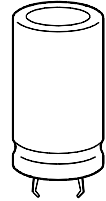


## Long-life grade capacitors

### Applications

- Frequency converters
- Professional switch-mode power supplies in industrial electronics and in data processing equipment
- Switch-mode power supplies in entertainment electronics



KAL0274-A

### Features

- High reliability
- Outstanding ripple current capability
- Low equivalent series resistance *ESR*
- Different case sizes available for each capacitance value

### 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
- Overload protection (safety vent)

### Terminals

- Standard version with 2 terminals  
2 lengths available: 6,3 and 4,5 mm
- 3 terminals: length 4,5 mm  
(terminal arrangement ensures correct insertion)

### Specifications and characteristics in brief

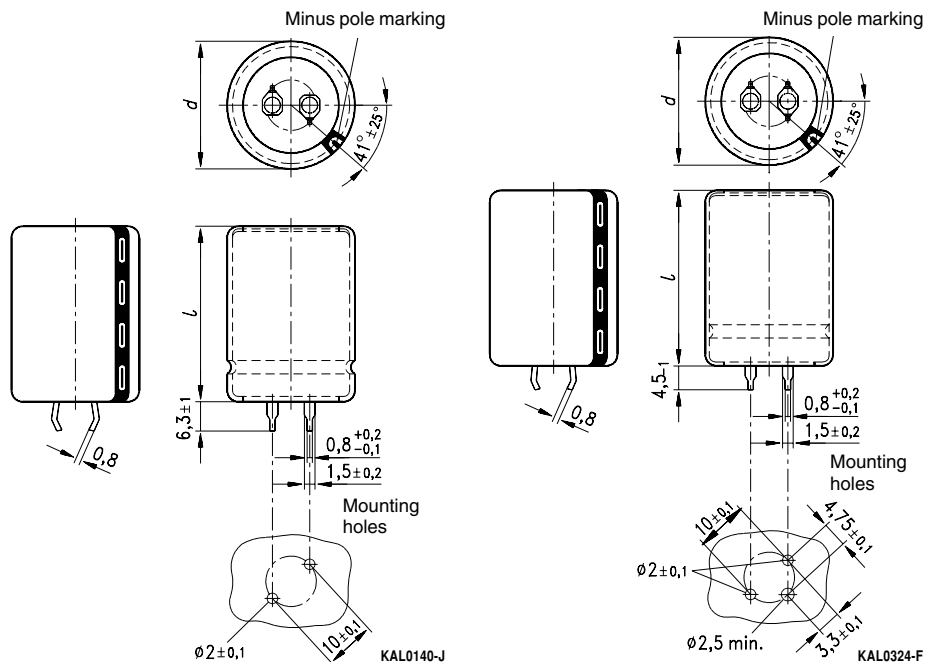
|                                                     | B41505                                                                                                                                                                                                                                                                                     | B43505                                                                                        |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Rated voltage $U_R$                                 | 10 ... 100 VDC                                                                                                                                                                                                                                                                             | 200 ... 450 VDC                                                                               |
| Surge voltage $U_S$                                 | $1,15 \cdot U_R$                                                                                                                                                                                                                                                                           | $1,15 \cdot U_R$ (for $U_R \leq 250$ VDC)<br>$1,10 \cdot U_R$ (for $U_R \geq 400$ VDC)        |
| Rated capacitance $C_R$                             | 560 ... 33 000 $\mu\text{F}$                                                                                                                                                                                                                                                               | 100 ... 1 500 $\mu\text{F}$                                                                   |
| Capacitance tolerance                               | $\pm 20 \% \pm M$                                                                                                                                                                                                                                                                          | $\pm 20 \% \pm M$                                                                             |
| Dissipation factor $\tan \delta$<br>(20 °C, 120 Hz) | max. $\tan \delta = 0,80$ ; $U_R = 10$ VDC<br>max. $\tan \delta = 0,60$ ; $U_R = 16$ VDC<br>max. $\tan \delta = 0,45$ ; $U_R = 25$ VDC<br>max. $\tan \delta = 0,40$ ; $U_R = 35$ VDC<br>max. $\tan \delta = 0,30$ ; $U_R = 50$ VDC<br>max. $\tan \delta = 0,20$ ; $U_R = 63 \dots 100$ VDC | $\tan \delta \leq 0,15$ for $U_R \leq 400$ VDC<br>$\tan \delta \leq 0,20$ for $U_R = 450$ VDC |
| Leakage current $I_L$<br>(5 min, 20 °C)             | $I_L \leq 0,3 \mu\text{A} \cdot \left( \frac{C_R}{\mu\text{F}} \cdot \frac{U_R}{V} \right)^{0,7} + 4 \mu\text{A}$                                                                                                                                                                          |                                                                                               |



|                                   | B41505                                                                                                                                                                                                                                                                                                | B43505                                                                                                                              |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Self-inductance <i>ESL</i>        | Approx. 20 nH                                                                                                                                                                                                                                                                                         |                                                                                                                                     |
| Useful life                       |                                                                                                                                                                                                                                                                                                       |                                                                                                                                     |
| 105 °C; $U_R$ ; $I_{-R}$          | > 5 000 h                                                                                                                                                                                                                                                                                             | > 5 000 h                                                                                                                           |
| 85 °C; $U_R$ ; $I_{-max}$         | > 12 000 h                                                                                                                                                                                                                                                                                            | > 11 000 h                                                                                                                          |
| 40 °C; $U_R$ ; $2,1 \cdot I_{-R}$ | > 250 000 h                                                                                                                                                                                                                                                                                           | > 200 000 h                                                                                                                         |
| Requirements:                     | $\Delta C/C \leq \pm 45\%$ of initial value<br>$\tan \delta \leq 3$ times initial spec. limit<br>$I_L \leq$ initial specified limit<br><br>Failure percentage: $\leq 1\%$<br>Failure rate: $\leq 50$ fit ( $\leq 50 \cdot 10^{-9}/h$ )<br>(for definition "fit", refer to chapter "Quality", page 62) | $\Delta C/C \leq \pm 30\%$ of initial value<br>$\tan \delta \leq 3$ times initial spec. limit<br>$I_L \leq$ initial specified limit |
| Load life test                    |                                                                                                                                                                                                                                                                                                       |                                                                                                                                     |
| 105 °C; $U_R$ ; $I_{-R}$          | 5 000 h                                                                                                                                                                                                                                                                                               | 4 000 h                                                                                                                             |
| Post test requirements:           | $\Delta C/C \leq \pm 20\%$ of initial value<br>$\tan \delta \leq 2$ times initial spec. limit<br>$I_L \leq$ initial specified limit                                                                                                                                                                   | $\Delta C/C \leq \pm 20\%$ of initial value<br>$\tan \delta \leq 2$ times initial spec. limit<br>$I_L \leq$ initial specified limit |
| Voltage endurance test            |                                                                                                                                                                                                                                                                                                       |                                                                                                                                     |
| 85 °C; $U_R$                      | 2 000 h                                                                                                                                                                                                                                                                                               | 2 000 h                                                                                                                             |
| Post test requirements:           | $\Delta C/C \leq \pm 15\%$ of initial value<br>$\tan \delta \leq 1,3$ times spec. limit<br>$I_L \leq$ initial specified limit                                                                                                                                                                         | $\Delta C/C \leq \pm 10\%$ of initial value<br>$\tan \delta \leq 1,3$ times spec. limit<br>$I_L \leq$ initial specified limit       |
| Vibration resistance              | To IEC 68-2-6, test Fc:<br>displacement amplitude 0,35 mm, frequency range 10 ... 55 Hz,<br>acceleration max. 5 g, duration $3 \times 2$ h                                                                                                                                                            |                                                                                                                                     |
| IEC climatic category             | To IEC 60068-1:<br>$U_R \leq 400$ VDC: 40/105/56 (– 40 °C/+ 105 °C/56 days damp heat test)<br>$U_R = 450$ VDC: 25/105/56 (– 25 °C/+ 105 °C/56 days damp heat test)                                                                                                                                    |                                                                                                                                     |
| Detail specification              | —                                                                                                                                                                                                                                                                                                     | Similar to CECC 30301-809                                                                                                           |
| Sectional specification           | IEC 60384-4                                                                                                                                                                                                                                                                                           | IEC 60384-4                                                                                                                         |



## Dimensional drawings



Snap-in terminals, standard (length  $6,3 \pm 1$  mm). Also available in a shorter version with a length of  $4,5 - 1$  mm. For packing mode and ordering example see next page.

Snap-in capacitors are also available with 3 terminals (length  $4,5 - 1$  mm). For packing mode and ordering example see next page.

| Dimensions (mm) |           | Approx. weight (g) | Packing units (pieces) |
|-----------------|-----------|--------------------|------------------------|
| $d + 1$         | $l \pm 2$ |                    |                        |
| 22              | 25        | 9                  | 160                    |
| 22              | 30        | 12                 | 160                    |
| 22              | 35        | 15                 | 160                    |
| 22              | 40        | 18                 | 160                    |
| 22              | 45        | 20                 | 160                    |
| 25              | 25        | 13                 | 130                    |
| 25              | 30        | 17                 | 130                    |
| 25              | 35        | 19                 | 130                    |
| 25              | 40        | 22                 | 130                    |
| 25              | 45        | 25                 | 130                    |

| Dimensions (mm) |           | Approx. weight (g) | Packing units (pieces) |
|-----------------|-----------|--------------------|------------------------|
| $d + 1$         | $l \pm 2$ |                    |                        |
| 30              | 25        | 20                 | 80                     |
| 30              | 30        | 23                 | 80                     |
| 30              | 35        | 29                 | 80                     |
| 30              | 40        | 36                 | 80                     |
| 30              | 45        | 41                 | 80                     |
| 30              | 50        | 46                 | 80                     |
| 35              | 25        | 25                 | 60                     |
| 35              | 30        | 31                 | 60                     |
| 35              | 35        | 37                 | 60                     |
| 35              | 40        | 44                 | 60                     |
| 35              | 45        | 52                 | 60                     |
| 35              | 50        | 59                 | 60                     |



### 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.

### Ordering codes

| Snap-in terminals<br>Version    | Identification in 3rd block of ordering code |
|---------------------------------|----------------------------------------------|
| Standard terminals (6,3 ± 1) mm | M000                                         |
| Short terminals (4,5 – 1) mm    | M007                                         |
| 3 terminals (4,5 – 1) mm        | M002                                         |

Ordering example:

B43505A9107M007 } snap-in capacitor with short terminals  
B43505A9107M002 } snap-in capacitor with 3 terminals



## Overview of available types

### Type B 41 505

| $U_R$ (VDC) | 10                                | 16      | 25                 | 35                 | 50      | 63                 | 80      | 100                |
|-------------|-----------------------------------|---------|--------------------|--------------------|---------|--------------------|---------|--------------------|
| $C_R$ (μF)  | Case dimensions $d \times l$ (mm) |         |                    |                    |         |                    |         |                    |
| 560         |                                   |         |                    |                    |         |                    |         | 25 × 25            |
| 680         |                                   |         |                    |                    |         |                    |         | 22 × 35            |
| 1 000       |                                   |         |                    |                    |         | 22 × 25            | 25 × 25 | 25 × 35<br>30 × 30 |
| 1 200       |                                   |         |                    |                    |         |                    | 30 × 25 |                    |
| 1 500       |                                   |         |                    |                    |         | 22 × 35            | 25 × 35 | 30 × 40            |
| 2 200       |                                   |         |                    | 22 × 25            | 22 × 35 | 25 × 35<br>30 × 30 | 30 × 35 | 30 × 50            |
| 3 300       |                                   |         |                    | 22 × 30<br>25 × 25 | 25 × 35 | 30 × 40            | 35 × 35 | 35 × 50            |
| 4 700       |                                   |         | 22 × 30<br>25 × 25 | 22 × 40            | 30 × 35 | 35 × 35            | 35 × 45 |                    |
| 6 800       | 22 × 25                           | 22 × 30 | 25 × 30            | 25 × 40            | 30 × 50 | 35 × 50            |         |                    |
| 10 000      | 22 × 30                           | 25 × 30 | 25 × 40            | 30 × 40            | 35 × 45 |                    |         |                    |
| 15 000      | 22 × 40                           | 25 × 40 | 30 × 40            | 35 × 40            |         |                    |         |                    |
| 18 000      |                                   |         |                    | 35 × 45            |         |                    |         |                    |
| 22 000      | 30 × 35                           | 30 × 40 |                    |                    |         |                    |         |                    |
| 33 000      | 30 × 45                           |         |                    |                    |         |                    |         |                    |

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


**Overview of available types**
**Type B 43 505**

| $U_R$ (VDC) | 200                               | 250                | 400                | 450                |
|-------------|-----------------------------------|--------------------|--------------------|--------------------|
| $C_R$ (μF)  | Case dimensions $d \times l$ (mm) |                    |                    |                    |
| 100         |                                   |                    | 25 × 30            | 22 × 45<br>30 × 30 |
| 150         |                                   |                    | 25 × 40<br>30 × 30 | 25 × 45<br>30 × 35 |
| 220         | 22 × 30                           | 25 × 30            | 30 × 40<br>35 × 30 | 30 × 45<br>35 × 35 |
| 330         | 22 × 40                           | 25 × 40<br>30 × 30 | 30 × 50<br>35 × 40 | 35 × 50            |
| 390         |                                   |                    | 35 × 45            | 35 × 50            |
| 470         | 25 × 40<br>30 × 30                | 30 × 35            | 35 × 50            |                    |
| 680         | 30 × 40                           | 30 × 45            |                    |                    |
| 1 000       | 35 × 45                           | 35 × 45            |                    |                    |
| 1 500       | 35 × 50                           |                    |                    |                    |

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    | $ESR_{typ}$                   | $Z_{max}$                     | $I_{~max}$           | $I_{~max}$           | $I_{~R}^{1)}$         | Ordering code <sup>2)</sup> |
|---------------|----------------------------|--------------------|-------------------------------|-------------------------------|----------------------|----------------------|-----------------------|-----------------------------|
| VDC           | 100 Hz<br>20 °C<br>$\mu F$ | $d \times l$<br>mm | 100 Hz<br>20 °C<br>m $\Omega$ | 10 kHz<br>20 °C<br>m $\Omega$ | 100 Hz<br>40 °C<br>A | 100 Hz<br>85 °C<br>A | 100 Hz<br>105 °C<br>A |                             |
| <b>B41505</b> |                            |                    |                               |                               |                      |                      |                       |                             |
| 10            | 6 800                      | 22 × 25            | 98                            | 78                            | 4,2                  | 2,8                  | 1,4                   | B41505A3688M000             |
|               | 10 000                     | 22 × 30            | 70                            | 56                            | 5,4                  | 3,6                  | 1,8                   | B41505A3109M000             |
|               | 15 000                     | 22 × 40            | 49                            | 39                            | 6,9                  | 4,6                  | 2,3                   | B41505A3159M000             |
|               | 22 000                     | 30 × 35            | 35                            | 28                            | 9,0                  | 6,0                  | 3,0                   | B41505A3229M000             |
|               | 33 000                     | 30 × 45            | 25                            | 20                            | 12                   | 7,8                  | 3,9                   | B41505A3339M000             |
| 16            | 6 800                      | 22 × 30            | 61                            | 49                            | 5,4                  | 3,6                  | 1,8                   | B41505A4688M000             |
|               | 10 000                     | 25 × 30            | 45                            | 36                            | 6,6                  | 4,4                  | 2,2                   | B41505A4109M000             |
|               | 15 000                     | 25 × 40            | 32                            | 26                            | 8,4                  | 5,6                  | 2,8                   | B41505A4159M000             |
|               | 22 000                     | 30 × 40            | 23                            | 18                            | 11                   | 7,0                  | 3,5                   | B41505A4229M000             |
| 25            | 4 700                      | 22 × 30            | 71                            | 57                            | 4,8                  | 3,2                  | 1,6                   | B41505A5478M000             |
|               | 4 700                      | 25 × 25            | 71                            | 57                            | 4,8                  | 3,2                  | 1,6                   | B41505F5478M000             |
|               | 6 800                      | 25 × 30            | 54                            | 43                            | 5,7                  | 3,8                  | 1,9                   | B41505A5688M000             |
|               | 10 000                     | 25 × 40            | 40                            | 32                            | 7,5                  | 5,0                  | 2,5                   | B41505A5109M000             |
|               | 15 000                     | 30 × 40            | 29                            | 23                            | 9,6                  | 6,4                  | 3,2                   | B41505A5159M000             |
| 35            | 2 200                      | 22 × 25            | 113                           | 90                            | 3,3                  | 2,2                  | 1,1                   | B41505A7228M000             |
|               | 3 300                      | 22 × 30            | 75                            | 60                            | 4,5                  | 3,0                  | 1,5                   | B41505A7338M000             |
|               | 3 300                      | 25 × 25            | 75                            | 60                            | 4,5                  | 3,0                  | 1,5                   | B41505F7338M000             |
|               | 4 700                      | 22 × 40            | 60                            | 48                            | 5,7                  | 3,8                  | 1,9                   | B41505A7478M000             |
|               | 6 800                      | 25 × 40            | 46                            | 37                            | 6,9                  | 4,6                  | 2,3                   | B41505A7688M000             |
|               | 10 000                     | 30 × 40            | 35                            | 28                            | 8,7                  | 5,8                  | 2,9                   | B41505A7109M000             |
|               | 15 000                     | 35 × 40            | 25                            | 20                            | 11                   | 7,6                  | 3,8                   | B41505A7159M000             |
|               | 18 000                     | 35 × 45            | 23                            | 18                            | 13                   | 8,6                  | 4,3                   | B41505A7189M000             |
| 50            | 2 200                      | 22 × 35            | 113                           | 90                            | 4,2                  | 2,8                  | 1,4                   | B41505A6228M000             |
|               | 3 300                      | 25 × 35            | 75                            | 60                            | 5,4                  | 3,6                  | 1,8                   | B41505A6338M000             |
|               | 4 700                      | 30 × 35            | 56                            | 45                            | 6,6                  | 4,4                  | 2,2                   | B41505A6478M000             |
|               | 6 800                      | 30 × 50            | 44                            | 35                            | 8,7                  | 5,8                  | 2,9                   | B41505A6688M000             |
|               | 10 000                     | 35 × 45            | 33                            | 26                            | 11                   | 7,2                  | 3,6                   | B41505A6109M000             |

1) 120 Hz conversion factor of ripple current:  $I_{~}(120 \text{ Hz}) = 1,03 \cdot I_{~}(100 \text{ Hz})$

2) Ordering code for standard terminals (6,3 mm).

To determine the ordering code for short terminals (4,5 mm) and 3 terminals (4,5 mm) see page 258.



| $U_R$     | $C_R$<br>100 Hz<br>20 °C<br>$\mu F$ | Case<br>dimensions<br>$d \times l$<br>mm | $ESR_{typ}$<br>100 Hz<br>20 °C<br>m $\Omega$ | $Z_{max}$<br>10 kHz<br>20 °C<br>m $\Omega$ | $I_{~max}$<br>100 Hz<br>40 °C<br>A | $I_{~max}$<br>100 Hz<br>85 °C<br>A | $I_{~R}^{1)}$<br>100 Hz<br>105 °C<br>A | Ordering code <sup>2)</sup> |
|-----------|-------------------------------------|------------------------------------------|----------------------------------------------|--------------------------------------------|------------------------------------|------------------------------------|----------------------------------------|-----------------------------|
| 63<br>VDC | 1000                                | 22 × 25                                  | 199                                          | 159                                        | 3,0                                | 2,0                                | 1,0                                    | B41505A8108M000             |
|           | 1500                                | 22 × 35                                  | 133                                          | 106                                        | 4,2                                | 2,8                                | 1,4                                    | B41505A8158M000             |
|           | 2200                                | 25 × 35                                  | 90                                           | 72                                         | 5,1                                | 3,4                                | 1,7                                    | B41505A8228M000             |
|           | 2200                                | 30 × 30                                  | 106                                          | 85                                         | 5,4                                | 3,6                                | 1,8                                    | B41505F8228M000             |
|           | 3300                                | 30 × 40                                  | 70                                           | 56                                         | 6,9                                | 4,6                                | 2,3                                    | B41505A8338M000             |
|           | 4700                                | 35 × 35                                  | 56                                           | 45                                         | 8,1                                | 5,4                                | 2,7                                    | B41505A8478M000             |
|           | 6800                                | 35 × 50                                  | 39                                           | 31                                         | 11                                 | 7,2                                | 3,6                                    | B41505A8688M000             |
| 80        | 1000                                | 25 × 25                                  | 166                                          | 133                                        | 3,9                                | 2,6                                | 1,3                                    | B41505A0108M000             |
|           | 1200                                | 30 × 25                                  | 138                                          | 110                                        | 4,5                                | 3,0                                | 1,5                                    | B41505A0128M000             |
|           | 1500                                | 25 × 35                                  | 111                                          | 89                                         | 5,4                                | 3,6                                | 1,8                                    | B41505A0158M000             |
|           | 2200                                | 30 × 35                                  | 75                                           | 60                                         | 6,0                                | 4,0                                | 2,0                                    | B41505A0228M000             |
|           | 3300                                | 35 × 35                                  | 60                                           | 48                                         | 8,4                                | 5,6                                | 2,8                                    | B41505A0338M000             |
|           | 4700                                | 35 × 45                                  | 42                                           | 34                                         | 10                                 | 6,8                                | 3,4                                    | B41505A0478M000             |
| 100       | 560                                 | 25 × 25                                  | 237                                          | 190                                        | 3,0                                | 2,0                                | 1,0                                    | B41505A9567M000             |
|           | 680                                 | 22 × 35                                  | 195                                          | 156                                        | 3,6                                | 2,4                                | 1,2                                    | B41505A9687M000             |
|           | 1000                                | 25 × 35                                  | 133                                          | 106                                        | 4,2                                | 2,8                                | 1,4                                    | B41505A9108M000             |
|           | 1000                                | 30 × 30                                  | 133                                          | 106                                        | 4,5                                | 3,0                                | 1,5                                    | B41505F9108M000             |
|           | 1500                                | 30 × 40                                  | 88                                           | 70                                         | 5,7                                | 3,8                                | 1,9                                    | B41505A9158M000             |
|           | 2200                                | 30 × 50                                  | 75                                           | 60                                         | 6,9                                | 4,6                                | 2,3                                    | B41505A9228M000             |
|           | 3300                                | 35 × 50                                  | 50                                           | 40                                         | 9,0                                | 6,0                                | 3,0                                    | B41505A9338M000             |

1) 120 Hz conversion factor of ripple current:  $I_{~}(120 \text{ Hz}) = 1,03 \cdot I_{~}(100 \text{ Hz})$

2) Ordering code for standard terminals (6,3 mm).

To determine the ordering code for short terminals (4,5 mm) and 3 terminals (4,5 mm) see page 258.





# Technical data and ordering codes

| $U_R$ | $C_R$   | Case dimensions | $ESR_{typ}$ | $Z_{max}$  | $I_{~max}$ | $I_{~max}$ | $I_{~R}^{1)}$ | Ordering code <sup>2)</sup> |
|-------|---------|-----------------|-------------|------------|------------|------------|---------------|-----------------------------|
|       | 100 Hz  | $d \times l$    | 100 Hz      | 10 kHz     | 100 Hz     | 100 Hz     | 100 Hz        |                             |
|       | 20 °C   | mm              | 20 °C       | 20 °C      | 40 °C      | 85 °C      | 105 °C        |                             |
| VDC   | $\mu F$ |                 | m $\Omega$  | m $\Omega$ | A          | A          | A             |                             |

## B43305

|     |       |         |      |      |     |     |      |                 |
|-----|-------|---------|------|------|-----|-----|------|-----------------|
| 200 | 220   | 22 × 30 | 580  | 700  | 2,9 | 1,9 | 0,96 | B43505E2227M000 |
|     | 330   | 22 × 40 | 390  | 470  | 4,0 | 2,6 | 1,3  | B43505E2337M000 |
|     | 470   | 25 × 40 | 280  | 330  | 5,1 | 3,4 | 1,7  | B43505E2477M000 |
|     | 470   | 30 × 30 | 280  | 330  | 5,1 | 3,3 | 1,7  | B43505G2477M000 |
|     | 680   | 30 × 40 | 190  | 230  | 6,7 | 4,4 | 2,2  | B43505E2687M000 |
|     | 1 000 | 35 × 45 | 130  | 160  | 9,4 | 6,2 | 3,1  | B43505E2108M000 |
|     | 1 500 | 35 × 50 | 90   | 110  | 12  | 7,8 | 3,9  | B43505E2158M000 |
| 250 | 220   | 25 × 30 | 580  | 700  | 3,2 | 2,1 | 1,0  | B43505A2227M000 |
|     | 330   | 25 × 40 | 390  | 470  | 4,3 | 2,8 | 1,4  | B43505A2337M000 |
|     | 330   | 30 × 30 | 390  | 470  | 4,2 | 2,8 | 1,4  | B43505C2337M000 |
|     | 470   | 30 × 35 | 280  | 330  | 5,3 | 3,5 | 1,8  | B43505A2477M000 |
|     | 680   | 30 × 45 | 190  | 230  | 7,0 | 4,6 | 2,3  | B43505A2687M000 |
|     | 1 000 | 35 × 45 | 130  | 160  | 9,4 | 6,2 | 3,1  | B43505A2108M000 |
| 400 | 100   | 25 × 30 | 880  | 1090 | 2,1 | 1,4 | 0,70 | B43505A9107M000 |
|     | 150   | 25 × 40 | 590  | 730  | 2,9 | 1,9 | 0,95 | B43505A9157M000 |
|     | 150   | 30 × 30 | 590  | 730  | 2,9 | 1,9 | 0,94 | B43505C9157M000 |
|     | 220   | 30 × 40 | 400  | 500  | 3,8 | 2,5 | 1,3  | B43505A9227M000 |
|     | 220   | 35 × 30 | 400  | 500  | 3,8 | 2,5 | 1,3  | B43505C9227M000 |
|     | 330   | 30 × 50 | 270  | 330  | 5,1 | 3,3 | 1,7  | B43505A9337M000 |
|     | 330   | 35 × 40 | 270  | 330  | 5,2 | 3,4 | 1,7  | B43505C9337M000 |
|     | 390   | 35 × 45 | 230  | 280  | 5,9 | 3,8 | 1,9  | B43505A9397M000 |
|     | 470   | 35 × 50 | 190  | 240  | 6,7 | 4,4 | 2,2  | B43505A9477M000 |
| 450 | 100   | 22 × 45 | 1360 | 1600 | 2,3 | 1,5 | 0,75 | B43505A5107M000 |
|     | 100   | 30 × 30 | 1360 | 1600 | 2,3 | 1,5 | 0,76 | B43505C5107M000 |
|     | 150   | 25 × 45 | 910  | 1070 | 3,0 | 2,0 | 1,0  | B43505A5157M000 |
|     | 150   | 30 × 35 | 910  | 1070 | 3,0 | 2,0 | 0,99 | B43505C5157M000 |
|     | 220   | 30 × 45 | 620  | 730  | 4,0 | 2,6 | 1,3  | B43505A5227M000 |
|     | 220   | 35 × 35 | 620  | 730  | 4,0 | 2,7 | 1,3  | B43505C5227M000 |
|     | 330   | 35 × 50 | 410  | 490  | 5,6 | 3,7 | 1,8  | B43505A5337M000 |
|     | 390   | 35 × 50 | 350  | 410  | 6,1 | 4,0 | 2,0  | B43505A5397M000 |

Preferred types

1) 120 Hz conversion factor of ripple current:  $I_{~}(120 \text{ Hz}) = 1,03 \cdot I_{~}(100 \text{ Hz})$

2) Ordering code for standard terminals (6,3 mm).

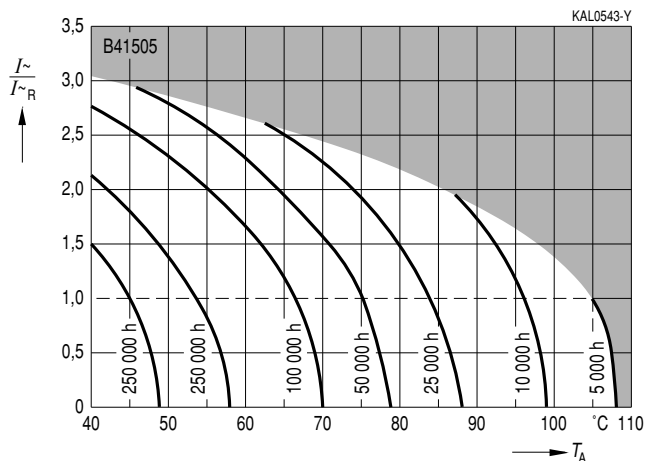
To determine the ordering code for short terminals (4,5 mm) and 3 terminals (4,5 mm) see page 258.



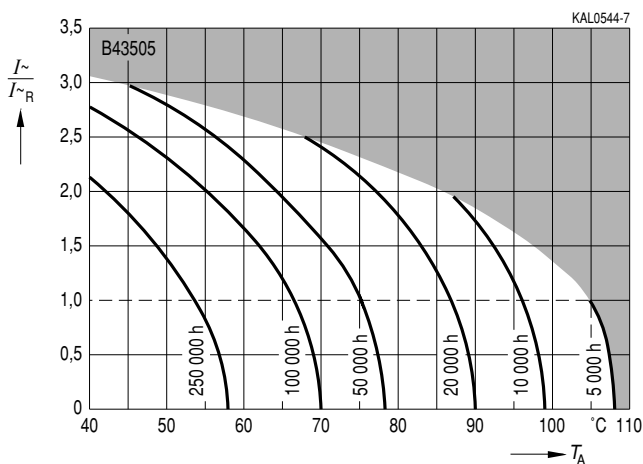
### Useful life

depending on ambient temperature  $T_A$  under ripple current operating conditions<sup>1)</sup>

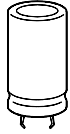
$U_R \leq 100$  VDC



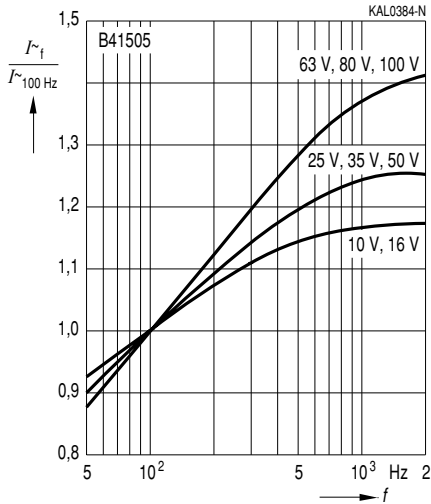
$U_R \geq 200$  VDC



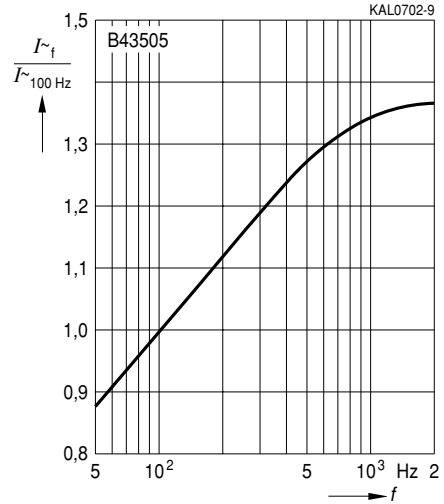
<sup>1)</sup> Refer to page 40 for an explanation on how to interpret the useful life graphs.



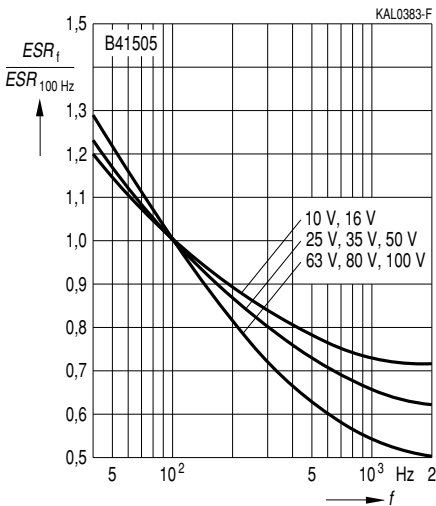
**Frequency factor of permissible ripple current  $I_{\sim}$  versus frequency  $f$**   
 $U_R \leq 100$  VDC



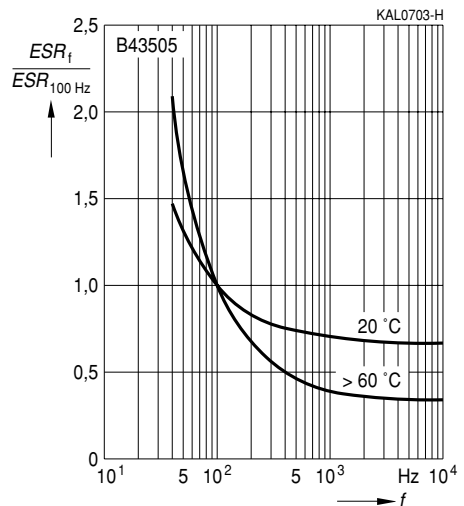
**Frequency factor of permissible ripple current  $I_{\sim}$  versus frequency  $f$**   
 $U_R \geq 200$  VDC



**Frequency characteristics of ESR**  
Typical behavior  
 $U_R \leq 100$  VDC



**Frequency characteristics of ESR**  
Typical behavior  
 $U_R \geq 200$  VDC



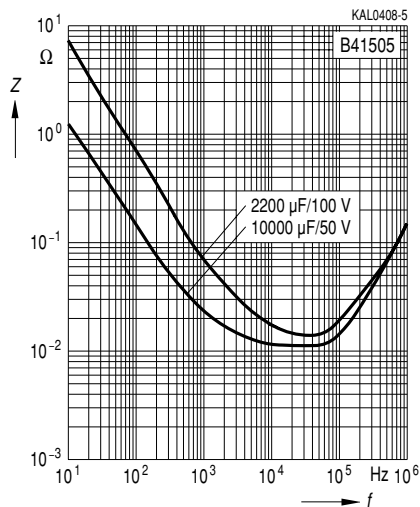


### Impedance $Z$

versus frequency  $f$

Typical behavior at 20 °C

$U_R \leq 100$  VDC

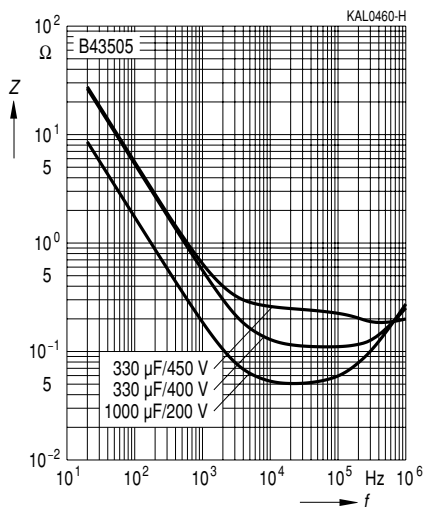


### Impedance $Z$

versus frequency  $f$

Typical behavior at 20 °C

$U_R \geq 200$  VDC



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