

Long-life grade capacitors
Low impedance

Applications

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

Features

- Very low impedance at high frequency
- Very low equivalent series resistance *ESR*
- High ripple current capability
- Wide temperature range
- Extended endurance test

Construction

- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the 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)

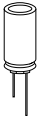
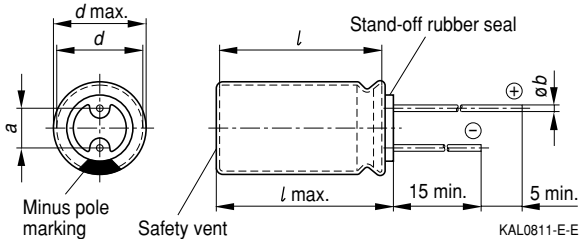
Refer to page 503 for further details and ordering example.



KAL0707-F


Specifications and characteristics in brief

Rated voltage U_R	6,3 ... 50 VDC	
Surge voltage U_S	$1,15 \cdot U_R$	
Rated capacitance C_R	100 ... 4 700 μ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 105 °C; U_R ; I_{-R} 105 °C; U_R ; I_{-R} 105 °C; U_R ; I_{-R}	> 3 000 h for $d = 8$ mm > 5 000 h for $d = 10$ mm > 7 000 h for $d \geq 12,5$ mm	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 ($\leq 100 \cdot 10^{-9}/h$) (for definiton "fit", refer to chapter "Quality", page 62)
Voltage endurance test 105 °C; U_R	3 000 h for $d = 8$ mm 5 000 h for $d = 10$ mm 7 000 h for $d \geq 12,5$ mm	Post test requirements: $\Delta C/C \leq \pm 30 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit
Vibration resistance	To IEC 68068-2-6, 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: 55/105/56 (– 55 °C/+ 105 °C/56 days damp heat test)	
Sectional specification	IEC 60384-4	

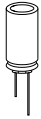

B41888
Extended Useful Life – 105 °C
Dimensional drawing

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 ± 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

Overview of available types

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

The capacitance and voltage ratings listed above are available in smaller cases upon request. 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	330	8 × 11	21	0,26	1,31	0,300	360	B41888A2337M00*
	470	10 × 12,5	30	0,26	0,92	0,180	600	B41888A2477M00*
	1 000	10 × 16	63	0,26	0,43	0,120	750	B41888A2108M00*
	2 200	12,5 × 25	139	0,28	0,21	0,060	1 300	B41888A2228M00*
	3 300	16 × 20	208	0,30	0,15	0,045	1 450	B41888A2338M00*
	4 700	16 × 25	296	0,32	0,11	0,038	1 900	B41888A2478M00*
10	330	8 × 11	33	0,22	1,11	0,200	440	B41888A3337M00*
	470	10 × 16	47	0,22	0,78	0,150	640	B41888A3477M00*
	1 000	10 × 20	100	0,22	0,36	0,068	1 120	B41888A3108M00*
	2 200	12,5 × 25	220	0,24	0,18	0,038	1 620	B41888A3228M00*
	3 300	16 × 25	330	0,26	0,13	0,030	1 700	B41888A3338M00*
	4 700	16 × 31,5	470	0,28	0,10	0,026	2 210	B41888A3478M00*
16	220	8 × 11	35	0,16	1,21	0,200	530	B41888A4227M00*
	330	10 × 12,5	53	0,16	0,80	0,120	640	B41888A4337M00*
	470	10 × 16	75	0,16	0,56	0,090	840	B41888A4477M00*
	1 000	10 × 20	160	0,16	0,27	0,050	1 340	B41888A4108M00*
	2 200	16 × 25	352	0,18	0,14	0,030	1 800	B41888A4228M00*
	3 300	18 × 31,5	528	0,20	0,10	0,024	2 310	B41888A4338M00*
25	100	8 × 11	25	0,14	2,32	0,200	340	B41888A5107M00*
	220	10 × 12,5	55	0,14	1,06	0,120	510	B41888A5227M00*
	330	10 × 16	83	0,14	0,70	0,084	830	B41888A5337M00*
	470	10 × 20	118	0,14	0,49	0,065	1 080	B41888A5477M00*
	1 000	12,5 × 25	250	0,14	0,23	0,040	1 690	B41888A5108M00*
	2 200	16 × 31,5	550	0,16	0,12	0,024	2 310	B41888A5228M00*
3 300	18 × 35	825	0,18	0,09	0,018	2 740	B41888A5338M00*	
	4 700	18 × 40	1 175	0,20	0,07	0,015	3 090	B41888A5478M00*

1) * = "0" for bulk version.

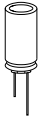
For taping versions, other lead configurations and packing information see page 503.

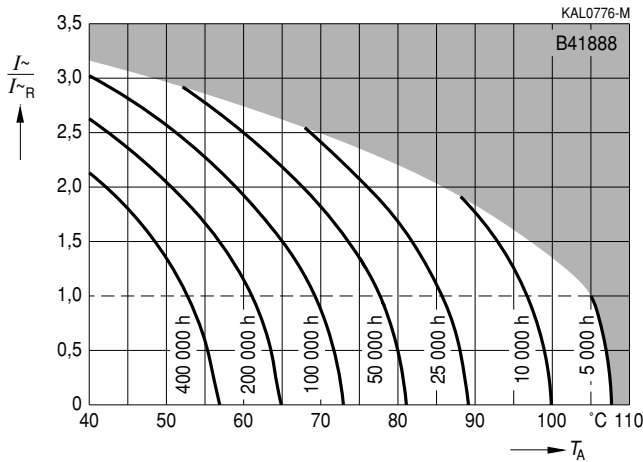

B41888
Extended Useful Life – 105 °C
Technical data and ordering codes

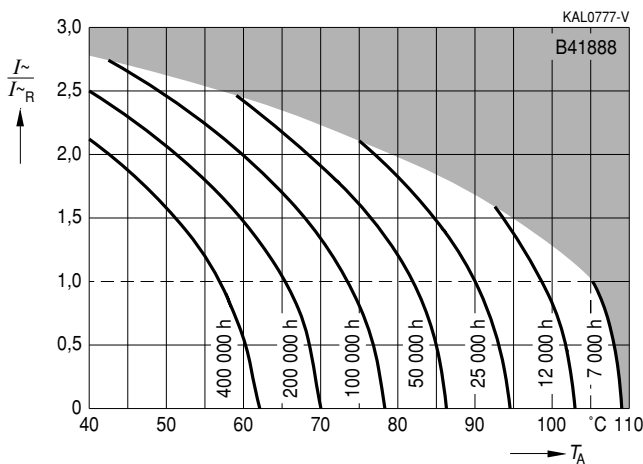
U_R	C_R 120 Hz 20 °C VDC μF	Case dimensions $d \times l$ mm	$I_{L, \max}$ 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	ESR_{\max} 120 Hz 20 °C Ω	Z_{\max} 100 kHz 20 °C Ω	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
35	100	10 × 12,5	35	0,12	1,99	0,160	500	B41888A7107M00*
	220	10 × 16	77	0,12	0,90	0,084	820	B41888A7227M00*
	330	10 × 20	116	0,12	0,60	0,065	1 090	B41888A7337M00*
	470	12,5 × 25	165	0,12	0,42	0,052	1 300	B41888A7477M00*
	1 000	16 × 25	350	0,12	0,20	0,034	1 960	B41888A7108M00*
	2 200	18 × 35	770	0,14	0,11	0,018	2 850	B41888A7228M00*
	3 300	18 × 40	1 155	0,16	0,08	0,015	3 150	B41888A7338M00*
50	100	10 × 16	50	0,10	1,66	0,160	640	B41888A6107M00*
	220	10 × 20	110	0,10	0,75	0,100	1 050	B41888A6227M00*
	330	12,5 × 25	165	0,10	0,50	0,070	1 400	B41888A6337M00*
	470	16 × 25	235	0,10	0,35	0,065	1 240	B41888A6477M00*
	1 000	18 × 31,5	500	0,10	0,17	0,034	2 310	B41888A6108M00*

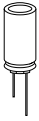
1) * = "0" for bulk version.

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⁾
 $U_R = 6,3 \dots 50 \text{ VDC}$
 $d = 10 \text{ mm}$

Useful life

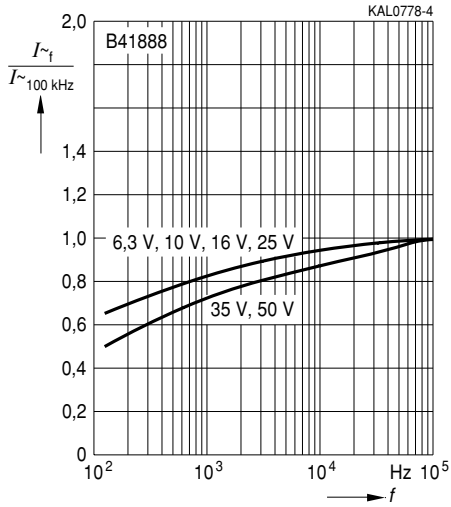
 depending on ambient temperature T_A under ripple current operating conditions¹⁾
 $U_R = 6,3 \dots 50 \text{ VDC}$
 $d \geq 12,5 \text{ mm}$

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



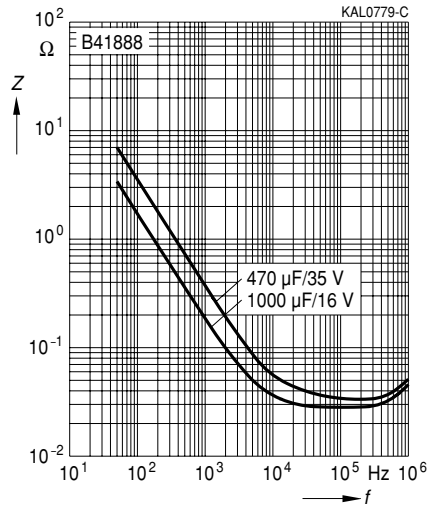
B41888

Extended Useful Life – 105 °C

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



Impedance Z versus frequency f
Typical behavior at 20 °C



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.