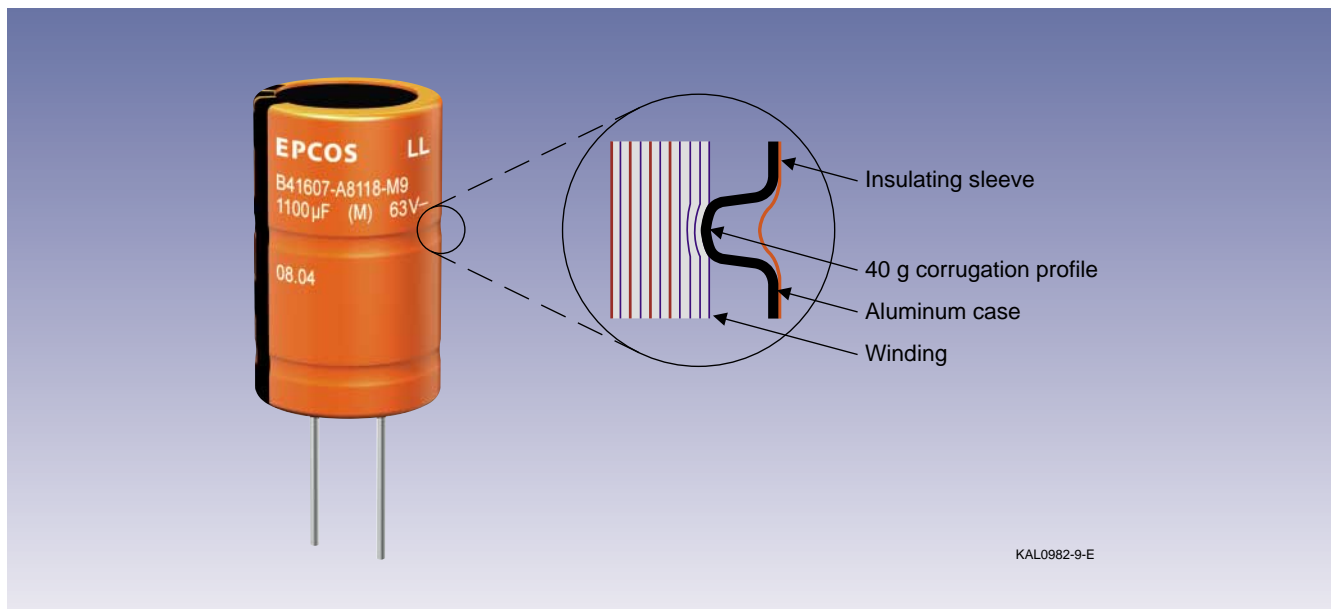


Snap-in version



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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}	$1.15 \cdot V_R$	
Rated capacitance C_R	1500 ... 20000 μF	
Capacitance tolerance	$\pm 20\% \cong M$	
Leakage current I_{leak} (5 min, 20 °C)	$I_{leak} \leq 0.006 \cdot \mu\text{A} \left(\frac{C_R}{\mu\text{F}} \cdot \frac{V_R}{V} \right) + 4 \mu\text{A}$	
Self-inductance ESL	10 nH	
Useful life 140 °C; V_R ; $0.6 \cdot I_{-R}$ 125 °C; V_R ; I_{-R} 85 °C; V_R ; $2.3 \cdot I_{-R}$ 40 °C; V_R ; $2.0 \cdot I_{-R}$	> 2 000 h > 5 000 h > 20 000 h > 500 000 h	Requirements: $\Delta C/C$ $\leq \pm 30\%$ of initial value ESR ≤ 3 times initial specified limit $I_{leak} \leq$ initial specified limit
Voltage endurance test 125 °C; V_R	2 000 h	Post test requirements: $\Delta C/C$ $\leq \pm 10\%$ of initial value ESR ≤ 1.3 times initial specified limit $I_{leak} \leq$ 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	Similar to CECC 30301-809	
Sectional specification	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 ($\varnothing 1.2$ mm).
 - Snap-in with 3 terminals, protection against polarity reversal.
- Without insulation sleeve upon request



Data sheet

B41605

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

Dimensional drawing		Dimensions and weights	
<p>*) Permissible range of positions for minus pole marking</p>	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)	Packing units (pieces)
	22	40	21	160
	25	40	28	130
	25	50	35	130
	30	50	50	80
	35	50	68	60

Data sheet

B41605



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.

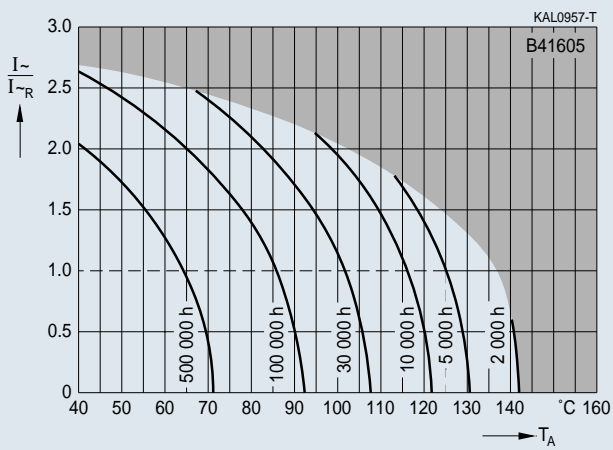


Data sheet

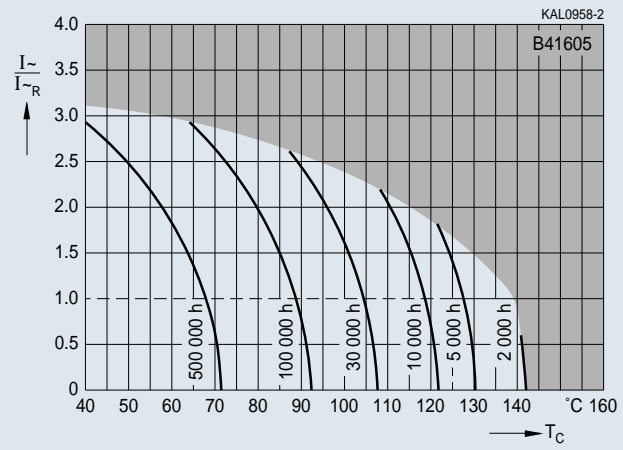
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Characteristics

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

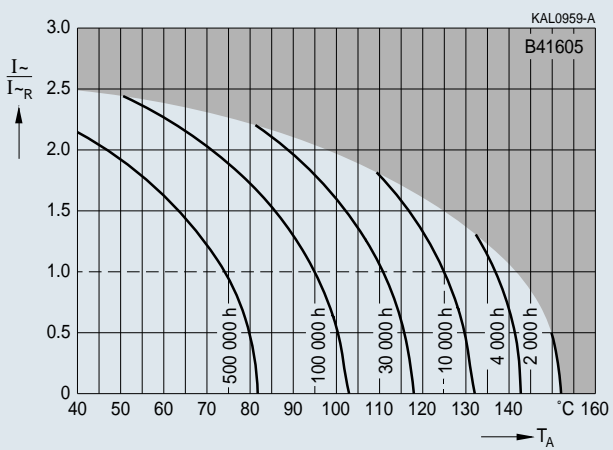


Useful life
 depending on case temperature T_C under ripple current operating conditions at V_R



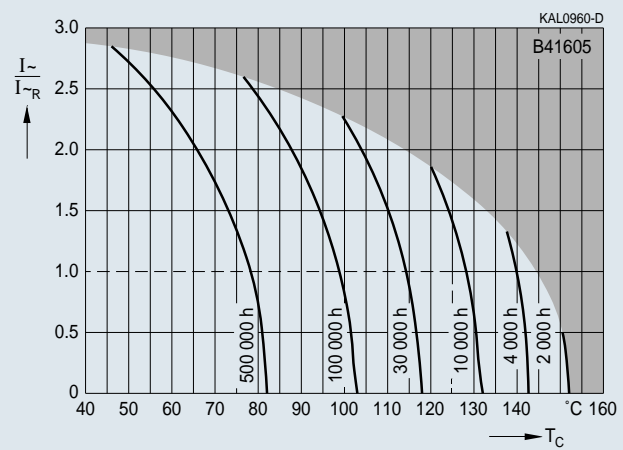
Useful life
 depending on ambient temperature T_A under ripple current operating conditions at V_{op}

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



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

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



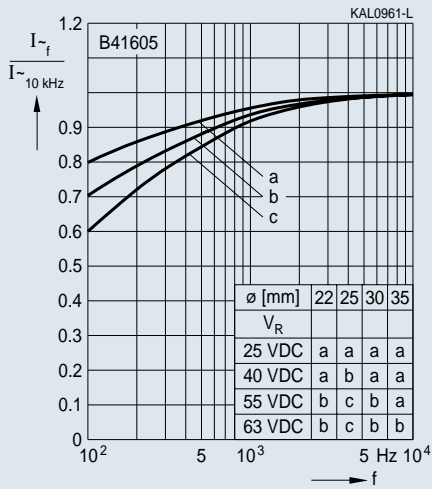
Data sheet

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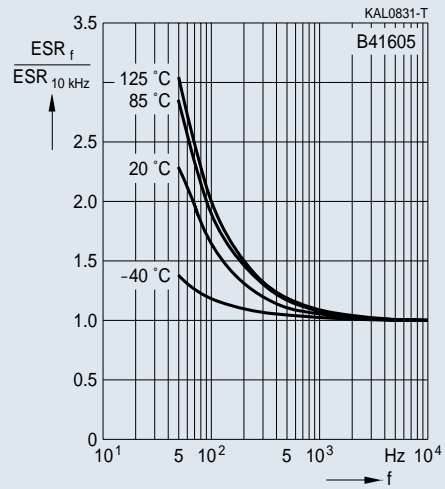


Characteristics

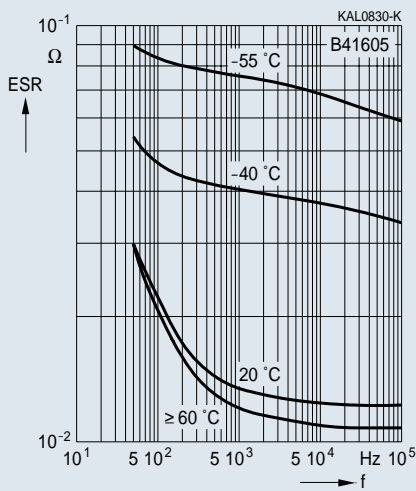
Frequency factor of permissible ripple current I_{\sim}
versus frequency f



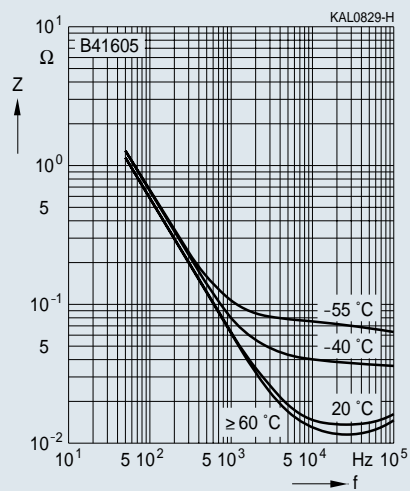
Frequency characteristics of ESR
versus frequency f at different temperatures T
Typical behavior



Equivalent series resistance ESR
versus frequency f at different temperatures
Typical behavior for 2700 $\mu\text{F}/55 \text{ V}$



Impedance Z
versus frequency f at different temperatures
Typical behavior for 2700 $\mu\text{F}/55 \text{ V}$



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