

**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**

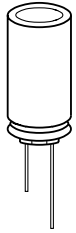
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulating sleeve
- Case with safety vent
- Stand off rubber seal

**Delivery mode**

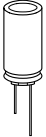
Special terminal configurations and packing:

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

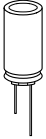
Refer to page 503 for further details and ordering example.



KAL0707-F


**Specifications and characteristics in brief**

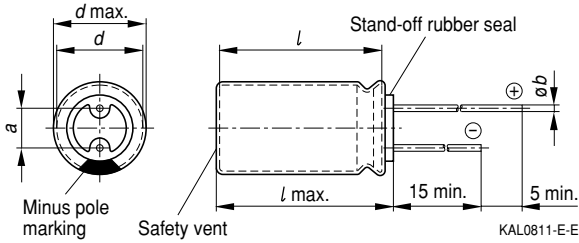
Rated voltage $U_R$	160 ... 450 VDC	
Surge voltage $U_S$	$1,1 \cdot U_R$	
Rated capacitance $C_R$	2,2 ... 330 $\mu$ F	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 105 °C; $U_R$ ; $I_{-R}$ 40 °C; $U_R$ ; $1,6 \cdot I_{-R}$	> 5 000 h > 400 000 h	Requirements: $\Delta C/C \leq \pm 50 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 1 \%$ Failure rate: $\leq 100$ 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 $3 \times 2$ 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	



**B43858**

**High Ripple Capability – 105 °C**

**Dimensional drawing**



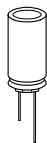
**Dimensions and weights**

Dimensions (mm)				Approx. weight
$d \times l$	$d_{max} \times l_{max}$	$a \pm 0,5$	$b$	g
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
$C_R$ ( $\mu$ 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.

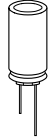

**B43858**
**High Ripple Capability – 105 °C**
**Technical data and ordering codes**

$U_R$ VDC	$C_R$ 120 Hz 20 °C $\mu\text{F}$	Case dimensions $d \times l$ mm	$I_L$ 5 min 20 °C $\mu\text{A}$	$\tan \delta_{\max}$ 120 Hz 20 °C	$Z_{\max}$ 100 kHz 20 °C $\Omega$	$I_{\sim R}$ 100 kHz 105 °C mA	Ordering code <sup>1)</sup>
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.

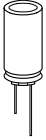
For taping versions, other lead configurations and packing information see page 503.


**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 <sup>1)</sup>
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.



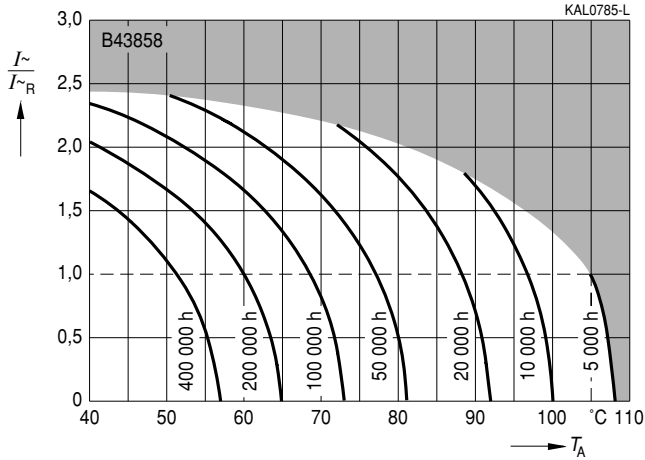
**B43858**

**High Ripple Capability – 105 °C**

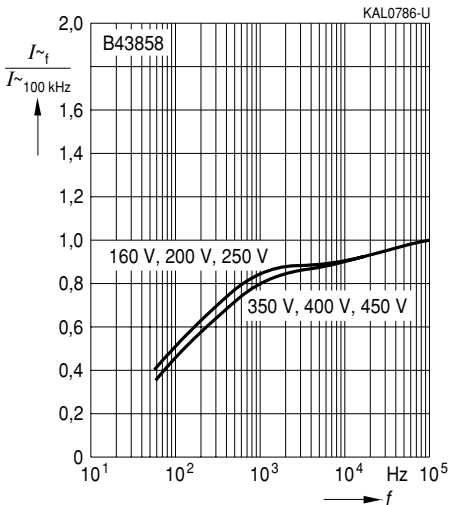
**Useful life**

depending on ambient temperature  $T_A$  under ripple current operating conditions<sup>1)</sup>

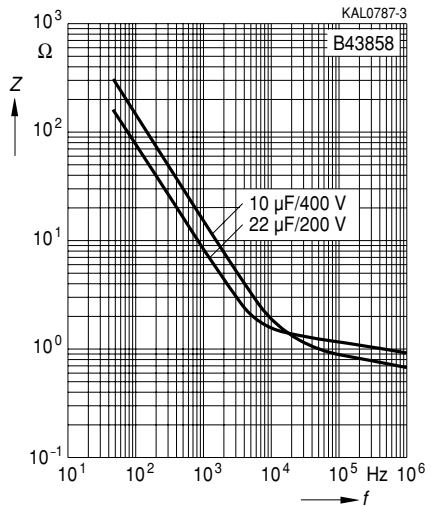
$U_R = 160 \dots 450 \text{ VDC}$



**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.

**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.