

**Long-life grade capacitors for telecommunications
and automotive electronics**

Applications

- High-reliability equipment in industrial and automotive electronics
- High-temperature environments

Features

- High reliability and long useful life
- High ripple current capability
- Wide temperature range up to 125 °C

Construction

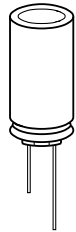
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulating sleeve
- Stand off rubber seal
- Case with safety vent

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

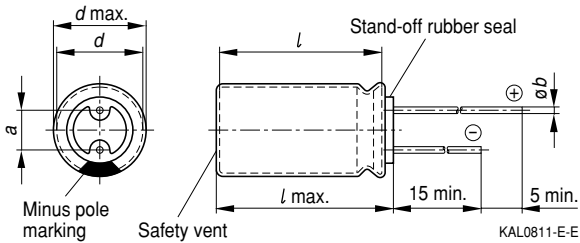


B41866

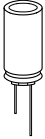
125 °C

Specifications and characteristics in brief

Rated voltage U_R	10 ... 63 VDC	
Surge voltage U_S	$1,15 \cdot U_R$	
Rated capacitance C_R	0,47 ... 4 700 μ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 125 °C; U_R ; I_{-R} 85 °C; U_R ; I_{-R} 40 °C; U_R ; I_{-R}	> 2 000 h > 40 000 h > 500 000 h	Requirements: $\Delta C/C \leq \pm 35 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 1 \%$ Failure rate: ≤ 40 fit ($\leq 40 \cdot 10^{-9}/h$) (for definition "fit", refer to chapter "Quality", page 62)
Voltage endurance test 125 °C; U_R	2 000 h	Post test requirements: $\Delta C/C \leq \pm 30 \%$ 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 ... 2000 Hz, acceleration max. 10 g, duration 3×2 h	
IEC climatic category	To IEC 60068-1: 55/125/56 (-55 °C/+ 125 °C/56 days damp heat test)	
Sectional specification	IEC 60384-4	

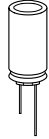

Dimensional drawing

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	$0,60 \pm 0,05$	1,0
10 × 12,5	10,5 × 13,5	5,0	$0,60 \pm 0,05$	1,6
10 × 16	10,5 × 17	5,0	$0,60 \pm 0,05$	1,9
10 × 20	10,5 × 22	5,0	$0,60 \pm 0,05$	2,6
12,5 × 25	13 × 27	5,0	$0,60 \pm 0,05$	4,5
16 × 25	16,5 × 27	7,5	$0,80 \pm 0,05$	7,5
16 × 31,5	16,5 × 33,5	7,5	$0,80 \pm 0,05$	7,8
18 × 31,5	18,5 × 32,5	7,5	$0,80 \pm 0,1$	11
18 × 35	18,5 × 36	7,5	$0,80 \pm 0,1$	13
18 × 40	18,5 × 41	7,5	$0,80 \pm 0,1$	16
20 × 35	20,5 × 37	10	$0,80 \pm 0,1$	18
20 × 40	20,5 × 42	10	$0,80 \pm 0,1$	20


B41866
125 °C
Overview of available types

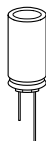
U_R (VDC)	10	16	25	35	50	63
C_R (μ F)	Case dimensions $d \times l$ (mm)					
0,47					8 × 11	
1,0					8 × 11	
2,2					8 × 11	
3,3					8 × 11	
4,7					8 × 11	
10					8 × 11	
22				10 × 12,5	10 × 16	
33			10 × 12,5	10 × 12,5	10 × 16	
47		8 × 11	10 × 12,5	10 × 16	10 × 16 10 × 20	10 × 20
100	10 × 12,5	10 × 16	10 × 16 10 × 20	10 × 16 12,5 × 25	10 × 20 12,5 × 25	12,5 × 25
220	10 × 12,5 10 × 20	10 × 20 12,5 × 25	10 × 20 12,5 × 25	10 × 20 16 × 25	12,5 × 25	12,5 × 25
330	10 × 16 12,5 × 25	10 × 20 12,5 × 25	10 × 20 16 × 25	12,5 × 25	16 × 25	16 × 25
470	10 × 16 12,5 × 25	10 × 20 16 × 25	12,5 × 25	12,5 × 25	16 × 25	16 × 25
1 000	10 × 20	12,5 × 25	16 × 25	16 × 31,5	18 × 31,5	18 × 31,5
2 200	16 × 25	16 × 31,5	18 × 31,5	18 × 40		
3 300	16 × 31,5	18 × 31,5	18 × 40	20 × 40		
4 700	18 × 31,5	18 × 35	20 × 35			

Other voltage and capacitance ratings are also available upon request.


Technical data and ordering codes

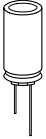
U_R	C_R 120 Hz 20 °C μF	Case dimensions $d \times l$ mm	I_L 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	ESR_{\max} 120 Hz 20 °C Ω	$I_{\sim R}$ 120 Hz 125 °C mA	Ordering code ¹⁾
10	100	10 × 12,5	10	0,20	3,3	130	B41866A3107M00*
	220	10 × 12,5	22	0,20	1,5	180	B41866F3227M00*
	220	10 × 20	22	0,20	1,5	240	B41866A3227M00*
	330	10 × 16	33	0,20	1,0	260	B41866F3337M00*
	330	12,5 × 25	33	0,20	1,0	290	B41866A3337M00*
	470	10 × 16	47	0,20	0,71	275	B41866F3477M00*
	470	12,5 × 25	47	0,20	0,71	380	B41866A3477M00*
	1 000	10 × 20	100	0,20	0,33	460	B41866F3108M00*
	2 200	16 × 25	220	0,22	0,17	900	B41866F3228M00*
	3 300	16 × 31,5	330	0,24	0,12	1150	B41866F3338M00*
4 700	18 × 31,5	470	0,26	0,09	1280	B41866F3478M00*	
16	47	8 × 11	7,5	0,17	6,0	90	B41866A4476M00*
	100	10 × 16	16	0,17	2,8	165	B41866A4107M00*
	220	10 × 20	35	0,17	1,3	250	B41866F4227M00*
	220	12,5 × 25	35	0,17	1,3	290	B41866A4227M00*
	330	10 × 20	53	0,17	0,85	275	B41866F4337M00*
	330	12,5 × 25	53	0,17	0,85	385	B41866A4337M00*
	470	10 × 20	75	0,17	0,60	300	B41866F4477M00*
	470	16 × 25	75	0,17	0,60	480	B41866A4477M00*
	1 000	12,5 × 25	160	0,17	0,28	640	B41866F4108M00*
	2 200	16 × 31,5	352	0,19	0,14	1100	B41866F4228M00*
	3 300	18 × 31,5	528	0,21	0,11	1250	B41866F4338M00*
	4 700	18 × 35	752	0,23	0,08	1550	B41866F4478M00*
	25	33	10 × 12,5	8,3	0,17	8,5	90
47		10 × 12,5	12	0,17	6,0	110	B41866A5476M00*
100		10 × 16	25	0,17	2,8	190	B41866F5107M00*
100		10 × 20	25	0,17	2,8	210	B41866A5107M00*
220		10 × 20	55	0,17	1,3	250	B41866F5227M00*
220		12,5 × 25	55	0,17	1,3	360	B41866A5227M00*
330		10 × 20	83	0,17	0,85	275	B41866F5337M00*
330		16 × 25	83	0,17	0,85	450	B41866A5337M00*
470		12,5 × 25	118	0,17	0,60	440	B41866F5477M00*
1 000		16 × 25	250	0,17	0,28	850	B41866F5108M00*
2 200		18 × 31,5	550	0,19	0,14	1260	B41866F5228M00*
3 300		18 × 40	825	0,21	0,11	1450	B41866F5338M00*
4 700		20 × 35	1175	0,23	0,08	2300	B41866F5478M00*

1) * = "0" for bulk version. For taping versions, other lead configurations and packing information see page 503.


B41866
125 °C

U_R	C_R 120 Hz 20 °C μF	Case dimensions $d \times l$ mm	I_L 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	ESR_{\max} 120 Hz 20 °C Ω	I_{-R} 120 Hz 125 °C mA	Ordering code 1)
35	22	10 × 12,5	7,7	0,12	9,0	80	B41866A7226M00*
	33	10 × 12,5	12	0,12	6,0	95	B41866A7336M00*
	47	10 × 16	16	0,12	4,2	140	B41866A7476M00*
	100	10 × 16	35	0,12	2,0	190	B41866F7107M00*
	100	12,5 × 25	35	0,12	2,0	210	B41866A7107M00*
	220	10 × 20	77	0,12	0,90	250	B41866K7227M00*
	220	16 × 25	77	0,12	0,90	390	B41866A7227M00*
	330	12,5 × 25	116	0,12	0,60	370	B41866F7337M00*
	470	12,5 × 25	165	0,12	0,42	440	B41866F7477M00*
	1 000	16 × 31,5	350	0,12	0,20	830	B41866F7108M00*
	2 200	18 × 40	770	0,14	0,11	1350	B41866F7228M00*
	3 300	20 × 40	1155	0,16	0,08	2500	B41866F7338M00*
50	0,47	8 × 11	4,0	0,10	353	2	B41866A6474M00*
	1,0	8 × 11	4,0	0,10	166	7	B41866A6105M00*
	2,2	8 × 11	4,0	0,10	75	14	B41866A6225M00*
	3,3	8 × 11	4,0	0,10	50	23	B41866A6335M00*
	4,7	8 × 11	4,0	0,10	35	30	B41866A6475M00*
	10	8 × 11	5,0	0,10	17	48	B41866A6106M00*
	22	10 × 16	11	0,10	7,5	83	B41866A6226M00*
	33	10 × 16	17	0,10	5,0	100	B41866A6336M00*
	47	10 × 16	24	0,10	3,5	140	B41866F6476M00*
	47	10 × 20	24	0,10	3,5	145	B41866A6476M00*
	100	10 × 20	50	0,10	1,7	200	B41866F6107M00*
	100	12,5 × 25	50	0,10	1,7	275	B41866A6107M00*
	220	12,5 × 25	110	0,10	0,75	350	B41866F6227M00*
	330	16 × 25	165	0,10	0,50	490	B41866F6337M00*
	470	16 × 25	235	0,10	0,35	520	B41866F6477M00*
1 000	18 × 31,5	500	0,10	0,17	890	B41866F6108M00*	
63	47	10 × 20	24	0,10	3,5	155	B41866A8476M00*
	100	12,5 × 25	50	0,10	1,7	290	B41866A8107M00*
	220	12,5 × 25	110	0,10	0,75	380	B41866A8227M00*
	330	16 × 25	165	0,10	0,50	530	B41866A8337M00*
	470	16 × 25	235	0,10	0,35	700	B41866A8477M00*
	1 000	18 × 31,5	500	0,10	0,17	890	B41866A8108M00*

1) * = "0" for bulk version. For taping versions, other lead configurations and packing information see page 503.



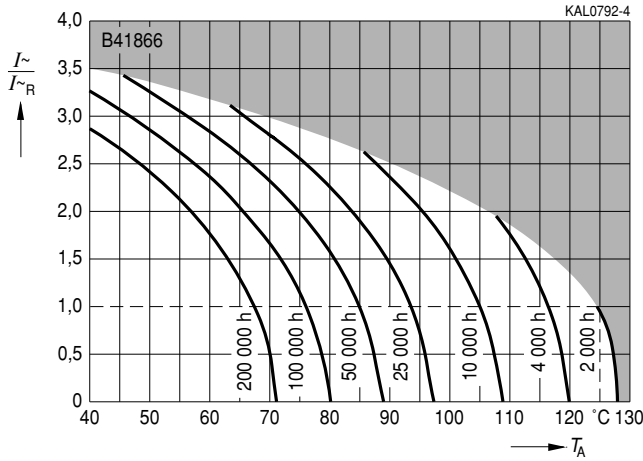
B41866

125 °C

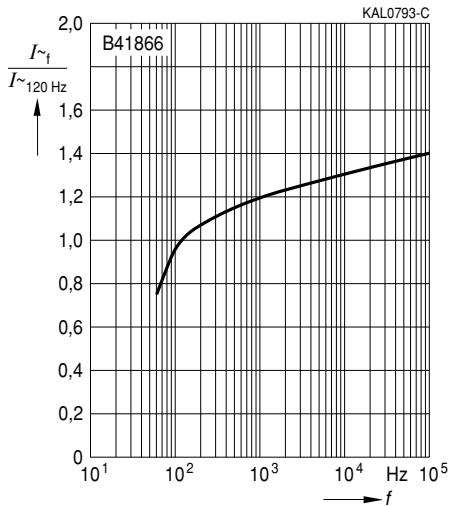
Useful life

depending on ambient temperature T_A under ripple current operating conditions¹⁾

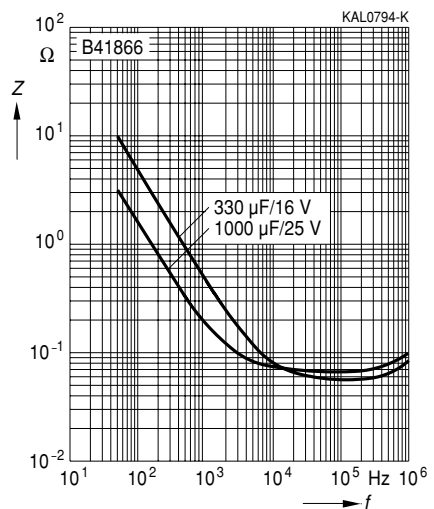
$U_R = 10 \dots 50$ VDC



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.