

Long-life grade capacitors

Applications

- High-reliability equipment in automotive power electronics, e.g. integrated starter alternator
- Applications with highest ripple current load at high frequencies

Features

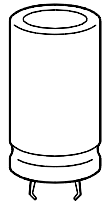
- Outstanding high reliability and long useful life
- Outstanding ripple current capability optimized for high frequencies
- Can be operated at temperature up to 150 °C
- Vibration resistance 20 g upon request
- Overload protection (safety vent)

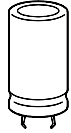
Construction

- Charge-discharge proof, polar
- Aluminum case, fully insulated
- Snap-in solder pins to hold component in place on PC-board
- Minus pole marking on case surface
- Minus pole not insulated from case

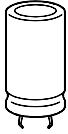
Terminals

- 3 terminals: length 4,5 mm
(terminal arrangement ensures correct insertion)




Specifications and characteristics in brief

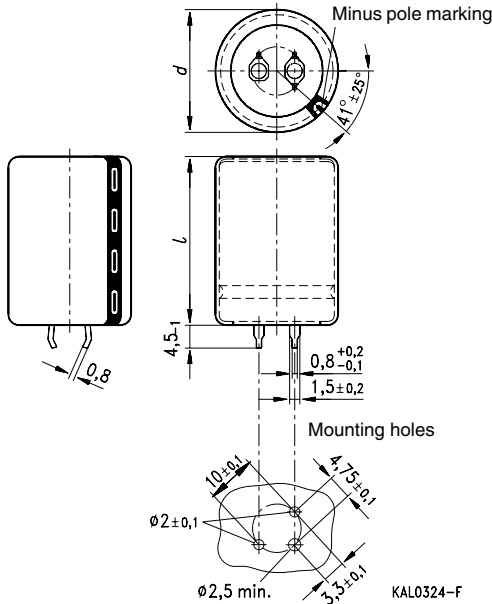
Rated voltage U_R	25 ... 63 VDC	
Surge voltage U_S	$1,15 \cdot U_R$	
Rated capacitance C_R	800 ... 3300 μ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Leakage current I_L (5 min, 20 °C)	$I_L \leq 0,006 \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{U_R}{V} \right)^{0,7} + 4 \mu A$	
Self-inductance ESL	15 nH	
Useful life 40 °C; U_R ; $2,1 \cdot I_{-R}$ 85 °C; U_R ; $2,1 \cdot I_{-R}$ 125 °C; U_R ; I_{-R} 150 °C; U_R ; $0,5 \cdot I_{-R}$	> 500 000 h > 30 000 h > 10 000 h > 1 000 h	Requirements: $\Delta C/C \leq \pm 30 \%$ of initial value $ESR \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 0,5 \%$ Failure rate: ≤ 10 fit ($\leq 10 \cdot 10^{-9}/h$) (for definiton "fit", refer to chapter "Quality", page 62)
Voltage endurance test 125 °C; U_R	2000 h	Post test requirements: $\Delta C/C \leq \pm 10 \%$ of initial value $ESR \leq 1,3$ times initial specified limit $I_L \leq$ initial specified limit
Vibration resistance	To IEC 60068-2-6, test Fc: displacement amplitude 0,75 mm, frequency range 10 Hz to 2 kHz, acceleration max. 10 g, duration 3×2 h Vibration resistance 20 g upon request	
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	



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Automotive – Up to 150 °C

Dimensional drawing

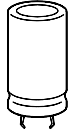


Dimensions (mm)		Approx. weight (g)	Packing units (pieces)
$d + 1$	$l \pm 2$		
22	40	18	160
25	40	22	130

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.



Overview of available types

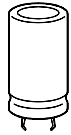
U_R (VDC)	25	40	55	63
C_R (μF)	Case dimensions $d \times l$ (mm)			
800				22 × 40
1 100			22 × 40	25 × 40
1 500		22 × 40	25 × 40	
2 000		25 × 40		
2 500	22 × 40			
3 300	25 × 40			


Case dimensions and ordering codes

U_R	C_R	Case dim. $d \times l$	Ordering code
VDC	μF	mm	3 terminals
25	2 500	22 × 40	B41607A4258M002
	3 300	25 × 40	B41607A4338M002
40	1 500	22 × 40	B41607A7158M002
	2 000	25 × 40	B41607A7208M002
55	1 100	22 × 40	B41607A0118M002
	1 500	25 × 40	B41607A0158M002
63	800	22 × 40	B41607A8807M002
	1 100	25 × 40	B41607A8118M002

Technical data

C_R 100 Hz 20 °C μF	Case dim. $d \times l$ mm	ESR_{typ} 100 Hz 20 °C m Ω	ESR_{max} 100 Hz 20 °C m Ω	ESR_{max} 100 Hz – 40 °C m Ω	ESR_{max} 10 kHz 20 °C m Ω	Z_{max} 100 kHz 20 °C m Ω	$I_{\sim\text{max}}$ 10 kHz 105 °C A	$I_{\sim\text{R}}$ 10 kHz 125 °C A	$I_{\sim\text{max}}$ 10 kHz 150 °C A
25 VDC									
2 500	22 × 40	25	35	115	26	25	9,9	5,6	2,8
3 300	25 × 40	20	28	80	18	17	13,5	7,6	3,8
40 VDC									
1 500	22 × 40	35	48	115	26	25	9,8	5,5	2,7
2 000	25 × 40	26	36	80	18	17	13,4	7,6	3,8
55 VDC									
1 100	22 × 40	40	55	115	26	25	9,7	5,5	2,7
1 500	25 × 40	30	42	80	18	17	13,4	7,5	3,7
63 VDC									
800	22 × 40	45	62	115	26	25	9,6	5,4	2,7
1 100	25 × 40	32	45	80	18	17	13,3	7,4	3,7

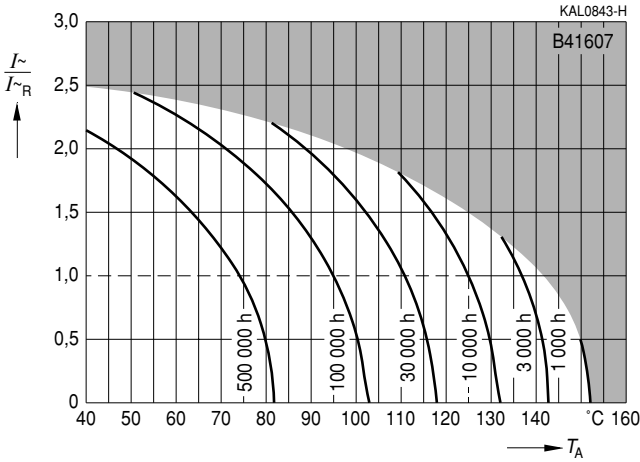


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Automotive – Up to 150 °C

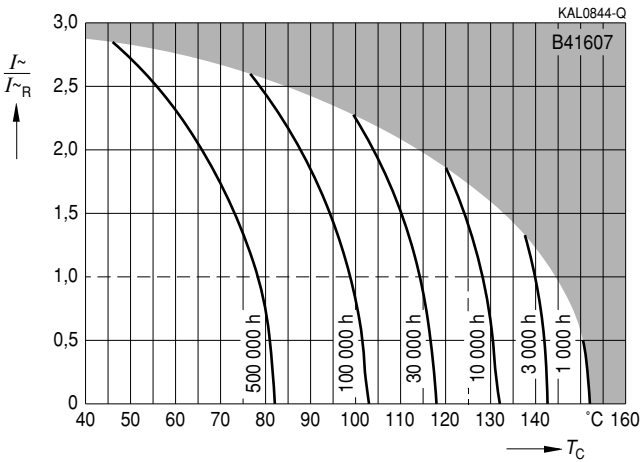
Useful life

depending on ambient temperature T_A under ripple current operating conditions at $U_R^{1)}$



Useful life

depending on case temperature T_C under ripple current operating conditions at $U_R^{1)}$



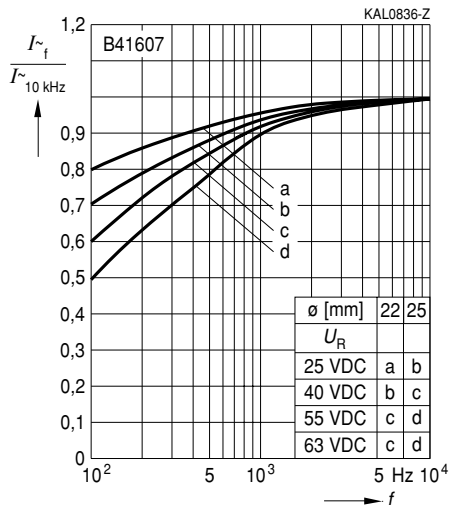
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.



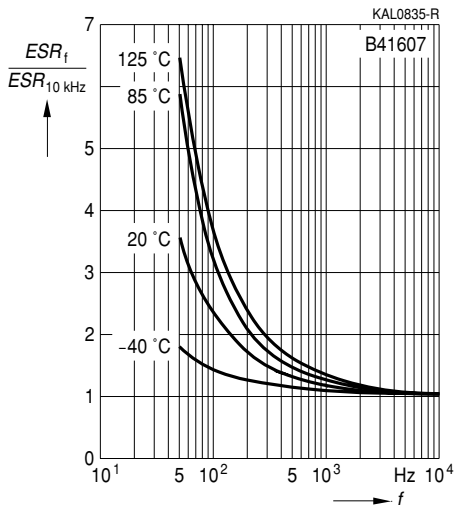
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Automotive – Up to 150 °C

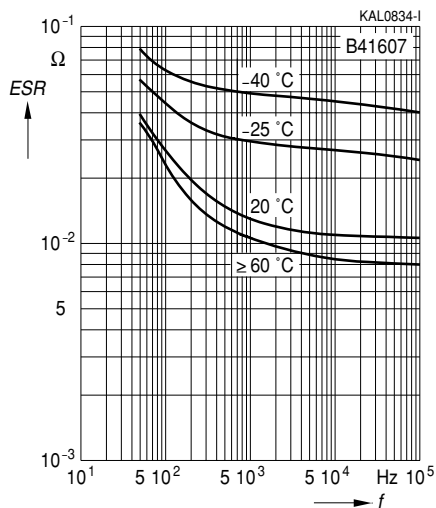
Frequency factor of permissible ripple current I_{\sim} versus frequency f



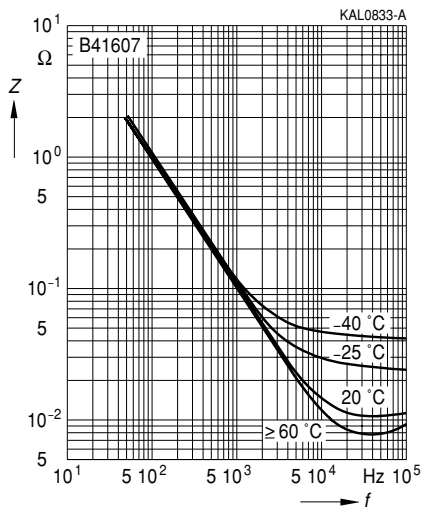
Frequency characteristics of ESR versus frequency f at different temperatures T
Typical behavior



Equivalent series resistance ESR versus frequency f at different temperatures T
Typical behavior for 1500 μ F/55 V



Impedance Z versus frequency f at different temperatures T
Typical behavior for 1500 μ F/55 V



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