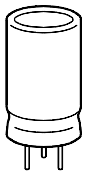
**LL grade**
**For professional switch-mode power supplies of compact design**



KAL0275–I

### Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Solder pin terminals brought out at one end to fit standardized PCB spacings
- Negative potential can be applied to third pin; this pin does not serve as a minus pole, however

### Features

- Low equivalent series resistance $R_{ESR}$
- High reliability, high ripple current capability and small dimensions
- Long useful life
- Pinning ensures correct insertion

### Applications

- For professional switch-mode power supplies of compact design
- General industrial electronics, telecommunications and data processing equipment

### Specifications and characteristics in brief

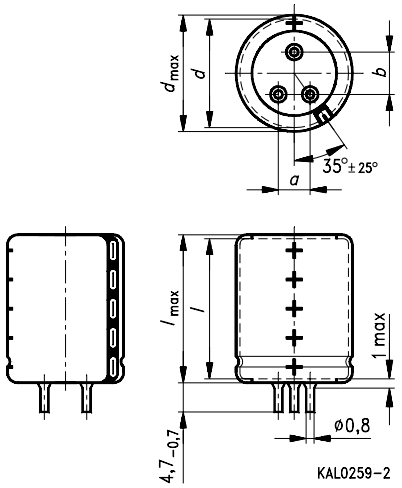
| | B 41 534 | B 43 534 |
|---|---|---|
| Rated voltage $U_R$ | 6,3 … 100 V– | 200 and 385 V– |
| Surge voltage $U_S$ | 1,15 · $U_R$ | 1,15 · $U_R$ (for $U_R \leq$ 200 V–)<br>1,10 · $U_R$ (for $U_R$ = 385 V–) |
| Rated capacitance $C_R$ | 100 … 15 000 µF | 47 … 220 µF |
| Capacitance tolerance | ± 20 % ≙ M | ± 20 % ≙ M |
| Useful life<br>40 ˚C, $U_R$<br>85 ˚C, $U_R$; $I_{\sim R}$ | <br>> 200 000 h (1,8 · $I_{\sim R,85°C}$)<br>> 8 000 h | <br>> 200 000 h (1,8 · $I_{\sim R,85°C}$)<br>> 8 000 h |
| Failure percentage | ≤ 0,5 %<br>(during useful life) | ≤ 0,5 %<br>(during useful life) |
| Failure rate | ≤ 20 fit (≤ 20 · $10^{-9}$/h) | ≤ 20 fit (≤ 20 · $10^{-9}$/h) |
| Voltage endurance test | 3 000 h, 85 ˚C (at $U_R$) | 3 000 h, 85 ˚C (at $U_R$) |
| Leakage current $I_{lka}$<br>(5 min, 20 °C) | $I_{lka} \leq 0{,}3\ \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{U_R}{V}\right)^{0,7} + 4\ \mu A$ | |
| Self-inductance $L_{ESL}$ | approx. 10 nH | |
| IEC climatic category | in accordance with IEC 68–1<br>40/085/56 (– 40 ˚C/+ 85 ˚C, 56 days damp heat test) | |

**Not for new design**

### Specifications and characteristics in brief

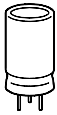
| | B 41 534 | B 43 534 |
|---|---|---|
| Detail specification | – | |
| Sectional specification | IEC 384–4 | |
| Vibration resistance | in accordance with IEC 68–2–6, test Fc:<br>displacement amplitude 0,35 mm, frequency range 10 … 55 Hz,<br>acceleration max. 5 *g*, duration 3 × 2 h | |

### Dimensional drawing




| Dimensions (mm) | | | | Approximate weight (g) | Packing units (pieces) |
|---|---|---|---|---|---|
| $d \times l$ | $d_{max} \times l_{max}$ | $a^{+0,4}_{-0,2}$ | $b^{+0,4}_{-0,2}$ | | |
| 18 × 30 | 18,8 × 30,5 | 5 | 7,5 | 11 | 600 |
| 18 × 40 [1] | 18,8 × 40,5 | 5 | 7,5 | 14 | 600 |
| 22 × 40 [2] | 22,8 × 40,5 | 7,5 | 10 | 18 | 256 |
| 25 × 40 | 25,8 × 40,5 | 7,5 | 10 | 26 | 256 |

1) Also available with *d* x *l* = 22 × 30 mm
2) Also available with *d* x *l* = 25 × 30 mm
Ordering code: B41534-J★★★★-M (6,3 … 100 V–)
B43534-J★★★-M (200 V–)
B43534-N★★★-M (385 V–)



**Overview of available types**

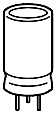
**Type B 41 534**

| $U_R$ (V–) | 6,3 | 10 | 16 | 25 | 40 | 63 | 100 |
|---|---|---|---|---|---|---|---|
| $C_R$ (µF) | Case dimensions $d \times l$ (mm) | | | | | | |
| 100 | | | | | | | 18 × 30 |
| 150 | | | | | | | 18 × 30 |
| 220 | | | | | | 18 × 30 | 18 × 40 |
| 330 | | | | | | 18 × 30 | 22 × 40 |
| 470 | | | | | 18 × 30 | 18 × 40 | 25 × 40 |
| 680 | | | | | 18 × 30 | 22 × 40 | |
| 1 000 | | | | 18 × 30 | 18 × 40 | 25 × 40 | |
| 1 500 | | | 18 × 30 | 18 × 40 | 22 × 40 | | |
| 2 200 | | | 18 × 30 | 22 × 40 | 25 × 40 | | |
| 3 300 | | 18 × 30 | 18 × 40 | 25 × 40 | | | |
| 4 700 | 18 × 30 | 18 × 40 | 22 × 40 | 25 × 40 | | | |
| 6 800 | 18 × 40 | 22 × 40 | 25 × 40 | | | | |
| 10 000 | 22 × 40 | 25 × 40 | | | | | |
| 15 000 | 25 × 40 | | | | | | |

**Type B 43 534**

| $U_R$ (V–) | 200 | 385 |
|---|---|---|
| $C_R$ (µF) | Case dimensions $d \times l$ (mm) | |
| 47 | 18 × 30 | 18 × 40 |
| 68 | 18 × 40 | 22 × 40 |
| 100 | 22 × 40 | 25 × 40 |
| 150 | 22 × 40 | 25 × 40 |
| 220 | 25 × 40 | |

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

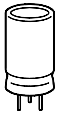




### Technical data and ordering codes

| $U_R$ | $C_R$ | Case dimensions $d \times l$ | $R_{ESR, typ}$ 20 kHz 20 °C | $R_{ESR, max}$ 20 kHz 20 °C | $Z_{max}$ 200 kHz 20 °C | $I_{\sim max}$ 20 kHz 40 °C | $I_{\sim R}$ 20 kHz 85 °C | Ordering code [1] |
|---|---|---|---|---|---|---|---|---|
| V– | µF | mm | mΩ | mΩ | mΩ | A | A | Short code |
| **B41534-** | | | | | | | | |
| 6,3 | 4 700 | 18 × 30 | 27 | 31 | 30 | 6,3 | 2,2 | -A2478-M |
| | 6 800 | 18 × 40 | 22 | 26 | 26 | 7,7 | 2,6 | -A2688-M |
| | 10 000 | 22 × 40 | 19 | 23 | 24 | 9,0 | 3,1 | -A2109-M |
| | 15 000 | 25 × 40 | 17 | 20 | 22 | 10,0 | 3,6 | -A2159-M |
| 10 | 3 300 | 18 × 30 | 27 | 32 | 30 | 6,2 | 2,1 | -A3338-M |
| | 4 700 | 18 × 40 | 23 | 27 | 27 | 7,6 | 2,6 | -A3478-M |
| | 6 800 | 22 × 40 | 19 | 23 | 24 | 9,0 | 3,1 | -A3688-M |
| | 10 000 | 25 × 40 | 17 | 21 | 22 | 10,0 | 3,5 | -A3109-M |
| 16 | 1 500 | 18 × 30 | 35 | 41 | 37 | 5,5 | 1,8 | -A4158-M |
| | 2 200 | 18 × 30 | 28 | 33 | 31 | 6,1 | 2,1 | -A4228-M |
| | 3 300 | 18 × 40 | 23 | 27 | 26 | 7,6 | 2,6 | -A4338-M |
| | 4 700 | 22 × 40 | 19 | 23 | 24 | 9,0 | 3,1 | -A4478-M |
| | 6 800 | 25 × 40 | 17 | 21 | 22 | 10,0 | 3,5 | -A4688-M |
| 25 | 1 000 | 18 × 30 | 32 | 37 | 36 | 5,8 | 2,0 | -A5108-M |
| | 1 500 | 18 × 40 | 25 | 30 | 30 | 7,2 | 2,4 | -A5158-M |
| | 2 200 | 22 × 40 | 21 | 25 | 26 | 8,6 | 3,0 | -A5228-M |
| | 3 300 | 25 × 40 | 18 | 22 | 23 | 9,9 | 3,4 | -A5338-M |
| | 4 700 | 25 × 40 | 16 | 20 | 22 | 10,0 | 3,6 | -A5478-M |
| 40 | 470 | 18 × 30 | 44 | 50 | 44 | 5,0 | 1,7 | -A7477-M |
| | 680 | 18 × 30 | 34 | 39 | 36 | 5,6 | 1,9 | -A7687-M |
| | 1 000 | 18 × 40 | 27 | 32 | 30 | 7,0 | 2,4 | -A7108-M |
| | 1 500 | 22 × 40 | 22 | 26 | 26 | 8,5 | 2,9 | -A7158-M |
| | 2 200 | 25 × 40 | 19 | 23 | 23 | 9,7 | 3,3 | -A7228-M |
| 63 | 220 | 18 × 30 | 57 | 65 | 54 | 4,4 | 1,5 | -A8227-M |
| | 330 | 18 × 30 | 42 | 48 | 42 | 5,1 | 1,7 | -A8337-M |
| | 470 | 18 × 40 | 33 | 38 | 35 | 6,4 | 2,2 | -A8477-M |
| | 680 | 22 × 40 | 27 | 31 | 30 | 7,7 | 2,7 | -A8687-M |
| | 1 000 | 25 × 40 | 22 | 26 | 26 | 9,1 | 3,1 | -A8108-M |

1) For instructions on how to determine ordering codes, refer to page 261.

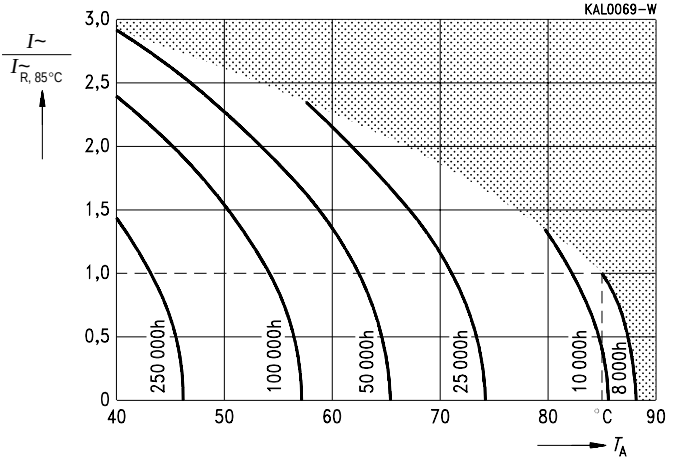


**Technical data and ordering codes**

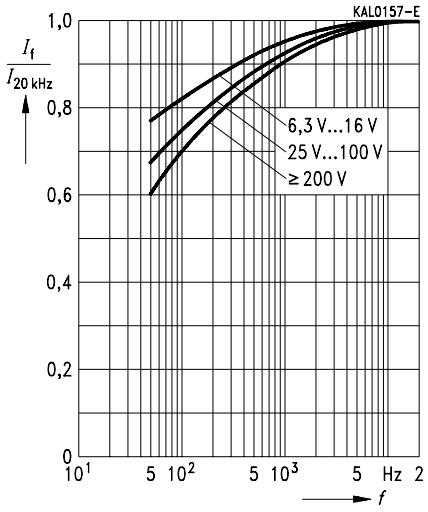
| $U_R$ | $C_R$ | Case dimensions $d \times l$ | $R_{ESR, typ}$ 20 kHz 20 °C | $R_{ESR, max}$ 20 kHz 20 °C | $Z_{max}$ 200 kHz 20 °C | $I_{\sim max}$ 20 kHz 40 °C | $I_{\sim R}$ 20 kHz 85 °C | Ordering code [1] |
|---|---|---|---|---|---|---|---|---|
| V– | µF | mm | mΩ | mΩ | mΩ | A | A | Short code |
| **B41534-** | | | | | | | | |
| 100 | 100 | 18 × 30 | 90 | 115 | 85 | 2,9 | 1,0 | -A9107-M |
| | 150 | 18 × 30 | 65 | 77 | 62 | 3,5 | 1,2 | -A9157-M |
| | 220 | 18 × 40 | 48 | 55 | 48 | 4,4 | 1,5 | -A9227-M |
| | 330 | 22 × 40 | 36 | 40 | 37 | 5,2 | 1,8 | -A9337-M |
| | 470 | 25 × 40 | 28 | 32 | 31 | 7,0 | 2,4 | -A9477-M |
| **B43534-** | | | | | | | | |
| 200 | 47 | 18 × 30 | 520 | 1300 | 1100 | 1,1 | 0,36 | -A476-M |
| | 68 | 18 × 40 | 360 | 900 | 780 | 1,6 | 0,55 | -A686-M |
| | 100 | 22 × 40 | 250 | 630 | 540 | 2,1 | 0,71 | -A107-M |
| | 150 | 22 × 40 | 170 | 430 | 360 | 2,5 | 0,86 | -A157-M |
| | 220 | 25 × 40 | 120 | 300 | 250 | 3,5 | 1,2 | -A227-M |
| 385 | 47 | 18 × 40 | 440 | 1100 | 950 | 1,5 | 0,51 | -E476-M |
| | 68 | 22 × 40 | 310 | 780 | 670 | 1,9 | 0,63 | -E686-M |
| | 100 | 25 × 40 | 210 | 530 | 460 | 2,6 | 0,89 | -E107-M |
| | 150 | 25 × 40 | 150 | 380 | 310 | 3,1 | 1,1 | -E157-M |

1) To obtain the required ordering code, prefix the type number to the short code. E. g.: B43534-A9107-M
B41534-… ($U_R$ = 6,3 … 100 V–);
B43534-… ($U_R$ = 200 … 385 V–)

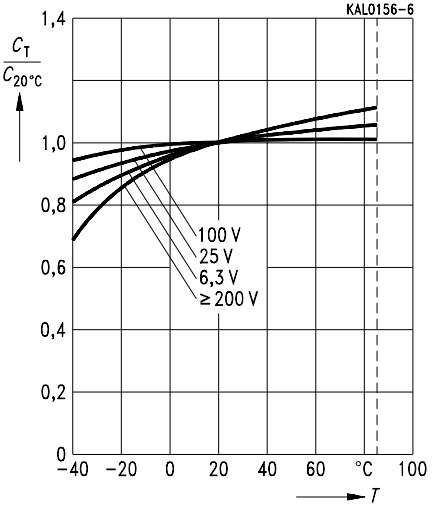
**Useful life**
versus ambient temperature $T_A$ under ripple current operating conditions [1)]



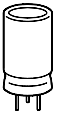

**Permissible ripple current *I*~**
versus frequency *f*
Typical behavior



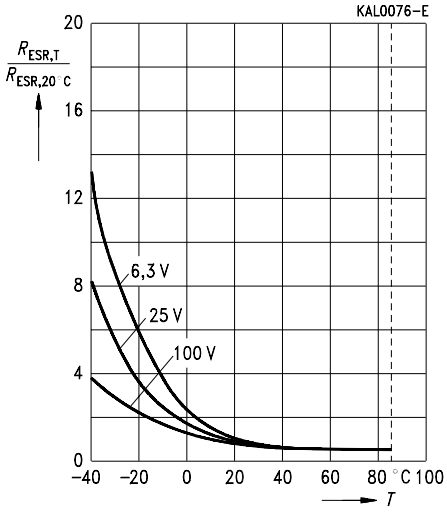

**Series capacitance $C_s$** at $f$ = 100 Hz
versus temperature $T$
Typical behavior



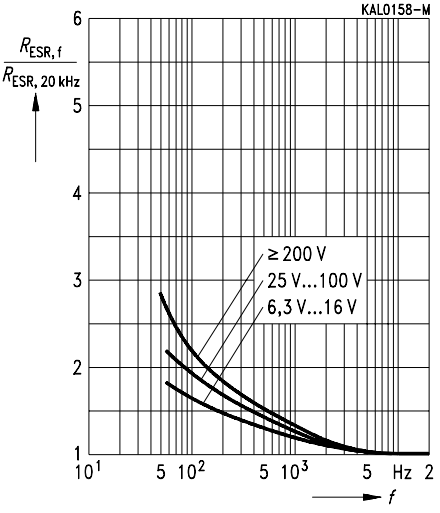

1) Refer to page 34 for an explanation on how to interpret the useful life graphs.



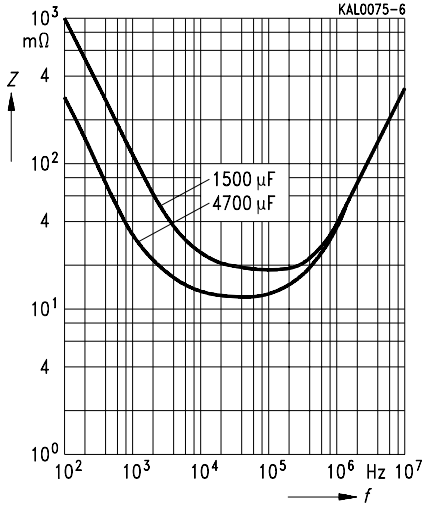
**Equivalent series resistance $R_{ESR}$**
at 100 Hz versus temperature $T$
Typical behavior




**Equivalent series resistance $R_{ESR}$**
versus frequency $f$
Typical behavior




**Impedance $Z$**
versus frequency $f$
for $U_R$ = 25 V– at 20 °C
Typical behavior




**Impedance $Z$** at 20 kHz
versus temperature $T$
Typical behavior