

**Long-life grade capacitors
for electronic ballasts**

Applications

- Electronic ballast
- Power supply

Features

- High ripple current capability at high frequency
- Long useful life (5000 h/105 °C)
- Good electrical characteristics

Construction

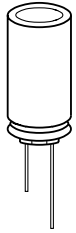
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulating sleeve
- Case with safety vent
- Stand off rubber seal

Delivery mode

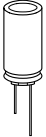
Special terminal configurations and packing:

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

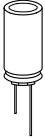
Refer to page 503 for further details and ordering example.



KAL0707-F


Specifications and characteristics in brief

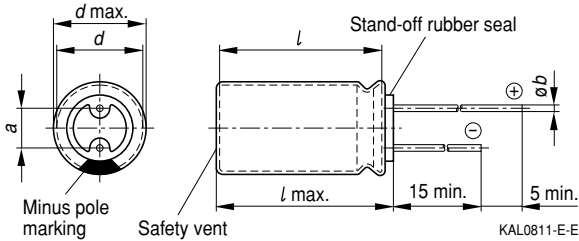
Rated voltage U_R	160 ... 450 VDC	
Surge voltage U_S	$1,1 \cdot U_R$	
Rated capacitance C_R	2,2 ... 330 μ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 105 °C; U_R ; I_{-R} 40 °C; U_R ; $1,6 \cdot I_{-R}$	> 5 000 h > 400 000 h	Requirements: $\Delta C/C \leq \pm 50 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 1 \%$ 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	5 000 h	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	



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High Ripple Capability – 105 °C

Dimensional drawing



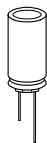
Dimensions and weights

Dimensions (mm)				Approx. weight g
$d \times l$	$d_{max} \times l_{max}$	$a \pm 0,5$	b	
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
18 × 35	18,5 × 36	7,5	0,80 ± 0,1	13
18 × 40	18,5 × 41	7,5	0,80 ± 0,1	16
20 × 20	20,5 × 23	10,0	0,80 ± 0,1	18
20 × 35	20,5 × 37	10,0	0,80 ± 0,1	18
20 × 40	20,5 × 42	10,0	0,80 ± 0,1	20


Overview of available types

U_R (VDC)	160	200	250	350	400	450
C_R (μ F)	Case dimensions $d \times l$ (mm)					
2,2				10 × 16	10 × 16	10 × 16
3,3				10 × 16	10 × 16	10 × 20
4,7				10 × 20	10 × 20	10 × 20
6,8				10 × 20	12,5 × 25	12,5 × 25
10		10 × 16	10 × 20	12,5 × 25	12,5 × 25	12,5 × 25
22	10 × 20	10 × 20	12,5 × 25	16 × 25	16 × 25	16 × 31,5 18 × 20
33	10 × 20	12,5 × 20 12,5 × 25	12,5 × 20 12,5 × 25	16 × 20 16 × 25	16 × 31,5	18 × 31,5
47	12,5 × 20 12,5 × 25	12,5 × 25	16 × 20 16 × 25	18 × 35	18 × 35 20 × 20	18 × 35
68	16 × 25	16 × 20 16 × 25	16 × 31,5	18 × 40	20 × 35	20 × 40
100	16 × 25	16 × 31,5	16 × 31,5	18 × 40	20 × 40	
220	18 × 31,5	18 × 35	18 × 40			
330	20 × 35					

Other voltage and capacitance ratings are also available upon request.


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High Ripple Capability – 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	Z_{\max} 100 kHz 20 °C Ω	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
160	22	10 × 20	121	0,20	1,5	420	B43858A1226M00*
	33	10 × 20	173	0,20	1,5	540	B43858A1336M00*
	47	12,5 × 20	241	0,20	0,85	650	B43858F1476M00*
	47	12,5 × 25	241	0,20	0,85	750	B43858A1476M00*
	68	16 × 25	341	0,20	0,70	900	B43858A1686M00*
	100	16 × 25	495	0,20	0,35	1100	B43858A1107M00*
	220	18 × 31	1071	0,20	0,25	1320	B43858A1227M00*
	330	20 × 35	1599	0,20	0,20	1800	B43858A1337M00*
200	10	10 × 16	75	0,20	6,0	200	B43858A2106M00*
	22	10 × 20	147	0,20	1,7	470	B43858A2226M00*
	33	12,5 × 20	213	0,20	1,1	500	B43858K2336M00*
	33	12,5 × 25	213	0,20	1,1	570	B43858A2336M00*
	47	12,5 × 25	297	0,20	0,80	780	B43858A2476M00*
	68	16 × 20	423	0,20	0,55	850	B43858T2686M00*
	68	16 × 25	423	0,20	0,55	900	B43858A2686M00*
	100	16 × 31,5	615	0,20	0,26	1250	B43858A2107M00*
	220	18 × 35	1335	0,20	0,18	1390	B43858A2227M00*
	250	10	10 × 20	90	0,20	4,0	280
22		12,5 × 25	180	0,20	2,5	510	B43858F2226M00*
33		12,5 × 20	263	0,20	2,0	500	B43858K2336M00*
33		12,5 × 25	263	0,20	2,0	600	B43858F2336M00*
47		16 × 20	368	0,20	0,85	700	B43858K2476M00*
47		16 × 25	368	0,20	0,85	840	B43858F2476M00*
68		16 × 31,5	525	0,20	0,80	1150	B43858F2686M00*
100		16 × 31,5	765	0,20	0,75	1350	B43858F2107M00*
220		18 × 40	1665	0,20	0,40	1460	B43858F2227M00*

Preferred types

1) * = "0" for bulk version.

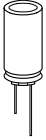
For taping versions, other lead configurations and packing information see page 503.


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	Z_{\max} 100 kHz 20 °C Ω	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code ¹⁾
350	2,2	10 × 16	38	0,20	6,0	100	B43858A4225M00*
	3,3	10 × 16	50	0,20	4,0	130	B43858A4335M00*
	4,7	10 × 20	64	0,20	3,0	180	B43858A4475M00*
	6,8	10 × 20	86	0,20	2,7	220	B43858A4685M00*
	10	12,5 × 25	120	0,20	2,0	300	B43858A4106M00*
	22	16 × 25	246	0,20	0,80	560	B43858A4226M00*
	33	16 × 20	362	0,20	0,80	550	B43858F4336M00*
	33	16 × 25	362	0,20	0,80	680	B43858A4336M00*
	47	18 × 35	509	0,20	0,55	1000	B43858A4476M00*
	68	18 × 40	729	0,20	0,50	1200	B43858A4686M00*
	100	18 × 40	1065	0,20	0,40	1450	B43858A4107M00*
400	2,2	10 × 16	41	0,24	7,0	100	B43858A9225M00*
	3,3	10 × 16	55	0,24	5,0	130	B43858A9335M00*
	4,7	10 × 20	71	0,24	4,0	180	B43858A9475M00*
	6,8	12,5 × 25	97	0,24	3,5	270	B43858A9685M00*
	10	12,5 × 25	135	0,24	2,5	300	B43858A9106M00*
	22	16 × 25	279	0,24	0,80	560	B43858A9226M00*
	33	16 × 31,5	411	0,24	0,85	720	B43858A9336M00*
	47	18 × 35	579	0,24	0,55	980	B43858A9476M00*
	47	20 × 20	579	0,24	0,55	800	B43858F9476M00*
	68	20 × 35	831	0,24	0,45	1300	B43858A9686M00*
	100	20 × 40	1215	0,24	0,35	1550	B43858A9107M00*
450	2,2	10 × 16	45	0,24	8,5	100	B43858B5225M00*
	3,3	10 × 20	60	0,24	9,0	130	B43858B5335M00*
	4,7	10 × 20	78	0,24	4,5	180	B43858B5475M00*
	6,8	12,5 × 25	107	0,24	4,0	270	B43858B5685M00*
	10	12,5 × 25	150	0,24	3,0	300	B43858B5106M00*
	22	16 × 31,5	312	0,24	2,0	600	B43858B5226M00*
	22	18 × 20	312	0,24	2,0	500	B43858K5226M00*
	33	18 × 31,5	461	0,24	1,4	780	B43858B5336M00*
	47	18 × 35	650	0,24	1,1	980	B43858B5476M00*
	68	20 × 40	933	0,24	0,85	1350	B43858B5686M00*

1) * = "0" for bulk version.

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



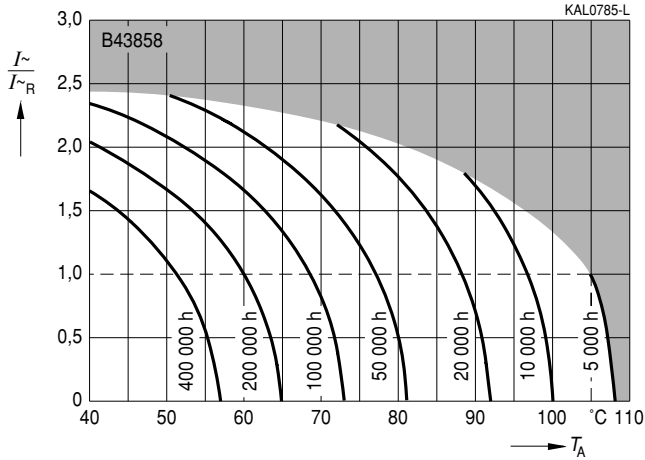
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High Ripple Capability – 105 °C

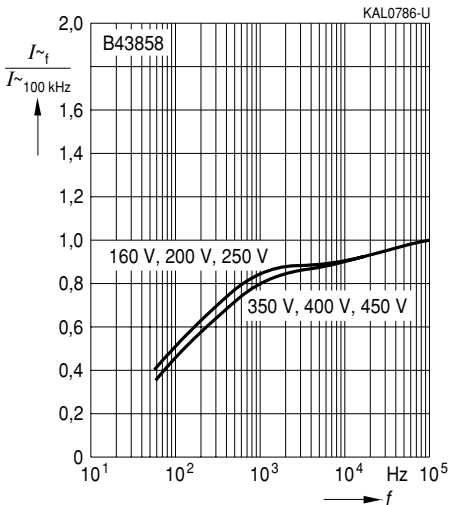
Useful life

depending on ambient temperature T_A under ripple current operating conditions¹⁾

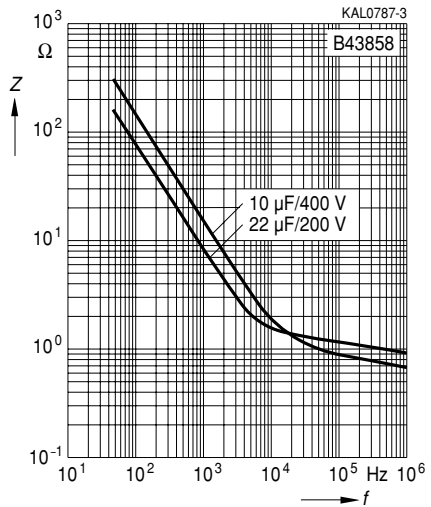
$U_R = 160 \dots 450 \text{ VDC}$



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.

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