

SIKOREL® 125

Long-life grade capacitors

Applications

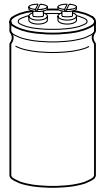
- Highly professional power supplies

Features

- Maximum reliability
- Wide temperature range
- Good thermal characteristics and high ripple current capability
- Long useful life
- Shelf life up to 10 years
- All-welded construction ensures reliable electrical contact

Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Poles with screw terminal connections
- Mounting with ring clips or clamps



KAL0567-B


Specifications and characteristics in brief

Rated voltage U_R	16 ... 100 VDC	
Surge voltage U_S	$1,15 \cdot U_R$	
Rated capacitance C_R	1 500 ... 220 000 μF	
Capacitance tolerance	– 10/+ 30 % $\triangleq$ Q	
Leakage current I_L (5 min, 20 °C)	$I_L \leq 0,3 \mu\text{A} \cdot \left(\frac{C_R}{\mu\text{F}} \cdot \frac{U_R}{V} \right)^{0,7} + 4 \mu\text{A}$	
Self-inductance ESL	$d = 35,7 \text{ mm}$: approx. 10 nH $d = 51,6 \text{ mm}$: approx. 15 nH $d \geq 64,3 \text{ mm}$: approx. 20 nH	
Useful life	$d \leq 51,6 \text{ mm}$ $d \geq 64,3 \text{ mm}$	Requirements:
125 °C; U_R ; $I_{\sim R}$	> 2 500 h > 5 000 h	$\Delta C/C$ $\leq \pm 45$ % of initial value
85 °C; U_R ; $I_{\sim \text{max}}$	> 15 000 h > 25 000 h	ESR ≤ 3 times initial specified limit
40 °C; U_R ; $3,4 \cdot I_{\sim R}$	> 200 000 h —	I_L $\leq$ initial specified limit
40 °C; U_R ; $3,8 \cdot I_{\sim R}$	— > 200 000 h	Failure percentage: ≤ 1 % Failure rate: $\leq 20 \text{ fit } (\leq 20 \cdot 10^{-9}/\text{h})$ (for definition "fit", refer to chapter "Quality", page 62)
Voltage endurance test	2 000 h	Post test requirements:
125 °C; U_R ; $I_{\sim R}$		$\Delta C/C$ $\leq \pm 15$ % of initial value ESR $\leq 1,3$ times initial specified limit I_L $\leq$ initial specified limit
Vibration resistance	in accordance with IEC 68-2-6, test Fc: displacement amplitude 0,75 mm, frequency range 10 to 55 Hz, acceleration max. 10 g, duration $3 \times 2 \text{ h}$	
IEC climatic category	To IEC 60068-1: 55/125/56 (– 55 °C/+ 125 °C/56 days damp heat test)	
Detail specification	Similar to CECC 30301-804	
Sectional specification	IEC 60384-4	

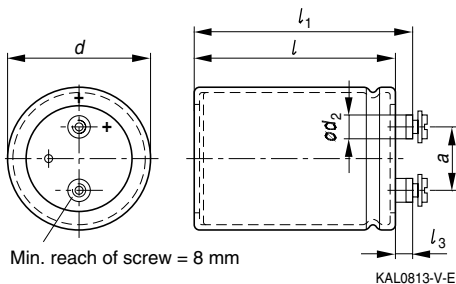
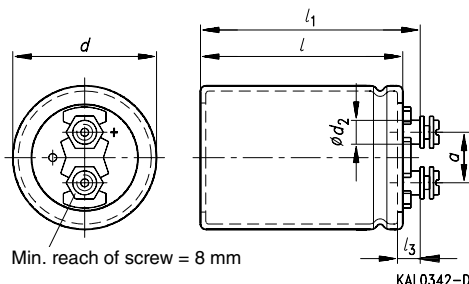
Ripple current capability

Due to the ripple current capability of the contact elements, the following current upper limits must not be exceeded:

Capacitor diameter	$\leq 51,6 \text{ mm}$	$> 51,6 \text{ mm}$
$I_{\sim \text{max}}$	30 A	40 A



Dimensional drawings

 $d = 35,7 \text{ mm}$
 $d \geq 51,6 \text{ mm}$


Dimensions and weights

Terminal	Dimensions (mm) with insulating sleeve						Approx. wt. (g)
	d	$l \pm 1$	$l_1 \pm 1$	l_3	$d_2 \text{ max}$	$a \begin{smallmatrix} +0,2 \\ -0,4 \end{smallmatrix}$	
M 5	35,7+ 0/- 0,8	55,7	62,0	7,0+ 0,2/- 1	8,2	12,7	65
M 5	35,7+ 0/- 0,8	80,7	87,0	7,0+ 0,2/- 1	8,2	12,7	105
M 5	35,7+ 0/- 0,8	105,7	112,0	7,0+ 0,2/- 1	8,2	12,7	135
M 5	51,6+ 0/- 0,8	80,7	87,0	7,0+ 0,2/- 1	8,2	22,2	220
M 5	64,3+ 0/- 0,8	105,7	112,0	7,0+ 0,2/- 1	8,2	28,5	440
M 5	76,9+ 0/- 0,7	105,7	112,0	7,0+ 0,2/- 1	8,2	31,7	540
M 5	76,9+ 0/- 0,7	143,2	149,5	7,0+ 0,2/- 1	8,2	31,7	840

Packing

For ecological reasons the packing is pure cardboard.

Capacitor diameter d	Packing units (pieces)	Capacitor diameter d	Packing units (pieces)
35,7 mm	36	64,3 mm	15
51,6 mm	22	76,9 mm	12

Accessories

The following items are included in the delivery package, but are not fastened to the capacitors:

	Thread	Toothed washers	Screws/Nuts	Maximum torque
For terminals	M 5	A 5,1 DIN 6797	Cylinder-head screw M 5 × 8 DIN 84-4.8	2 Nm

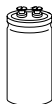
The following must be ordered separately:

Ring clips

Clamps for capacitors with $d \geq 64,3 \text{ mm}$

B 44 030 (cf. page 169)

B 44 030 (cf. page 173)


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Overview of available types

U_R (VDC)	16	25	40	63	100
C_R (μF)	Case dimensions $d \times l$ (mm)				
1 500					35,7 × 55,7
2 200				35,7 × 55,7	35,7 × 80,7
3 300				35,7 × 80,7	35,7 × 105,7
4 700			35,7 × 55,7	35,7 × 80,7	51,6 × 80,7
6 800		35,7 × 55,7	35,7 × 80,7	35,7 × 105,7	64,3 × 80,7
10 000	35,7 × 55,7	35,7 × 80,7	35,7 × 80,7	51,6 × 80,7	64,3 × 80,7
15 000	35,7 × 80,7	35,7 × 80,7	35,7 × 105,7	64,3 × 80,7	64,3 × 105,7
22 000	35,7 × 80,7	35,7 × 105,7	51,6 × 80,7	64,3 × 105,7	76,9 × 105,7
33 000	35,7 × 105,7	51,6 × 80,7	64,3 × 80,7	76,9 × 105,7	76,9 × 143,2
47 000	51,6 × 80,7	64,3 × 80,7	64,3 × 105,7	76,9 × 143,2	
68 000	64,3 × 80,7	64,3 × 105,7	76,9 × 105,7		
100 000	64,3 × 105,7	76,9 × 105,7	76,9 × 143,2		
150 000	76,9 × 105,7	76,9 × 143,2			
220 000	76,9 × 143,2				

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

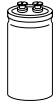


Technical data and ordering codes

U_R	C_R 100 Hz 20 °C VDC μF	Case dimensions $d \times l$ mm	ESR_{max} 100 Hz 20 °C m Ω	Z_{max} 20 kHz 20 °C m Ω	$I_{~max}$ 100 Hz 40 °C A	$I_{~max}$ 100 Hz 85 °C A	$I_{~R}$ 100 Hz 125 °C A	Ordering code
16	10 000	35,7 × 55,7	38	26	17	12	4,5	B41554E4109Q000
	15 000	35,7 × 80,7	26	21	23	16	5,8	B41554E4159Q000
	22 000	35,7 × 80,7	21	18	29	21	7,5	B41554E4229Q000
	33 000	35,7 × 105,7	17	15	30	24	8,7	B41554E4339Q000
	47 000	51,6 × 80,7	13	13	30	30	11	B41554E4479Q000
	68 000	64,3 × 80,7	13	11	40	38	14	B41554E4689Q000
	100 000	64,3 × 105,7	10	9,0	40	39	14	B41554E4100Q000
	150 000	76,9 × 105,7	10	8,0	40	40	16	B41554E4150Q000
	220 000	76,9 × 143,2	8,0	7,0	40	40	19	B41554B4220Q000
25	6 800	35,7 × 55,7	32	27	18	13	4,7	B41554B5688Q000
	10 000	35,7 × 80,7	28	21	21	15	5,4	B41554E5109Q000
	15 000	35,7 × 80,7	24	17	26	19	6,8	B41554E5159Q000
	22 000	35,7 × 105,7	20	15	30	22	8,1	B41554E5229Q000
	33 000	51,6 × 80,7	15	12	30	29	10	B41554E5339Q000
	47 000	64,3 × 80,7	13	11	40	34	12	B41554E5479Q000
	68 000	64,3 × 105,7	11	9,0	40	35	13	B41554E5689Q000
	100 000	76,9 × 105,7	9,0	8,0	40	39	15	B41554E5100Q000
	150 000	76,9 × 143,2	7,0	6,0	40	40	19	B41554B5150Q000
40	4 700	35,7 × 55,7	33	24	20	14	5,2	B41554E7478Q000
	6 800	35,7 × 80,7	28	17	24	16	6,2	B41554B7688Q000
	10 000	35,7 × 80,7	27	17	26	19	6,7	B41554E7109Q000
	15 000	35,7 × 105,7	20	12	30	22	8,0	B41554E7159Q000
	22 000	51,6 × 80,7	15	12	30	29	10	B41554E7229Q000
	33 000	64,3 × 80,7	13	10	40	34	12	B41554E7339Q000
	47 000	64,3 × 105,7	12	9,0	40	35	13	B41554E7479Q000
	68 000	76,9 × 105,7	9,0	8,0	40	39	15	B41554E7689Q000
	100 000	76,9 × 143,2	7,0	6,0	40	40	19	B41554B7100Q000


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SIKOREL – 125 °C
Technical data and ordering codes

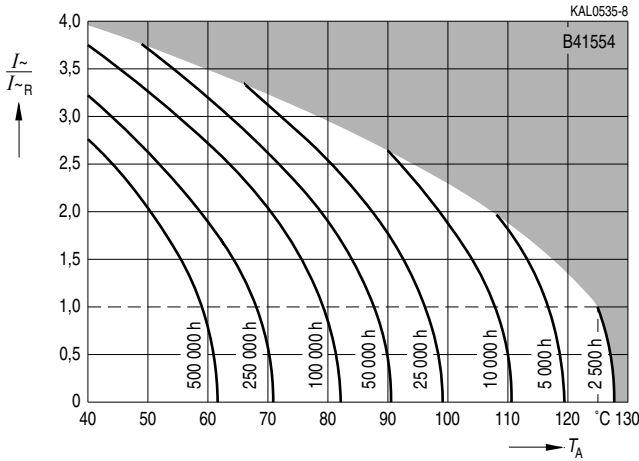
U_R	C_R 100 Hz 20 °C VDC μF	Case dimensions $d \times l$ mm	ESR_{max} 100 Hz 20 °C m Ω	Z_{max} 20 kHz 20 °C m Ω	$I_{\sim max}$ 100 Hz 40 °C A	$I_{\sim max}$ 100 Hz 85 °C A	$I_{\sim R}$ 100 Hz 125 °C A	Ordering code
63	2 200	35,7 × 55,7	60	30	13	9,4	3,4	B41554E8228Q000
	3 300	35,7 × 80,7	39	24	19	14	4,9	B41554E8338Q000
	4 700	35,7 × 80,7	31	20	24	17	6,2	B41554E8478Q000
	6 800	35,7 × 105,7	23	17	28	20	7,2	B41554E8688Q000
	10 000	51,6 × 80,7	18	14	30	27	9,6	B41554E8109Q000
	15 000	64,3 × 80,7	15	11	40	31	11	B41554E8159Q000
	22 000	64,3 × 105,7	12	9,0	40	35	13	B41554E8229Q000
	33 000	76,9 × 105,7	9,0	8,0	40	39	15	B41554E8339Q000
	47 000	76,9 × 143,2	7,0	6,0	40	40	19	B41554B8479Q000
100	1 500	35,7 × 55,7	83	34	12	8,8	3,1	B41554B9158Q000
	2 200	35,7 × 80,7	57	30	17	12	4,2	B41554E9228Q000
	3 300	35,7 × 105,7	37	24	21	15	5,4	B41554E9338Q000
	4 700	51,6 × 80,7	29	20	29	20	7,2	B41554E9478Q000
	6 800	64,3 × 80,7	22	17	36	25	9,1	B41554E9688Q000
	10 000	64,3 × 80,7	15	14	40	30	11	B41554E9109Q000
	15 000	64,3 × 105,7	13	11	40	36	13	B41554E9159Q000
	22 000	76,9 × 105,7	11	9,0	40	39	14	B41554B9229Q000
	33 000	76,9 × 143,2	9,0	8,0	40	40	17	B41554B9339Q000



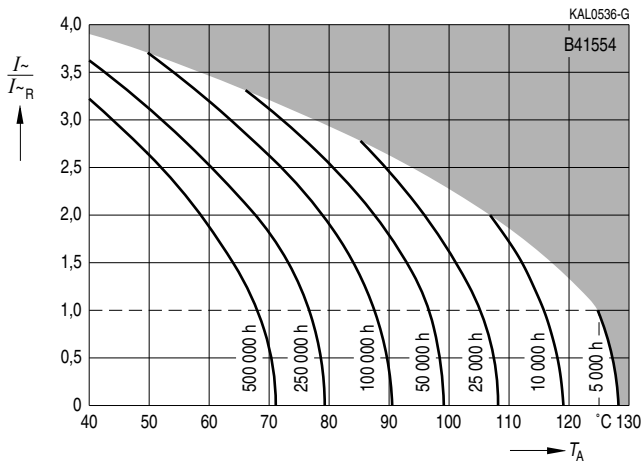
Useful life

depending on ambient temperature T_A under ripple current operating conditions¹⁾

$d \leq 51,6 \text{ mm}$



$d \geq 64,3 \text{ mm}$



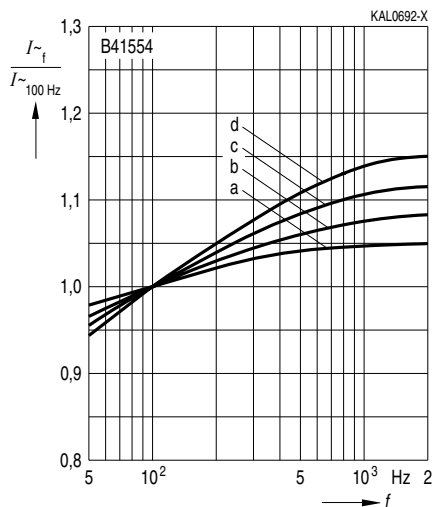
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.



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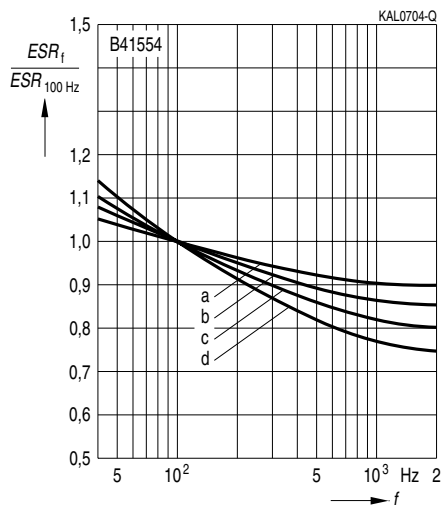
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**Frequency factor of
permissible ripple current $I_{\sim}$
versus frequency f**

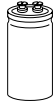


U_R (VDC)	16; 25	40	63	100
$d = 35,7 \text{ mm}$	b	c	d	d
$d = 51,6 \text{ mm}$	a	b	c	c
$d = 64,3 \text{ mm}$	a	a	c	c
$d = 76,9 \text{ mm}$	a	a	b	c

Frequency characteristics of ESR
Typical behavior



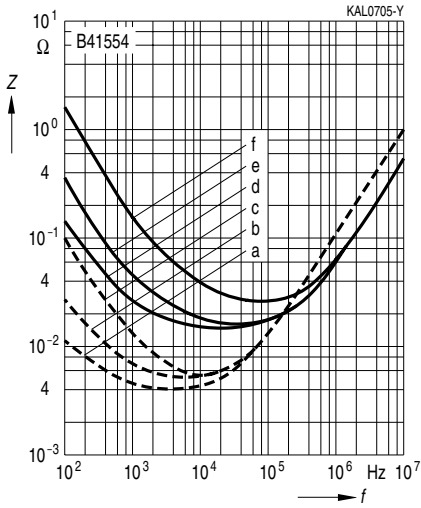
U_R (VDC)	16; 25	40	63	100
$d = 35,7 \text{ mm}$	b	c	d	d
$d = 51,6 \text{ mm}$	a	b	c	c
$d = 64,3 \text{ mm}$	a	a	c	c
$d = 76,9 \text{ mm}$	a	a	b	c



Impedance Z

versus frequency f

Typical behavior at 20 °C



C_R μF	U_R VDC	d mm	Curve
150 000	16	76,9	a
68 000	40		b
15 000	100	64,3	c
10 000	16		d
4 700	40	35,7	e
1 500	100		f

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