

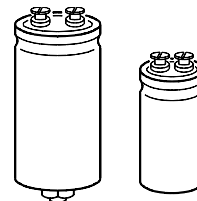
Capacitors with Screw Terminals 85 °C

B 41 456
B 41 458

LL grade
Compact low-voltage type
For professional power supplies

Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Poles with screw terminal connections
- Mounting with ring clips, clamps or threaded stud
- The bases of types with threaded stud are not insulated



KAL0272-T

B 41 458 B 41 456

Features

- High reliability
- Extremely good electrical characteristics and small dimensions
- High ripple current capability
- All-welded construction ensures reliable electrical contact
- Type with optimized construction for base cooling upon request

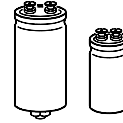
Applications

- General industrial electronics
- For switch-mode power supplies in professional equipment
- For link circuits in converters

Specifications and characteristics in brief

Rated voltage U_R	16 to 100 V–
Surge voltage U_S	$1,15 \cdot U_R$
Rated capacitance C_R	2 200 to 680 000 μF
Capacitance tolerance	$\pm 20 \% \triangleq \text{M}$
Useful life	
40 °C, U_R	$> 200\,000 \text{ h } (2,9 \cdot I_{-R,85^\circ\text{C}})$
85 °C, U_R, I_{-R}	$> 12\,000 \text{ h}$
Failure percentage	$\leq 1 \%$ (during useful life)
Failure rate	$\leq 40 \text{ fit}$ ($\leq 40 \cdot 10^{-9}/\text{h}$)
Voltage endurance test	2 000 h, 85 °C (at U_R)
Leakage current I_{lka} (5 min, 20 °C)	$I_{\text{lka}} \leq 0,3 \mu\text{A} \cdot \left(\frac{C_R}{\mu\text{F}} \cdot \frac{U_R}{\text{V}}\right)^{0,7} + 4 \mu\text{A}$
Self-inductance L_{ESL}	approx. 20 nH
IEC climatic category	in accordance with IEC 68-1 40/085/56 (–40 °C/+85 °C, 56 days damp heat test)

B 41 456
B 41 458



Specifications and characteristics in brief

Detail specifications	similar to CECC 30 301-810
Sectional specification	IEC 384-4
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

Due to the current load capability of the contact elements, the following current limits must not be exceeded, even if the frequency and temperature factors have been taken into account:

Capacitor diameter	≤ 51,6 mm	64,3 mm	76,9 mm
Maximum current	30 A	40 A	50 A

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
	M 6	A 6,4 DIN 6797	Cylinder-head screw M 6 × 12 DIN 85-4.8	2,5 Nm
For mounting	M 8	J 8,2 DIN 6797	Hex nut BM 8 DIN 439	4 Nm
	M 12	J 12,5 DIN 6797	Hex nut BM 12 DIN 439	10 Nm

The following must be ordered separately:

Ring clips

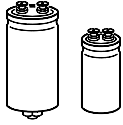
B 44 030 (cf. [page 148](#))

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

B 44 030 (cf. [page 152](#))

Insulating parts

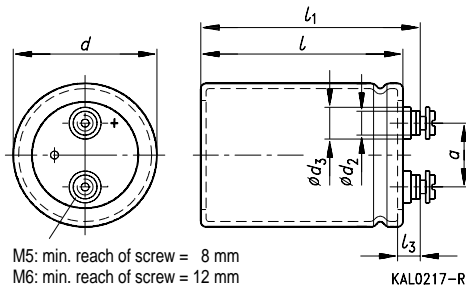
B 44 020 (cf. [page 145](#))



B 41 456
B 41 458

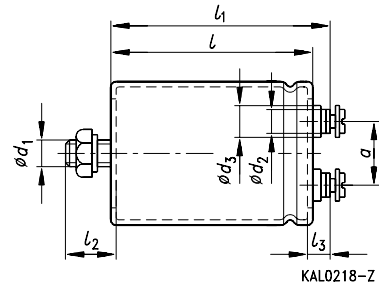
Dimensional drawings

Type B 41 456
Ring clip/clamp mounting



M5: min. reach of screw = 8 mm
M6: min. reach of screw = 12 mm

Type B 41 458
Threaded stud mounting



Positive pole marking: +

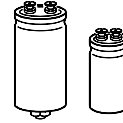
Screw terminals with UNF threads are available upon request.

Terminal	Dimensions (mm) with insulating sleeve										Approx. wt. (g)
	d	$l \pm 1$	$l_1 \pm 1$	$l_2 \begin{smallmatrix} +0 \\ -1 \end{smallmatrix}$	l_3	d_1	$d_2 \text{ max}$	$d_3 \text{ max}$	$a \begin{smallmatrix} +0.2 \\ -0.4 \end{smallmatrix}$		
M 5	35,7+ 0/- 0,8	55,7	62,2	13	7,0+ 0,2/- 1	M 8	8,2	13,5	12,7	65	
M 5	35,7+ 0/- 0,8	80,7	87,2	13	7,0+ 0,2/- 1	M 8	8,2	13,5	12,7	105	
M 5	35,7+ 0/- 0,8	105,7	112,2	13	7,0+ 0,2/- 1	M 8	8,2	13,5	12,7	135	
M 5	51,6+ 0/- 0,8	80,7	87,2	17	7,0+ 0,2/- 1	M 12	8,2	13,5	22,2	220	
M 5	51,6+ 0/- 0,8	105,7	112,2	17	7,0+ 0,2/- 1	M 12	8,2	13,5	22,2	280	
M 5	64,3+ 0/- 0,8	105,7	112,2	17	7,0+ 0,2/- 1	M 12	8,2	13,5	28,5	440	
M 6	76,9+ 0/- 0,7	105,7	111,5	17	6,4+ 1,1/- 0,8	M 12	17,7	17,7	31,7	540	
M 6	76,9+ 0/- 0,7	143,2	149,0	17	6,4+ 1,1/- 0,8	M 12	17,7	17,7	31,7	840	
M 6	76,9+ 0/- 0,7	220,7	226,5	17	6,4+ 1,1/- 0,8	M 12	17,7	17,7	31,7	1300	

Packing units

Capacitor diameter d	Packing units (pieces)
35,7 mm	72
51,6 mm	36
64,3 mm	20
76,9 mm	16

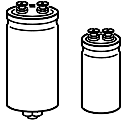
B 41 456
B 41 458



Overview of available types

U_R (V-)	16	25	40	63	100
C_R (μ F)	Case dimensions $d \times l$ (mm)				
2 200					35,7 × 55,7
3 300					35,7 × 80,7
4 700				35,7 × 55,7	35,7 × 80,7
6 800				35,7 × 55,7	35,7 × 105,7
10 000			35,7 × 55,7	35,7 × 80,7	51,6 × 80,7
15 000			35,7 × 80,7	35,7 × 105,7	51,6 × 105,7
22 000	35,7 × 55,7	35,7 × 55,7	35,7 × 80,7	51,6 × 80,7	64,3 × 105,7
33 000	35,7 × 55,7	35,7 × 80,7	35,7 × 105,7	51,6 × 105,7	76,9 × 105,7
47 000	35,7 × 80,7	35,7 × 105,7	51,6 × 80,7	64,3 × 105,7	76,9 × 143,2
68 000	35,7 × 105,7	51,6 × 80,7	51,6 × 105,7	76,9 × 105,7	
100 000	51,6 × 80,7	51,6 × 105,7	64,3 × 105,7	76,9 × 143,2	
150 000	51,6 × 80,7	64,3 × 105,7	76,9 × 105,7	76,9 × 220,7	
220 000	64,3 × 105,7	64,3 × 105,7	76,9 × 143,2		
330 000	64,3 × 105,7	76,9 × 143,2			
470 000	76,9 × 143,2	76,9 × 220,7			
680 000	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.



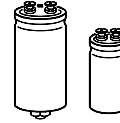
B 41 456
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Technical data and ordering codes

U_R	C_R	Case dimensions $d \times l$ mm	$R_{ESR, typ}$ 100 Hz 20 °C mΩ	$R_{ESR, max}$ 100 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	I_{-max} 100 Hz 40 °C A	I_{-R} 100 Hz 85 °C A	Ordering code ¹⁾ Short code
B41456-, B41458-								
16	22 000	35,7 × 55,7	14,1	28	23	21	7,1	-B4229-M
	33 000	35,7 × 55,7	10	21	17	24	8,3	-B4339-M
	47 000	35,7 × 80,7	7,9	16	13	30	11	-B4479-M
	68 000	35,7 × 105,7	6,3	13	10	30	13	-B4689-M
	100 000	51,6 × 80,7	5,1	10	8,2	30	14	-B4100-M
	150 000	51,6 × 80,7	4,2	8,4	6,8	30	15	-B4150-M
	220 000	64,3 × 105,7	3,7	7,3	5,9	40	20	-B4220-M
	330 000	64,3 × 105,7	3,3	6,6	5,3	50	21	-B4330-M
	470 000	76,9 × 143,2	3,0	6,1	4,9	50	25	-B4470-M
680 000	76,9 × 143,2	2,9	5,8	4,6	50	26	-B4680-M	
25	22 000	35,7 × 55,7	13	25	20	22	7,7	-B5229-M
	33 000	35,7 × 80,7	9,3	19	15	29	10	-B5339-M
	47 000	35,7 × 105,7	7,3	15	12	30	12	-B5479-M
	68 000	51,6 × 80,7	5,8	12	9,3	30	13	-B5689-M
	100 000	51,6 × 105,7	4,7	9,5	7,6	48	16	-B5100-M
	150 000	64,3 × 105,7	4,0	8,0	6,4	40	20	-B5150-M
	220 000	64,3 × 105,7	3,5	7,0	5,6	50	21	-B5220-M
	330 000	76,9 × 143,2	3,2	6,4	5,1	50	25	-B5330-M
	470 000	76,9 × 220,7	3,0	6,0	4,8	50	31	-B5470-M
40	10 000	35,7 × 55,7	19	37	34	18	6,3	-B7109-M
	15 000	35,7 × 80,7	13	27	24	24	8,3	-B7159-M
	22 000	35,7 × 80,7	10	20	18	28	9,6	-B7229-M
	33 000	35,7 × 105,7	7,4	15	13	30	12	-B7339-M
	47 000	51,6 × 80,7	5,9	12	10	30	13	-B7479-M
	68 000	51,6 × 105,7	4,9	10	8,4	30	16	-B7689-M
	100 000	64,3 × 105,7	4,1	8,2	7,0	40	19	-B7100-M
	150 000	76,9 × 105,7	3,6	7,2	6,0	50	21	-B7150-M
	220 000	76,9 × 143,2	3,2	6,5	5,4	50	25	-B7220-M

1) To obtain the required ordering code, prefix the type number to the short code. E. g.: B41456-B4229-M
B41456-... (ring clip/clamp mounting)
B41458-... (with threaded stud)

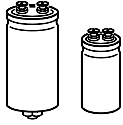
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Technical data and ordering codes

U_R	C_R	Case dimensions $d \times l$ mm	$R_{ESR, typ}$ 100 Hz 20 °C mΩ	$R_{ESR, max}$ 100 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{~max}$ 100 Hz 40 °C A	$I_{~R}$ 100 Hz 85 °C A	Ordering code ¹⁾ Short code
B41456-, B41458-								
63	4 700	35,7 × 55,7	30	60	58	14	4,9	-B8478-M
	6 800	35,7 × 55,7	22	43	42	17	5,9	-B8688-M
	10 000	35,7 × 80,7	15	31	30	23	7,7	-B8109-M
	15 000	35,7 × 105,7	11	22	21	30	10	-B8159-M
	22 000	51,6 × 80,7	8,0	16	16	30	11	-B8229-M
	33 000	51,6 × 105,7	6,0	12	12	30	14	-B8339-M
	47 000	64,3 × 105,7	4,8	10	9,4	40	18	-B8479-M
	68 000	76,9 × 105,7	4,0	7,9	7,8	50	20	-B8689-M
	100 000	76,9 × 143,2	3,3	6,7	6,6	50	25	-B8100-M
150 000	76,9 × 220,7	2,9	5,8	5,7	50	31	-B8150-M	
100	2 200	35,7 × 55,7	32	80	70	13	4,3	-B9228-M
	3 300	35,7 × 80,7	22	55	48	17	5,8	-B9338-M
	4 700	35,7 × 80,7	16	40	35	20	6,7	-B9478-M
	6 800	35,7 × 105,7	12	29	25	25	8,7	-B9688-M
	10 000	51,6 × 80,7	8,6	22	18	30	10	-B9109-M
	15 000	51,6 × 105,7	6,4	16	14	38	13	-B9159-M
	22 000	64,3 × 105,7	5,0	13	11	40	17	-B9229-M
	33 000	76,9 × 105,7	4,0	10	8,4	50	19	-B9339-M
47 000	76,9 × 143,2	3,4	8,5	7,1	50	24	-B9479-M	

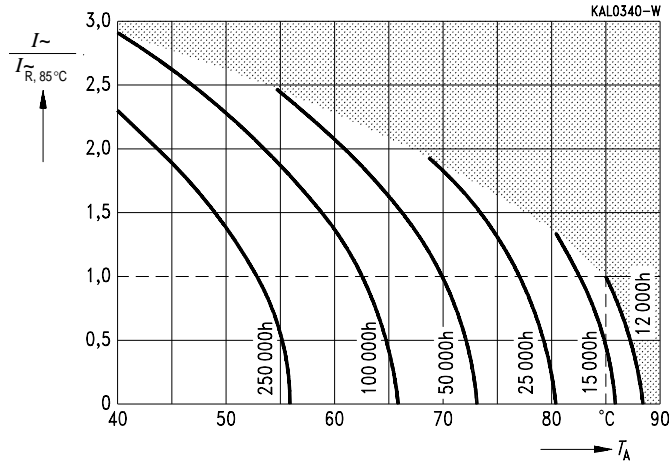
1) To obtain the required ordering code, prefix the type number to the short code. E. g.: B41456-B8478-M
B41456-... (ring clip/clamp mounting)
B41458-... (with threaded stud)



B 41 456
B 41 458

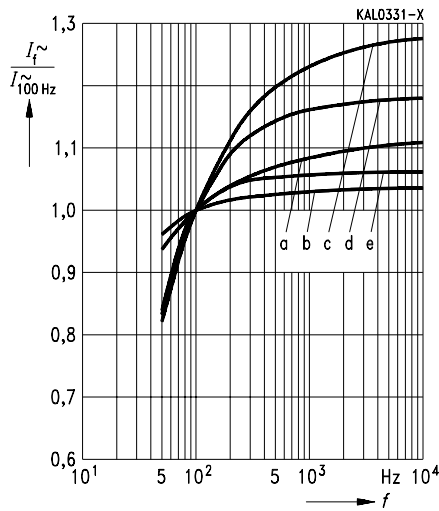
Useful life

versus ambient temperature T_A under ripple current operating conditions¹⁾



Permissible ripple current I_r

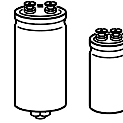
versus frequency f



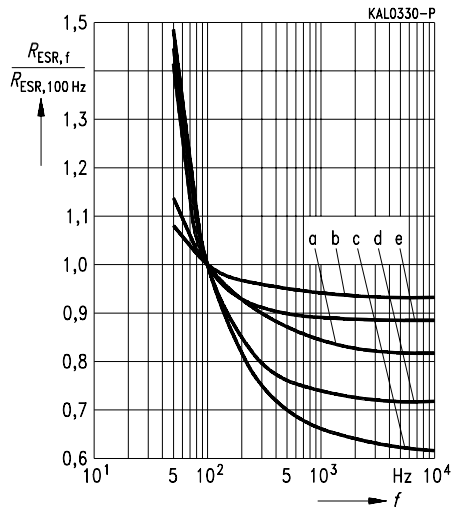
d (mm)	35,7	51,6	64,3	76,9
≤ 63 V-	a	a	a	b
100 V-	c	d	d	e

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

B 41 456
B 41 458

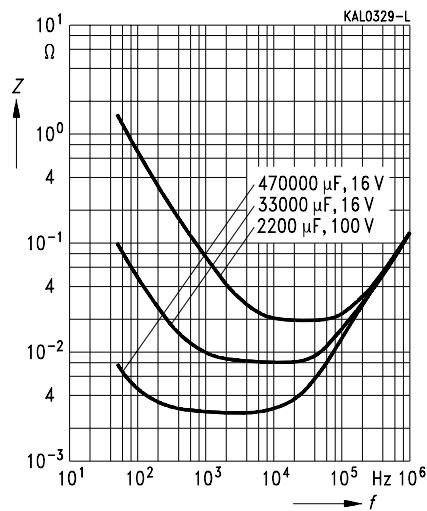


Equivalent series resistance R_{ESR}
versus frequency f
Typical behavior



d (mm)	35,7	51,6	64,3	76,9
≤ 63 V-	a	a	a	b
100 V-	c	d	d	e

Impedance Z
versus frequency f
Typical behavior



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