

**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

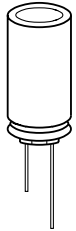
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulating sleeve
- Case with safety vent
- Stand off rubber seal

Delivery mode

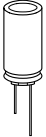
Special terminal configurations and packing:

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

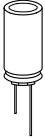
Refer to page 503 for further details and ordering example.



KAL0707-F


Specifications and characteristics in brief

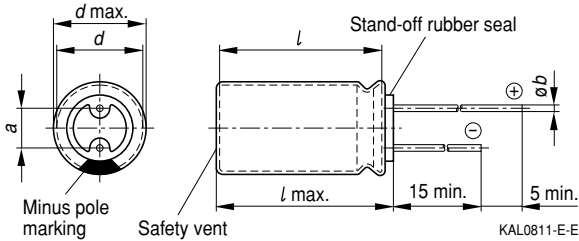
| | | |
|--|---|--|
| Rated voltage U_R | 160 ... 450 VDC | |
| Surge voltage U_S | $1,1 \cdot U_R$ | |
| Rated capacitance C_R | 2,2 ... 330 μ F | |
| Capacitance tolerance | $\pm 20 \% \triangleq M$ | |
| Useful life 105 °C; U_R ; I_{-R} 40 °C; U_R ; $1,6 \cdot I_{-R}$ | > 5 000 h > 400 000 h | Requirements: $\Delta C/C \leq \pm 50 \%$ 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 | |



B43858

High Ripple Capability – 105 °C

Dimensional drawing



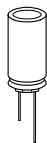
Dimensions and weights

| 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.

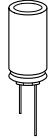

B43858
High Ripple Capability – 105 °C
Technical data and ordering codes

| 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.

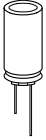
For taping versions, other lead configurations and packing information see page 503.


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.



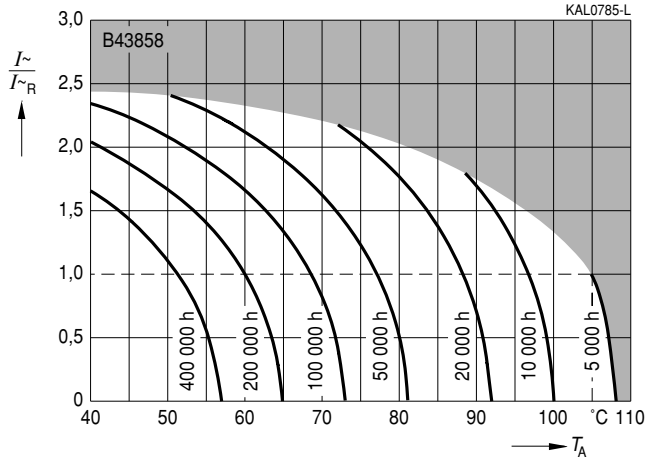
B43858

High Ripple Capability – 105 °C

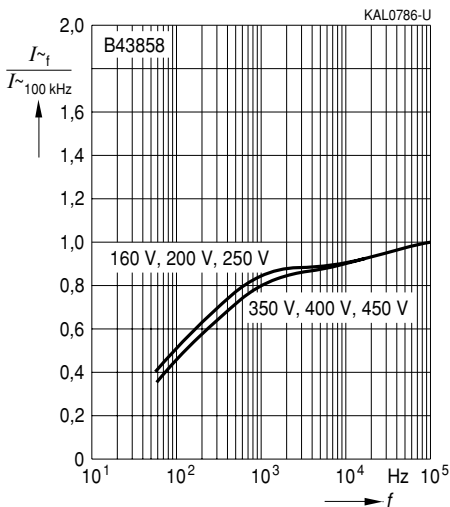
Useful life

depending on ambient temperature T_A under ripple current operating conditions¹⁾

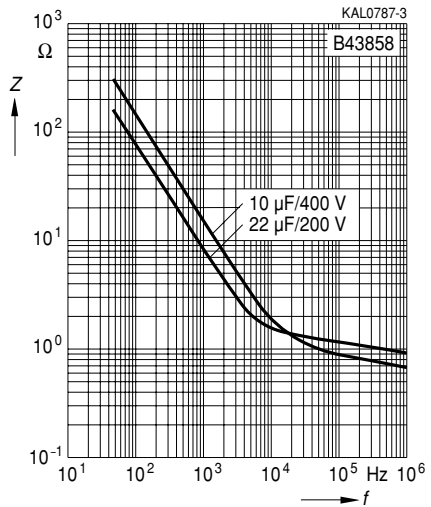
$U_R = 160 \dots 450 \text{ VDC}$



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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