

Long-life grade capacitors

Applications

- Professional electronic ballasts
- Power supply
- Energy-saving lamps

Features

- Miniaturized dimensions
- High ripple current capability at high frequency
- Extra long life (8000 to 10000 h / 105 °C)

Construction

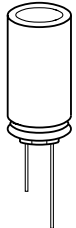
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on insulating sleeve
- Stand off rubber seal

Delivery mode

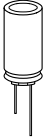
Special terminals configurations and packing:

- Bulk
- Taped, Ammo pack
- Cut
- Kinked

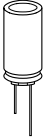
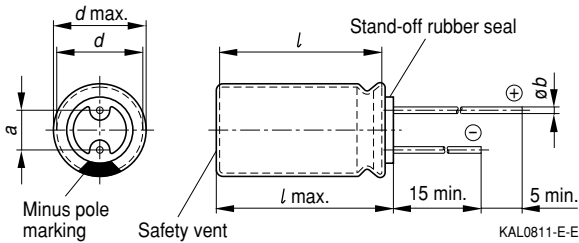
Refer to page 503 for further details and ordering example.



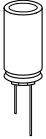
KAL0707-F


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Extra Long Life – 105 °C
Specifications and characteristics in brief

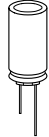
Rated voltage U_R	160 ... 450 VDC	
Surge voltage U_S	$1,1 \cdot U_R$	
Rated capacitance C_R	6,8 ... 100 μ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 105 °C; U_R ; I_{-R} 105 °C; U_R ; I_{-R}	8 000 h for $d = 10$ mm 10 000 h for $d \geq 12,5$ mm	Requirements: $\Delta C/C \leq \pm 50$ % of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: ≤ 1 % Failure rate: ≤ 100 fit ($\leq 100 \cdot 10^{-9}/h$) (for definition "fit", refer to chapter "Quality", page 62)
Voltage endurance test 105 °C; U_R	8 000 h for $d = 10$ mm 10 000 h for $d \geq 12,5$ mm	Post test requirements: $\Delta C/C \leq \pm 25$ % 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: $U_R \leq 250$ VDC: 40/105/56 (–40 °C/+105 °C/56 days damp heat test) $U_R \geq 350$ VDC: 25/105/56 (–25 °C/+105 °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
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 × 20	13 × 22	5,0	0,60 ± 0,05	3,6
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 × 20	18,5 × 22	7,5	0,80 ± 0,1	8,0
18 × 31,5	18,5 × 32,5	7,5	0,80 ± 0,1	11
20 × 20	20,5 × 23	10,0	0,80 ± 0,1	10


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Overview of available types

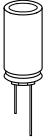
U_R (VDC)	160	200	250	350	400	450
C_R (μ F)	Case dimensions $d \times l$ (mm)					
6,8				10 × 16	10 × 16	10 × 20
10	10 × 16	10 × 16	10 × 20	10 × 20	10 × 20	12,5 × 20
22	10 × 20	10 × 20	12,5 × 20	12,5 × 25	12,5 × 25	16 × 25 18 × 20
33	10 × 20	12,5 × 20	12,5 × 20	16 × 20	16 × 25	16 × 31,5
47	12,5 × 20	12,5 × 20	12,5 × 25 16 × 20	16 × 31,5 20 × 20	16 × 31,5 20 × 20	18 × 31,5
68	12,5 × 25 16 × 20	12,5 × 25 16 × 20	16 × 25 20 × 20	18 × 31,5	18 × 31,5	
100	16 × 25 20 × 20	16 × 25 20 × 20	16 × 31,5 20 × 20			


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	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
VDC	160	10 × 16	63	0,20	33,2	220	B43888A1106M00*
		22	10 × 20	121	0,20	350	B43888A1226M00*
		33	10 × 20	173	0,20	430	B43888A1336M00*
		47	12,5 × 20	241	0,20	580	B43888A1476M00*
		68	12,5 × 25	341	0,20	770	B43888A1686M00*
		68	16 × 20	341	0,20	820	B43888F1686M00*
		100	16 × 25	495	0,20	1080	B43888A1107M00*
		100	20 × 20	495	0,20	1150	B43888F1107M00*
200	10	10 × 16	75	0,20	33,2	220	B43888A2106M00*
		22	10 × 20	147	0,20	350	B43888A2226M00*
		33	12,5 × 20	213	0,20	490	B43888A2336M00*
		47	12,5 × 20	297	0,20	580	B43888A2476M00*
		68	12,5 × 25	423	0,20	770	B43888A2686M00*
		68	16 × 20	423	0,20	820	B43888K2686M00*
		100	16 × 25	615	0,20	1080	B43888A2107M00*
		100	20 × 20	615	0,20	1150	B43888K2107M00*
250	10	10 × 20	75	0,20	33,2	240	B43888F2106M00*
		22	12,5 × 20	180	0,20	400	B43888F2226M00*
		33	12,5 × 20	263	0,20	490	B43888F2336M00*
		47	12,5 × 25	368	0,20	640	B43888F2476M00*
		47	16 × 20	368	0,20	680	B43888P2476M00*
		68	16 × 25	525	0,20	890	B43888F2686M00*
		68	20 × 20	525	0,20	950	B43888P2686M00*
		100	16 × 31,5	765	0,20	1180	B43888F2107M00*
		100	20 × 20	765	0,20	1150	B43888P2107M00*
	350	6,8	10 × 16	66	0,20	48,8	180
		10	10 × 20	120	0,20	240	B43888A4106M00*
		22	12,5 × 25	246	0,20	440	B43888A4226M00*
		33	16 × 20	362	0,20	570	B43888A4336M00*
		47	16 × 31,5	509	0,20	810	B43888A4476M00*
		47	20 × 20	509	0,20	790	B43888F4476M00*
		68	18 × 31,5	729	0,20	1040	B43888A4686M00*

1) * = "0" for bulk version.

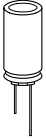
For taping versions, other lead configurations and packing information see page 503.


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Extra Long Life – 105 °C
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	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
400	6,8	10 × 16	86	0,24	58,5	180	B43888A9685M00*
	10	10 × 20	135	0,24	39,8	240	B43888A9106M00*
	22	12,5 × 25	279	0,24	18,1	440	B43888A9226M00*
	33	16 × 25	411	0,24	12,1	620	B43888A9336M00*
	47	16 × 31,5	579	0,24	8,5	810	B43888A9476M00*
	47	20 × 20	579	0,24	8,5	790	B43888F9476M00*
	68	18 × 31,5	831	0,24	5,9	1040	B43888A9686M00*
	450	6,8	10 × 20	97	0,24	58,5	200
10		12,5 × 20	150	0,24	39,8	270	B43888A5106M00*
22		16 × 25	312	0,24	18,1	510	B43888A5226M00*
22		18 × 20	312	0,24	18,1	500	B43888F5226M00*
33		16 × 31,5	461	0,24	12,1	680	B43888A5336M00*
47		18 × 31,5	650	0,24	8,5	870	B43888A5476M00*

1) * = "0" for bulk version.

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



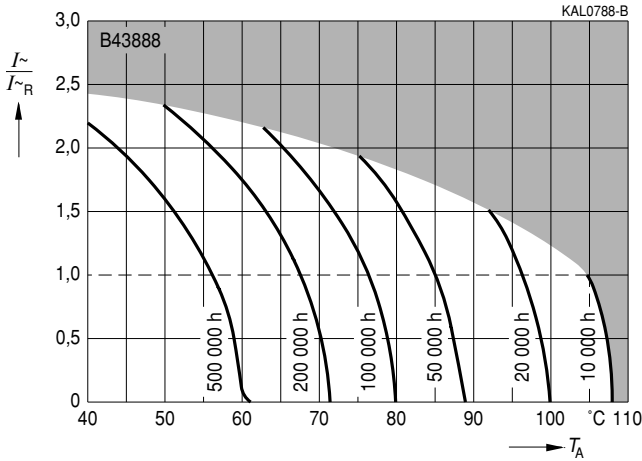
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Extra Long Life – 105 °C

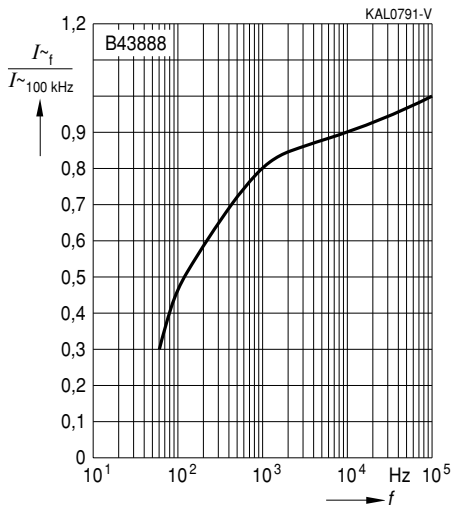
Useful life

depending on ambient temperature T_A under ripple current operating conditions¹⁾

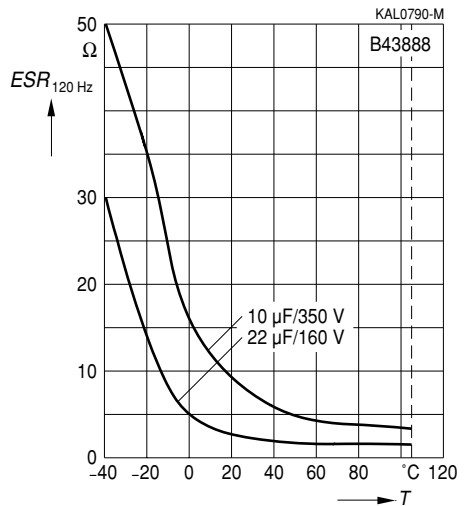
$U_R = 160 \dots 350$ VDC



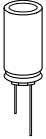
Frequency factor of permissible ripple current I_{\sim} versus frequency f



Equivalent series resistance ESR versus Temperature T
Typical values at 120 Hz



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



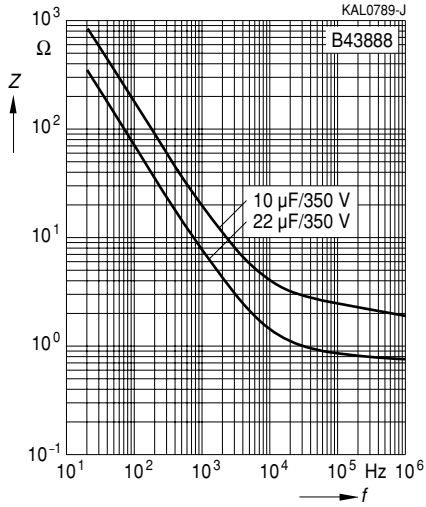
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Extra Long Life – 105 °C

Impedance Z

versus frequency f

Typical behavior at 20 °C



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