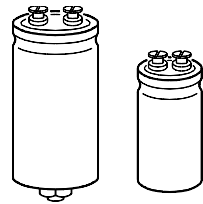


LL grade
Compact high-voltage type
For professional power supplies

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 and $d \leq 76,9$ mm are not insulated, types with $d = 91$ mm have fully insulated bases



KAL0272-T

B 43 458 B 43 456

Features

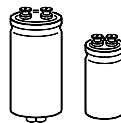
- Very compact, i. e. high CU product
- High reliability and ripple current capability
- All-welded construction ensures reliable electrical contact
- Type with optimized construction for base cooling upon request

Applications

- Professional power supplies
- For switch-mode power supplies in industrial electronics

Specifications and characteristics in brief

Rated voltage U_R	350 to 450 V–
Surge voltage U_S	$1,10 \cdot U_R$
Rated capacitance C_R	1 000 to 18 000 μF
Capacitance tolerance	$\pm 20 \% \triangleq \text{M}$
Useful life	
40 °C, U_R	$> 250\,000 \text{ h } (1,5 \cdot I_{R,85^\circ\text{C}})$
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)	$I_{lka} \leq 0,3 \mu\text{A} \cdot \left(\frac{C_R}{\mu\text{F}} \cdot \frac{U_R}{\text{V}} \right)^{0,7} + 4 \mu\text{A}$
Self-inductance L_{ESL}	approx. 20 nH
IEC climatic category	in accordance with IEC 68-1 $\leq 400 \text{ V–: } 40/085/56 (-40^\circ\text{C}/+85^\circ\text{C}, 56 \text{ days damp heat test})$ $450 \text{ V–: } 25/085/56 (-25^\circ\text{C}/+85^\circ\text{C}, 56 \text{ days damp heat test})$



Specifications and characteristics in brief

Detail specifications	similar to CECC 30 301-803, CECC 30 301-807
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 <i>g</i> , 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	91,0 mm
Maximum current	30 A	40 A	50 A	70 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 12	J 12,5 DIN 6797	Hex nut BM 12 DIN 439	10 Nm

The following must be ordered separately:

Ring clips

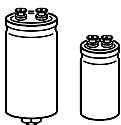
B 44 030 (cf. [page 148](#))

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

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

Insulating parts

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

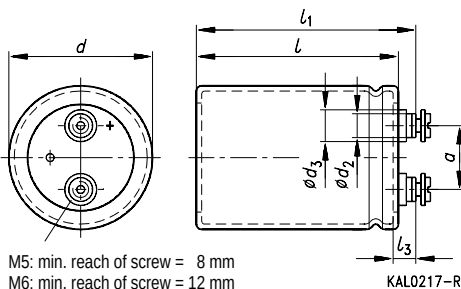


B 43 456
B 43 458

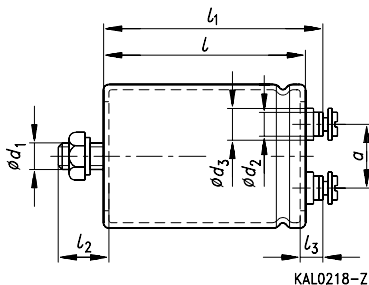
Optimized range

Dimensional drawings

Type B 43 456
Ring clip/clamp mounting



Type B 43 458
Threaded stud mounting



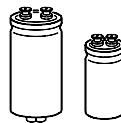
Positive pole marking: +

The base of all types with stud mounting and $d = 91$ mm is fully insulated (the lengths l and l_1 are increased by 0,5 mm in these cases). Also refer to the notes on mounting given on [page 147](#).
Screw terminals with UNF threads are available upon request.

Ter- minal	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	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
M 6	91,0 $+0/-2$	144,5	149,8	17	6,4 $+1,1/-0,8$	M 12	17,7	17,7	31,7	1200
M 6	91,0 $+0/-2$	221,0	226,3	17	6,4 $+1,1/-0,8$	M 12	17,7	17,7	31,7	1900

Packing units

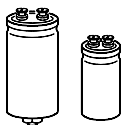
Capacitor diameter d	Packing units (pieces)
51,6 mm	36
64,3 mm	20
76,9 mm	16
91,0 mm	8



Overview of available types

U_R (V-)	350	400	450
C_R (μF)	Case dimensions $d \times l$ (mm)		
1 000		51,6 × 80,7	51,6 × 80,7
1 500	51,6 × 80,7	51,6 × 80,7	51,6 × 105,7
2 200	51,6 × 105,7	51,6 × 105,7	64,3 × 105,7
3 300		64,3 × 105,7	76,9 × 105,7
3 900	64,3 × 105,7		
4 700		76,9 × 105,7	
5 600	76,9 × 105,7		76,9 × 143,2
6 800		76,9 × 143,2	91,0 × 144,5
8 200	76,9 × 143,2		76,9 × 220,7
10 000		91,0 × 144,5	
12 000	91,0 × 144,5	76,9 × 220,7	91,0 × 221,0
15 000	76,9 × 220,7	91,0 × 221,0	
18 000	91,0 × 221,0		

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



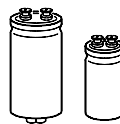
B 43 456
B 43 458

Optimized range

Technical data and ordering codes

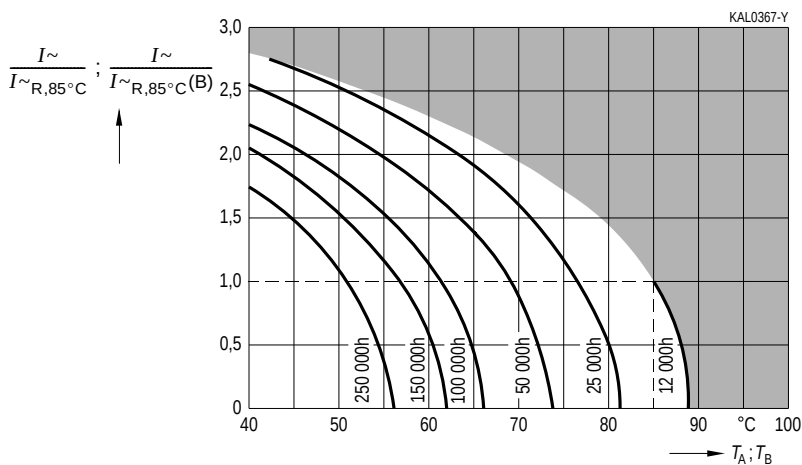
U_R	C_R	Case dimensions $d \times l$ mm	$R_{ESR, \max}$ 100 Hz 20 °C mΩ	$Z_{\max}$ 10 kHz 20 °C mΩ	$I_{\max}$ 100 Hz 40 °C A	I_R 100 Hz 85 °C A	$I_R(B)$ 100 Hz 85 °C A	Ordering code ¹⁾
V-	μF							Short code
B43456-, B43458-								
350	1 500	51,6 × 80,7	110	93	16	5,7	11	-A4158-M
	2 200	51,6 × 105,7	73	63	21	7,6	14	-A4228-M
	3 900	64,3 × 105,7	41	38	32	12	21	-A4398-M
	5 600	76,9 × 105,7	29	28	43	15	30	-A4568-M
	8 200	76,9 × 143,2	20	20	50	20	36	-A4828-M
	12 000	91,0 × 144,5	14	14	70	28	52	-A4129-M
	15 000	76,9 × 220,7	11	11	50	34	50	-A4159-M
	18 000	91,0 × 221,0	9	9	70	38	58	-A4189-M
400	1 000	51,6 × 80,7	160	133	13	4,6	8,2	-A9108-M
	1 500	51,6 × 80,7	110	93	17	6,0	13	-A9158-M
	2 200	51,6 × 105,7	73	63	22	8,0	15	-A9228-M
	3 300	64,3 × 105,7	49	44	30	11	20	-A9338-M
	4 700	76,9 × 105,7	34	32	40	14	29	-A9478-M
	6 800	76,9 × 143,2	24	24	50	19	33	-A9688-M
	10 000	91,0 × 144,5	16	16	70	25	48	-A9109-M
	12 000	76,9 × 220,7	14	14	50	31	46	-A9129-M
	15 000	91,0 × 221,0	11	11	70	35	54	-A9159-M
450	1 000	51,6 × 80,7	220	190	13	4,8	9,6	-A5108-M
	1 500	51,6 × 105,7	150	130	18	6,5	12	-A5158-M
	2 200	64,3 × 105,7	100	85	24	8,4	15	-A5228-M
	3 300	76,9 × 105,7	65	57	32	12	23	-A5338-M
	5 600	76,9 × 143,2	38	35	49	17	31	-A5568-M
	6 800	91,0 × 144,5	32	31	57	20	37	-A5688-M
	8 200	76,9 × 220,7	26	26	50	24	36	-A5828-M
	12 000	91,0 × 221,0	18	18	70	32	51	-A5129-M

1) To obtain the required ordering code, prefix the type number to the short code. E. g.: B43456-B4158-M
B43456-... (ring clip/clamp mounting)
B43458-... (with threaded stud)

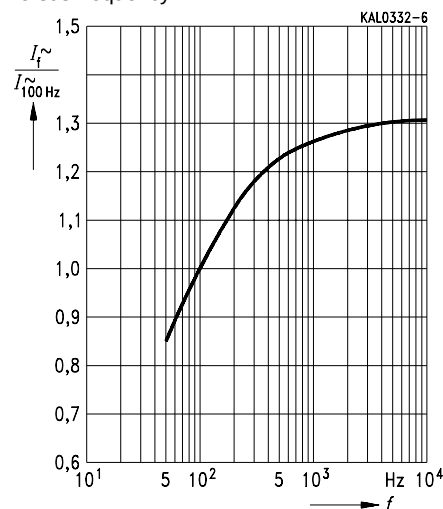


Useful life

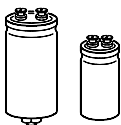
versus ambient temperature T_A (for natural cooling) and versus temperature of case base T_B (for base cooling) under ripple current operating conditions¹⁾



Permissible ripple current $I_{\sim}$ versus frequency f



1) The ripple current refers to $I_{\sim, 85^{\circ}\text{C}}$ for natural cooling or to $I_{\sim, 85^{\circ}\text{C(B)}}$ for base cooling, respectively. Refer to [page 34](#) for an explanation on how to interpret the useful life graphs.



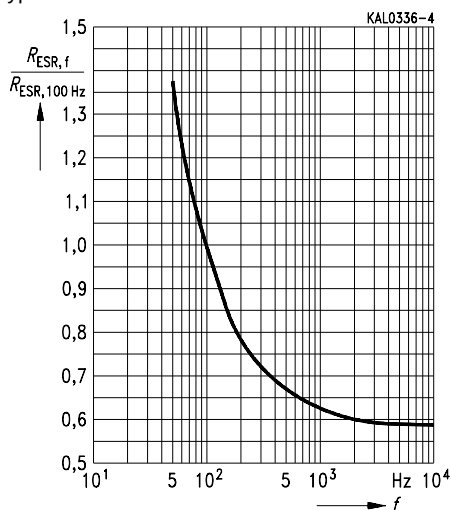
B 43 456
B 43 458

Optimized range

Equivalent series resistance R_{ESR}

versus frequency f

Typical behavior



Impedance Z

versus frequency f

Typical behavior

