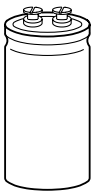
SIKOREL® 125
Long-life grade capacitors



KAL0567-B

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

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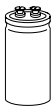

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SIKOREL – 125 °C

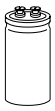
Specifications and characteristics in brief

Rated voltage U_R	16 … 100 VDC		
Surge voltage U_S	1,15 · U_R		
Rated capacitance C_R	1 500 … 220 000 µF		
Capacitance tolerance	– 10/+ 30 % ≙ Q		
Leakage current I_L (5 min, 20 °C)	$I_L \leq 0{,}3\ \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{U_R}{V}\right)^{0,7} + 4\ \mu A$		
Self-inductance *ESL*	*d* = 35,7 mm: approx. 10 nH *d* = 51,6 mm: approx. 15 nH *d* ≥ 64,3 mm: approx. 20 nH		
Useful life	*d* ≤ 51,6 mm	*d* ≥ 64,3 mm	Requirements:
125 °C; U_R; $I_{\sim R}$	> 2 500 h	> 5 000 h	$\Delta C/C$ ≤ ± 45 % of initial value
85 °C; U_R; $I_{\sim max}$	> 15 000 h	> 25 000 h	*ESR* ≤ 3 times initial specified limit
40 °C; U_R; 3,4 · $I_{\sim R}$	> 200 000 h	—	I_L ≤ initial specified limit
40 °C; U_R; 3,8 · $I_{\sim R}$	—	> 200 000 h	Failure percentage: ≤ 1 % Failure rate: ≤ 20 fit (≤ 20 · 10^{-9}/h) (for definiton "fit", refer to chapter *"Quality"*, page 62)
Voltage endurance test 125 °C; U_R; $I_{\sim R}$	2 000 h		Post test requirements: $\Delta C/C$ ≤ ± 15 % of initial value *ESR* ≤ 1,3 times initial specified limit I_L ≤ 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 × 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 30301-804		
Sectional specification	IEC 60384-4		

Ripple current capability

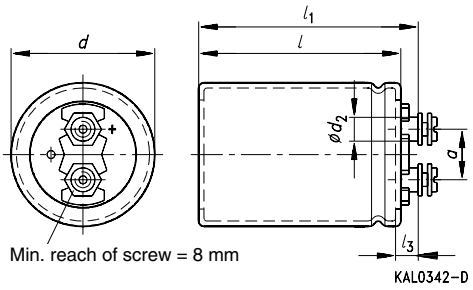
Due to the ripple current capability of the contact elements, the following current upper limits must not be exceeded:

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

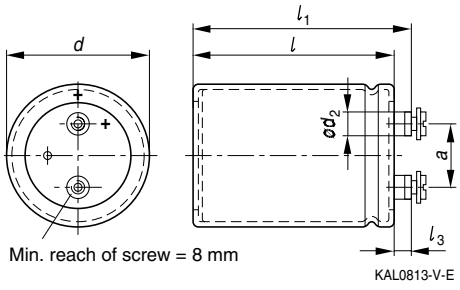


Dimensional drawings

d = 35,7 mm



$d \geq$ 51,6 mm



Dimensions and weights

Terminal	Dimensions (mm) with insulating sleeve						Approx.
	d	$l \pm 1$	$l_1 \pm 1$	l_3	d_2 max	a $^{+0,2}_{-0,4}$	wt. (g)
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)
35,7 mm	36
51,6 mm	22

Capacitor diameter d	Packing units (pieces)
64,3 mm	15
76,9 mm	12

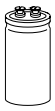
Accessories

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	B 44 030 (cf. page 169)
Clamps for capacitors with $d \geq$ 64,3 mm	B 44 030 (cf. page 173)



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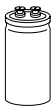
SIKOREL – 125 °C

Overview of available types

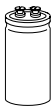
U_R (VDC)	16	25	40	63	100
C_R (µF)	Case dimensions $d \times l$ (mm)				
1 500					35,7 × 55,7
2 200				35,7 × 55,7	35,7 × 80,7
3 300				35,7 × 80,7	35,7 × 105,7
4 700			35,7 × 55,7	35,7 × 80,7	51,6 × 80,7
6 800		35,7 × 55,7	35,7 × 80,7	35,7 × 105,7	64,3 × 80,7
10 000	35,7 × 55,7	35,7 × 80,7	35,7 × 80,7	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.



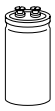
Technical data and ordering codes

U_R VDC	C_R 100 Hz 20 °C µF	Case dimensions $d \times l$ mm	ESR_{max} 100 Hz 20 °C mΩ	Z_{max} 20 kHz 20 °C mΩ	$I_{\sim max}$ 100 Hz 40 °C A	$I_{\sim max}$ 100 Hz 85 °C A	$I_{\sim R}$ 100 Hz 125 °C A	Ordering code
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



Technical data and ordering codes

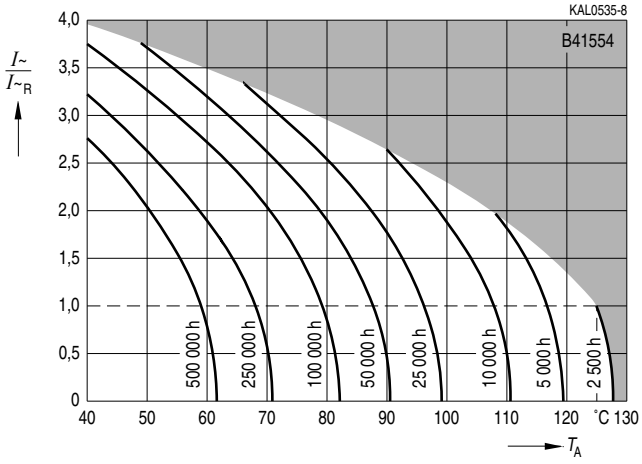
U_R VDC	C_R 100 Hz 20 °C µF	Case dimensions $d \times l$ mm	ESR_{max} 100 Hz 20 °C mΩ	Z_{max} 20 kHz 20 °C mΩ	$I_{\sim max}$ 100 Hz 40 °C A	$I_{\sim max}$ 100 Hz 85 °C A	$I_{\sim R}$ 100 Hz 125 °C A	Ordering code
63	2 200	35,7 × 55,7	60	30	13	9,4	3,4	B41554E8228Q000
	3 300	35,7 × 80,7	39	24	19	14	4,9	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



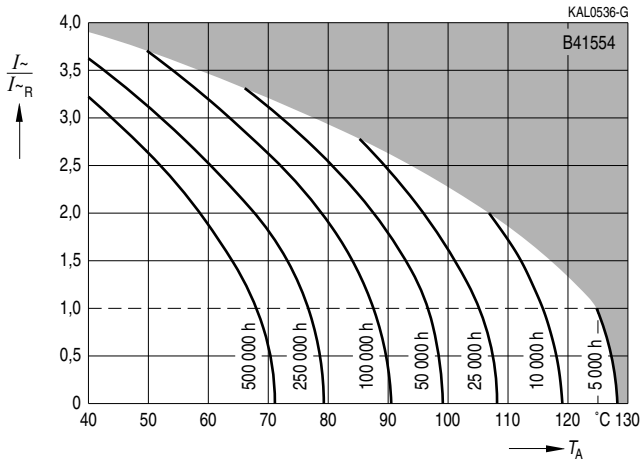
Useful life

depending on ambient temperature T_A under ripple current operating conditions[1)]

$d \leq 51{,}6$ mm

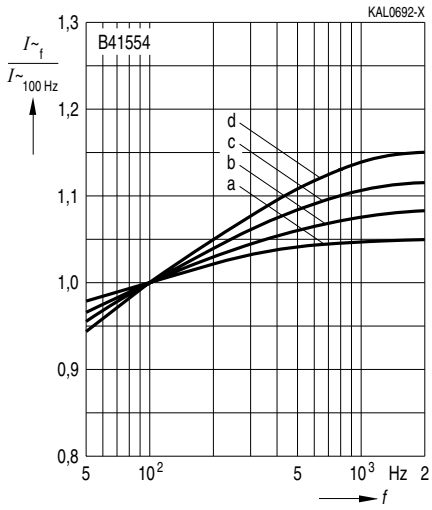


$d \geq 64{,}3$ mm



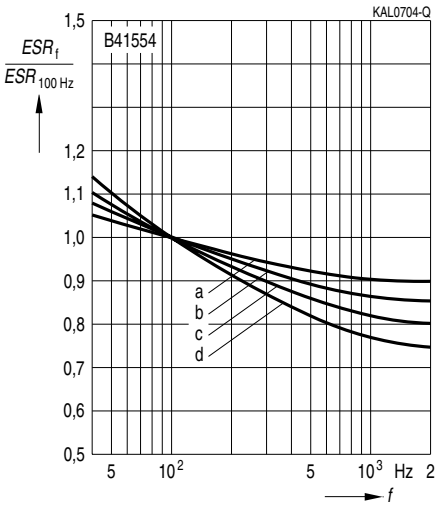
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.

Frequency factor of permissible ripple current *I*~
versus frequency *f*

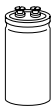


U_R (VDC)	16; 25	40	63	100
d = 35,7 mm	b	c	d	d
d = 51,6 mm	a	b	c	c
d = 64,3 mm	a	a	c	c
d = 76,9 mm	a	a	b	c

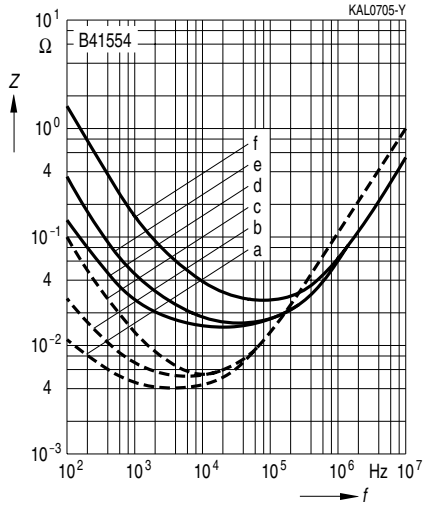
Frequency characteristics of *ESR*
Typical behavior



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