

**Long-life grade capacitors
for professional applications**

Applications

- For use in output circuits of switch-mode power supplies of compact design
- For professional industrial electronics, telecommunications and data processing equipment

Features

- Low equivalent series resistance *ESR*
- Low impedance
- High ripple current capability

Construction

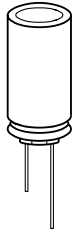
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on insulating sleeve
- Case with safety vent
- Stand off rubber seal

Delivery mode

Special terminal configurations and packing:

- Bulk
- Taped, Ammo pack
- Cut
- Kinked
- PAPR (protection against polarity reversal)

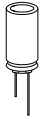
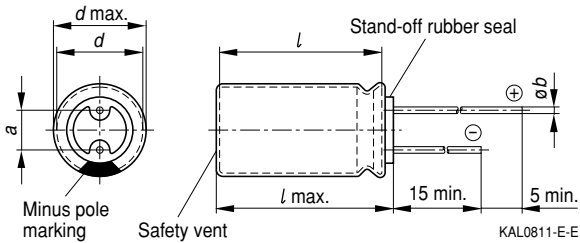
Refer to page 503 for further details and ordering example.



KAL0707-F


B41856
Low Impedance – 105 °C
Specifications and characteristics in brief

Rated voltage U_R	6,3 ... 100 VDC	
Surge voltage U_S	$1,15 \cdot U_R$	
Rated capacitance C_R	22 ... 4 700 μF	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 105 °C; U_R ; I_{-R}	> 4 000 h	Requirements: $\Delta C/C \leq \pm 40 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 1 \%$ Failure rate: ≤ 100 fit ($\leq 100 \cdot 10^{-9}/\text{h}$) (for definition "fit", refer to chapter "Quality", page 62)
Voltage endurance test 105 °C; U_R	2 000 h	Post test requirements: $\Delta C/C \leq \pm 20 \%$ of initial value $\tan \delta \leq 2$ times initial specified limit $I_L \leq$ initial specified limit
Vibration resistance	To IEC 60068-2-6, test Fc: displacement amplitude 0,75 mm, frequency range 10 ... 2 000 Hz, acceleration max. 10 g, duration 3×2 h	
IEC climatic category	To IEC 60068-1: 40/105/56 (– 40 °C/+ 105 °C/56 days damp heat test)	
Sectional specification	IEC 60384-4	


Dimensional drawings

Dimensions and weights

Dimensions (mm)				Approx. weight
$d \times l$	$d_{\max} \times l_{\max}$	$a \pm 0,5$	b	g
8 × 11	8,5 × 12	3,5	0,60 ± 0,05	1,0
10 × 12,5	10,5 × 13,5	5,0	0,60 ± 0,05	1,6
10 × 16	10,5 × 17	5,0	0,60 ± 0,05	1,9
10 × 20	10,5 × 22	5,0	0,60 ± 0,05	2,6
12,5 × 25	13 × 27	5,0	0,60 ± 0,05	4,5
16 × 20	16,5 × 22	7,5	0,80 ± 0,05	5,5
16 × 25	16,5 × 27	7,5	0,80 ± 0,05	7,5
16 × 31,5	16,5 × 33,5	7,5	0,80 ± 0,05	7,8
18 × 31,5	18,5 × 32,5	7,5	0,80 ± 0,1	11
18 × 35	18,5 × 36	7,5	0,80 ± 0,1	13
18 × 40	18,5 × 41	7,5	0,80 ± 0,1	16


B41856
Low Impedance – 105 °C
Overview of available types

U_R (VDC)	6,3	10	16	25	35	50	63	100
C_R (μ F)	Case dimensions $d \times l$ (mm)							
22								10 ×12,5
33								10 ×16
47							10 ×12,5	10 ×20
100					8×11	10 ×12,5	10 ×20	12,5×25
220			8×11	10 ×12,5	10×12,5	10 ×16	12,5×25	16 ×31,5
330		8 ×11		10 ×12,5	10×16	10 ×20	12,5×25	18 ×31,5
470		10 ×12,5	10×16		10×20	12,5×25	16 ×25	18 ×35
1 000		10 ×16	10×20	12,5×25	16×20	16 ×25	18 ×35	
1 500	10×20							
2 200		12,5×25	16×20	16 ×25	16×31,5	18 ×40		
3 300		16 ×20	16×25	16 ×31,5	18×35			
4 700		16 ×25	16×31,5	18 ×35				

Other capacitance and voltage ratings are available upon request.

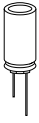

Technical data and ordering codes

U_R	C_R 120 Hz 20 °C μF	Case dimensions $d \times l$ mm	$I_{L, \max}$ 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	ESR_{\max} 120 Hz 20 °C Ω	Z_{\max} 100 kHz 20 °C Ω	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
6,3	1 500	10 × 20	95	0,22	0,24	0,044	1 200	B41856A2158M00*
10	330	8 × 11	99	0,20	1,01	0,340	310	B41856A3337M00*
	470	10 × 12,5	141	0,20	0,71	0,340	370	B41856A3477M00*
	1 000	10 × 16	300	0,20	0,33	0,170	640	B41856A3108M00*
	2 200	12,5 × 25	660	0,22	0,17	0,090	1 000	B41856A3228M00*
	3 300	16 × 20	990	0,24	0,12	0,069	1 250	B41856A3338M00*
	4 700	16 × 25	1 410	0,26	0,09	0,046	1 400	B41856A3478M00*
16	220	8 × 11	106	0,16	1,21	0,340	328	B41856A4227M00*
	470	10 × 16	226	0,16	0,56	0,230	480	B41856A4477M00*
	1 000	10 × 20	480	0,16	0,27	0,140	800	B41856A4108M00*
	2 200	16 × 20	1 056	0,18	0,14	0,069	1 150	B41856A4228M00*
	3 300	16 × 25	1 584	0,20	0,10	0,046	1 400	B41856A4338M00*
	4 700	16 × 31,5	2 256	0,22	0,08	0,040	1 750	B41856A4478M00*
25	220	10 × 12,5	165	0,14	1,06	0,340	328	B41856A5227M00*
	330	10 × 12,5	248	0,14	0,70	0,230	480	B41856A5337M00*
	1 000	12,5 × 25	750	0,14	0,23	0,090	1 000	B41856A5108M00*
	2 200	16 × 25	1 650	0,16	0,12	0,046	1 400	B41856A5228M00*
	3 300	16 × 31,5	2 475	0,18	0,09	0,040	1 750	B41856A5338M00*
	4 700	18 × 35	3 555	0,20	0,07	0,036	2 000	B41856A5478M00*
35	100	8 × 11	105	0,12	1,99	0,340	328	B41856A7107M00*
	220	10 × 12,5	231	0,12	0,90	0,230	480	B41856A7227M00*
	330	10 × 16	347	0,12	0,60	0,170	640	B41856A7337M00*
	470	10 × 20	494	0,12	0,42	0,140	800	B41856A7477M00*
	1 000	16 × 20	1 050	0,12	0,20	0,069	1 150	B41856A7108M00*
	2 200	16 × 31,5	2 310	0,14	0,11	0,040	1 750	B41856A7228M00*
	3 300	18 × 35	3 465	0,16	0,08	0,036	2 000	B41856A7338M00*

Preferred types

1) * = "0" for bulk version..

For taping versions, other lead configurations and packing information see page 503


B41856
Low Impedance – 105 °C
Technical data and ordering codes

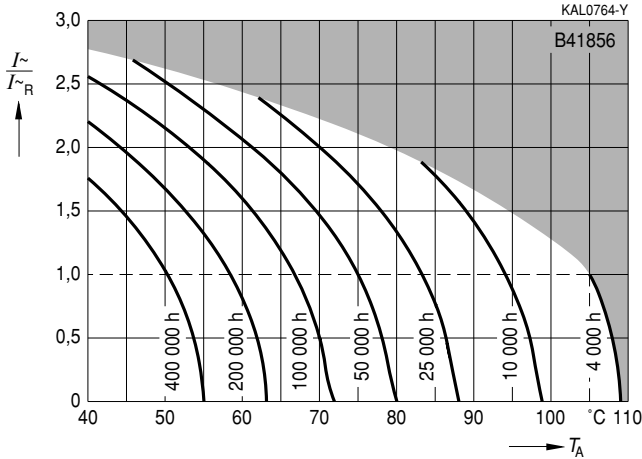
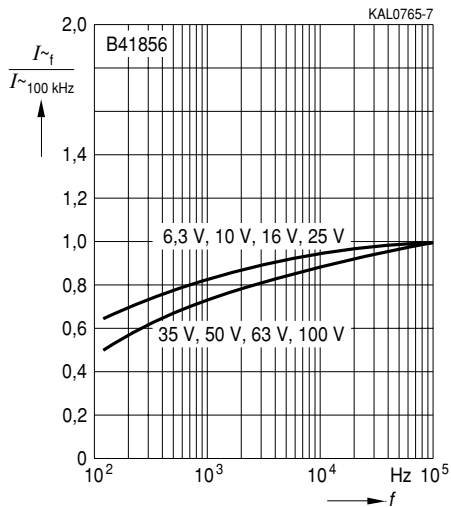
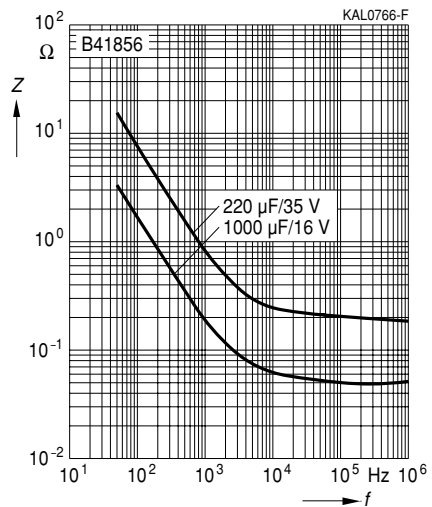
U_R	C_R	Case dimensions	$I_{L, \max}$	$\tan \delta_{\max}$	ESR_{\max}	Z_{\max}	$I_{\sim R}$	Ordering code ¹⁾
VDC	120 Hz 20 °C μF	$d \times l$ mm	5 min 20 °C μA	120 Hz 20 °C	120 Hz 20 °C Ω	100 kHz 20 °C Ω	100 kHz 105 °C mA	
50	100	10 × 12,5	150	0,10	1,66	0,400	270	B41856A6107M00*
	220	10 × 16	330	0,10	0,75	0,220	500	B41856A6227M00*
	330	10 × 20	495	0,10	0,50	0,180	640	B41856A6337M00*
	470	12,5 × 25	705	0,10	0,35	0,160	800	B41856A6477M00*
	1 000	16 × 25	1 500	0,10	0,17	0,060	1 200	B41856A6108M00*
	2 200	18 × 35	3 300	0,12	0,09	0,042	1 700	B41856A6228M00*
63	47	10 × 12,5	89	0,08	2,82	0,70	280	B41856A8476M00*
	100	10 × 20	189	0,08	1,33	0,40	500	B41856A8107M00*
	220	12,5 × 25	416	0,08	0,60	0,23	850	B41856A8227M00*
	330	12,5 × 25	624	0,08	0,40	0,20	890	B41856A8337M00*
	470	16 × 25	888	0,08	0,28	0,10	1 400	B41856A8477M00*
	1 000	18 × 35	1 890	0,08	0,13	0,070	1 900	B41856A8108M00*
100	22	10 × 12,5	66	0,07	5,28	0,70	280	B41856A9226M00*
	33	10 × 16	99	0,07	3,52	0,42	480	B41856A9336M00*
	47	10 × 20	141	0,07	2,47	0,35	550	B41856A9476M00*
	100	12,5 × 25	300	0,07	1,16	0,18	850	B41856A9107M00*
	220	16 × 31,5	660	0,07	0,53	0,13	1 400	B41856A9227M00*
	330	18 × 31,5	990	0,07	0,35	0,085	1 700	B41856A9337M00*
	470	18 × 35	1 410	0,07	0,25	0,062	2 000	B41856A9477M00*

Preferred types

1) * = "0" for bulk version.

For taping versions, other lead configurations and packing information see page 503.


Useful life

 depending on ambient temperature T_A under ripple current operating conditions¹⁾
 $U_R = 6,3 \dots 50 \text{ VDC}$

Frequency factor of permissible ripple current I_{\sim} versus frequency f

Impedance Z versus frequency f
 Typical behavior at 20 °C


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

Herausgegeben von EPCOS AG

Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

Published by EPCOS AG

Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.