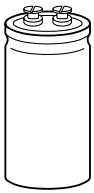
**SIKOREL® 125**
**Long-life grade capacitors**



KAL0567-B

### Applications

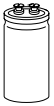
- Highly professional power supplies

### 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



**B41554**

**SIKOREL – 125 °C**

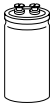
### Specifications and characteristics in brief

| | | | |
|---|---|---|---|
| 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<br>*d* = 51,6 mm: approx. 15 nH<br>*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 %<br>Failure rate: ≤ 20 fit (≤ 20 · $10^{-9}$/h)<br>(for definiton “fit”, refer to chapter *“Quality”*, page 62) |
| Voltage endurance test<br>125 °C; $U_R$; $I_{\sim R}$ | 2 000 h | | Post test requirements:<br>$\Delta C/C$ ≤ ± 15 % of initial value<br>*ESR* ≤ 1,3 times initial specified limit<br>$I_L$ ≤ initial specified limit |
| Vibration resistance | in accordance with IEC 68-2-6, test Fc:<br>displacement amplitude 0,75 mm, frequency range 10 to 55 Hz,<br>acceleration max. 10 *g*, duration 3 × 2 h | | |
| IEC climatic category | To IEC 60068-1:<br>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

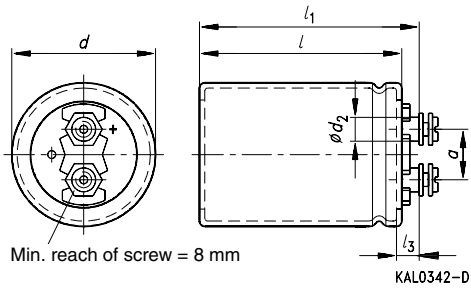
Due to the ripple current capability of the contact elements, the following current upper limits must not be exceeded:

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

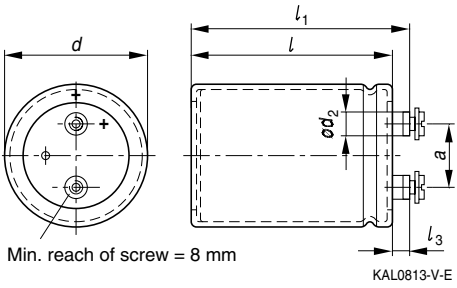


### Dimensional drawings

$d$ = 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 |

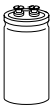
### Accessories

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) |



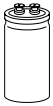
**B41554**

**SIKOREL – 125 °C**

**Overview of available types**

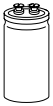
| $U_R$ (VDC) | 16 | 25 | 40 | 63 | 100 |
|---|---|---|---|---|---|
| $C_R$ (µF) | Case dimensions $d \times l$ (mm) | | | | |
| 1 500 | | | | | 35,7 × 55,7 |
| 2 200 | | | | 35,7 × 55,7 | 35,7 × 80,7 |
| 3 300 | | | | 35,7 × 80,7 | 35,7 × 105,7 |
| 4 700 | | | 35,7 × 55,7 | 35,7 × 80,7 | 51,6 × 80,7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

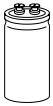


**B41554**

**SIKOREL – 125 °C**

**Technical data and ordering codes**

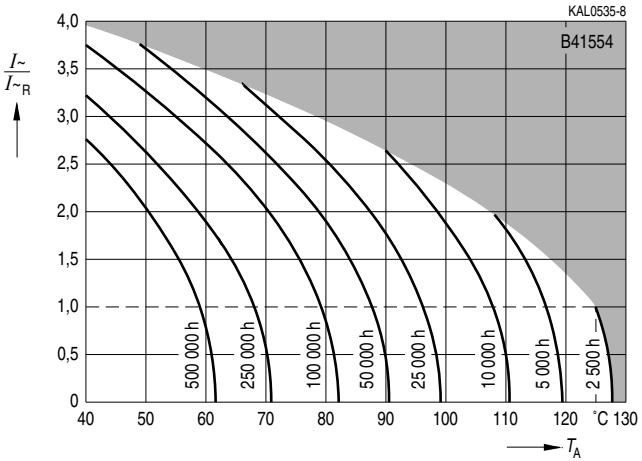
| $U_R$ | $C_R$ 100 Hz 20 °C | Case dimensions $d \times l$ | $ESR_{max}$ 100 Hz 20 °C | $Z_{max}$ 20 kHz 20 °C | $I_{\sim max}$ 100 Hz 40 °C | $I_{\sim max}$ 100 Hz 85 °C | $I_{\sim R}$ 100 Hz 125 °C | Ordering code |
|---|---|---|---|---|---|---|---|---|
| VDC | µF | mm | mΩ | mΩ | A | A | A | |
|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



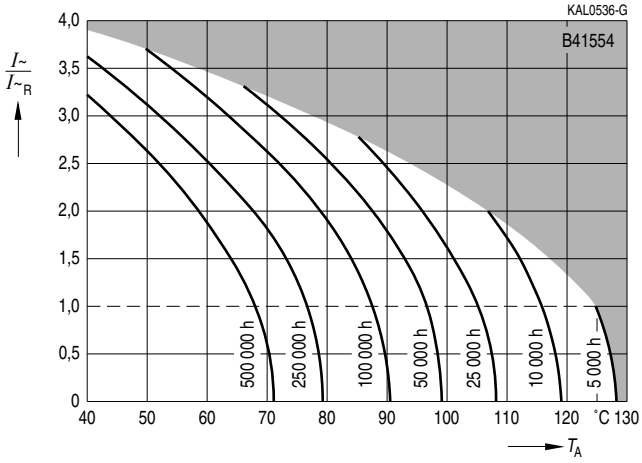
**Useful life**

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

$d \leq 51{,}6$ mm

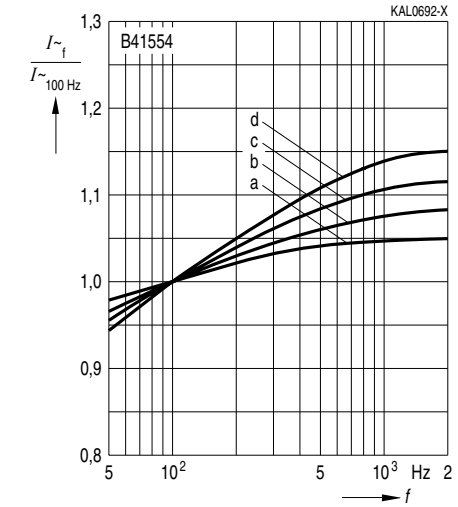



$d \geq 64{,}3$ mm



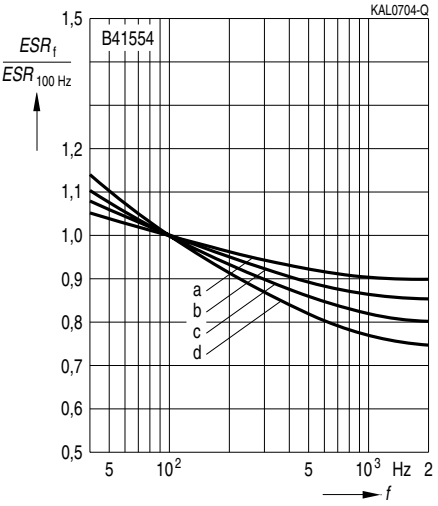

1) Refer to page 40 for an explanation on how to interpret the useful life graphs.

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

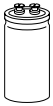



| $U_R$ (VDC) | 16; 25 | 40 | 63 | 100 |
|---|---|---|---|---|
| *d* = 35,7 mm | b | c | d | d |
| *d* = 51,6 mm | a | b | c | c |
| *d* = 64,3 mm | a | a | c | c |
| *d* = 76,9 mm | a | a | b | c |

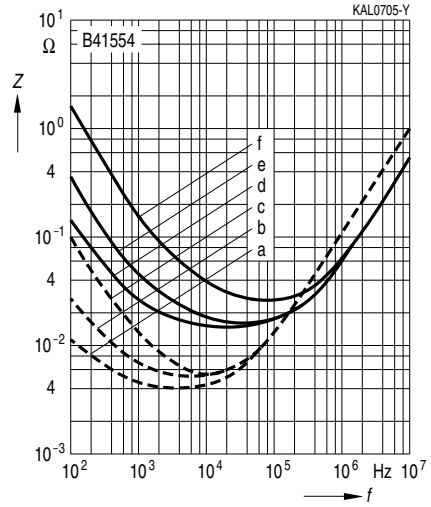
**Frequency characteristics of *ESR***
Typical behavior




| $U_R$ (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 |

**Herausgegeben von EPCOS AG**
**Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND**
**☎ ++49 89 636 09, FAX (0 89) 636-2 26 89**



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