



Aluminum Electrolytic Capacitors

Capacitors with screw terminals

Series/Type: **B43703, B43723**

Date: September 22, 2016

Long life grade capacitors

长寿命级电容器

Applications

应用

- Frequency converters
变频器
- Professional power supplies
专业电源
- Uninterruptible power supplies
不间断电源
- Wind power converters and solar inverters
风能变流器和太阳能逆变器

Features

特点

- High CV product, i.e. extremely compact
高容量高电压型电容器，高度紧凑型
- High reliability and high ripple current capability
高可靠性与高耐纹波电流能力
- PAPR terminals available (Protection Against Polarity reversal)
可选PAPR型端子（带极性颠倒保护）
- All-welded constructions ensure reliable electrical contact
全焊结构，确保可靠的电气接触性
- Version with low-inductance design available
可选低感抗型
- RoHS-compatible
符合RoHS要求

Construction

结构

- Charge/discharge-proof, polar
耐充放电，有极性
- Aluminum case with insulating sleeve
铝质外壳，带绝缘套管
- Poles with screw terminal connections
螺钉连接电极
- Mounting with ring clips, clamps or threaded stud
采用卡夹/卡环或底部螺栓安装
- The bases with threaded stud types are not insulated.
带螺栓的型号底部不绝缘

Specifications and characteristics in brief
规格性能参数一览表

| | | | | | | | | | |
|--|--|--------------|---|--------|--------|--------|--------|--------|--------|
| Rated voltage V_R 额定电压 V_R | 400 ... 450 V DC | | | | | | | | |
| Surge voltage V_S 浪涌电压 V_S | $1.10 \cdot V_R$ | | | | | | | | |
| Operating temperature range 工作温度范围 | $V_R = 450 \text{ V DC: } -40 \text{ °C} \dots +85 \text{ °C}$ $V_R = 400 \text{ V DC: } -25 \text{ °C} \dots +85 \text{ °C}$ | | | | | | | | |
| Rated capacitance C_R 额定电容量 C_R (20 °C, 120 Hz) | 1500 ... 18000 μF | | | | | | | | |
| Capacitance tolerance 电容量公差 | $\pm 20\%$ (M) | | | | | | | | |
| Dissipation factor(max.) 损耗正切角(最大值) 20 °C, 120 Hz. | 0.2 | | | | | | | | |
| Leakage current I_{leak} (20 °C, after 5 minutes) 漏电流 I_{leak} (20 °C, 5分钟后) | $I_{\text{leak}} \leq 0.020 \mu\text{A} \cdot \left(\frac{C_R}{\mu\text{F}} \cdot \frac{V_R}{\text{V}} \right)^{0.85} + 4 \mu\text{A}$ | | | | | | | | |
| Useful life 使用寿命 (85 °C, V_R , $I_{\text{AC,R}}$) | 12000 h | | Requirements 要求: $\Delta C/C \leq \pm 15\%$ of initial value 初始值的 $\pm 15\%$ $\tan \delta \leq 1.75$ times initial specified limit 1.75倍初始规定值 $I_{\text{leak}} \leq$ initial specified limit 初始规定值 | | | | | | |
| Shelf life 储存寿命 | After storage for 1000 h at 85 °C, the capacitors shall meet the requirement of useful life test after reforming process. After test: V_R to be applied for 30 minutes, 24 to 48 hours before measurement. 85 °C高温贮存1000小时, 并预处理后, 电容器必须符合使用寿命测试中对其电性能的要求。预处理方法: 先加额定电压30分钟, 放置24至48小时后再测试。 | | | | | | | | |
| Frequency multipliers for rated ripple current (Guiding values)* 额定纹波电流频率系数 (参考值)* | d (mm) | V_R (V DC) | 50 Hz | 100 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz | 20 kHz |
| | 51.6 | 400 | 0.76 | 0.96 | 1.00 | 1.15 | 1.23 | 1.24 | 1.26 |
| | | 450 | 0.75 | 0.95 | 1.00 | 1.18 | 1.29 | 1.32 | 1.32 |
| | 64.3 | 400 | 0.77 | 0.96 | 1.00 | 1.14 | 1.21 | 1.20 | 1.20 |
| | | 450 | 0.75 | 0.96 | 1.00 | 1.17 | 1.25 | 1.26 | 1.25 |
| | 76.9 | 400 | 0.77 | 0.96 | 1.00 | 1.14 | 1.19 | 1.13 | 1.10 |
| | | 450 | 0.75 | 0.95 | 1.00 | 1.17 | 1.25 | 1.20 | 1.17 |
| 90 | 400 | 0.77 | 0.96 | 1.00 | 1.14 | 1.18 | 1.08 | 1.03 | |
| | 450 | 0.75 | 0.95 | 1.00 | 1.17 | 1.24 | 1.15 | 1.10 | |
| Temperature multipliers for rated ripple current at natural convection (Guiding values)* 额定纹波电流温度系数 自然冷却 (参考值)* | d (mm) | V_R (V DC) | l (mm) | | +40 °C | +50 °C | +60 °C | +70 °C | +85 °C |
| | 51.6, 64.3 | All | all | | 2.2 | 2.0 | 1.8 | 1.6 | 1.0 |
| | | | $l \leq 156.2$ | | | | | | |
| | 76.9 | | $l \geq 168.7$ | | 2.1 | 1.9 | 1.7 | 1.5 | 1.0 |
| | 90 | | all | | | | | | |
| Sectional specification 分规范 | IEC 60384-4 | | | | | | | | |

*Frequency and temperature multipliers are intended for guidance purpose only. In general, each single capacitor has individual values. Please refer to the AlCap Useful Life Calculation Tool, available from EPCOS web page (Design Support > Design Tools > Aluminum Electrolytic Capacitors > AlCap Useful Life Calculation Tool). *频率和温度的额定纹波电流系数仅为参考值, 具体计算请使用在EPCOS官网上的铝电解电容寿命计算工具。

Ripple current capability
耐纹波电流能力

Due to the ripple current capability of the contact elements, the following current upper limits must not be exceeded:

因为接触元件的耐纹波电流能力限制，工作电流不得超过下表的极限值

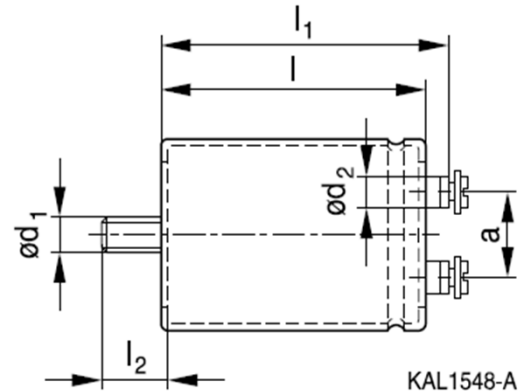
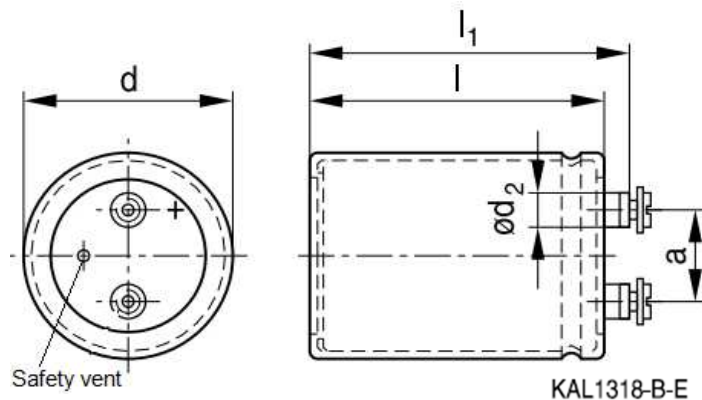
| | | | | |
|-----------------------------|---------|---------|---------|-------|
| Capacitor diameter 电容器直径 | 51.6 mm | 64.3 mm | 76.9 mm | 90 mm |
| $I_{AC,max}$ | 34 A | 57 A | 67 A | 80 A |

Dimensional drawings
尺寸图
B43703

Ring clip/clamp mounting
卡环或卡夹安装

B43723

Threaded stud mounting
底部螺栓安装



M5: Min. reach of screw = 9.5 mm, 9 mm for low inductance design

M5: 螺纹最小深度 = 9.5 mm, 低电感设计型螺纹深度 9 mm

M6: Min. reach of screw = 12 mm, 9.5 mm for low inductance design

M6: 螺纹最小深度 = 12 mm, 低电感设计型螺纹深度 9.5 mm

Positive pole marking: +

正极标志: +

For types with threaded stud the bases is not insulated. Also refer to the mounting instructions in chapter "Capacitors with screw terminals - Accessories".

带底部螺栓，底部不绝缘。安装说明，参阅章节“螺钉式电容器 - 附件”。

Screw terminals with UNF threads are available upon request.

带UNF螺纹的螺钉产品可以供应

The can is insulated with one sleeve layer

铝壳以单层套管绝缘

Dimensions and weights
尺寸与重量

| Terminal 端子 | Dimensions (mm) with insulating sleeve 带绝缘套管的尺寸(mm) | | | | | | | Approx. weight (g) 约计重量(克) |
|----------------|--|-------|--------------------|----------------------|----------------|---------------------|-------------|----------------------------------|
| | d | l ± 1 | l ₁ ± 1 | l ₂ +0/-1 | d ₁ | d ₂ max. | a +0.2/-0.4 | |
| M5 | 51.6 +0.5/-1 | 80.7 | 87.2 | 17 | M12 | 10.2 | 22.2 | 220 |
| | | 96.7 | 103.2 | | | | | 250 |
| | | 105.7 | 112.2 | | | | | 280 |
| | | 118.2 | 124.7 | | | | | 320 |
| | | 130.7 | 137.2 | | | | | 350 |
| M5 | 64.3 +0.5/-1 | 80.7 | 87.2 | 17 | M12 | 13.2 | 28.5 | 370 |
| | | 96.7 | 103.2 | | | | | 400 |
| | | 118.2 | 124.7 | | | | | 510 |
| | | 130.7 | 137.2 | | | | | 600 |
| | | 143.2 | 149.7 | | | | | 630 |
| M6 | 76.9 +0.5/-1 | 96.7 | 102.5 | 17 | M12 | 17.7 | 31.7 | 570 |
| | | 105.7 | 111.5 | | | | | 620 |
| | | 118.2 | 124.0 | | | | | 700 |
| | | 130.7 | 136.5 | | | | | 800 |
| | | 156.2 | 162.0 | | | | | 920 |
| | | 190.7 | 196.5 | | | | | 1150 |
| M6 | 90 +0.5/-1.5 | 220.7 | 226.5 | 17 | M12 | 17.7 | 31.7 | 1300 |
| | | 120.0 | 125.3 | | | | | 1000 |
| | | 144.5 | 149.8 | | | | | 1200 |
| | | 170.0 | 175.3 | | | | | 1400 |
| | | 197.0 | 202.3 | | | | | 1700 |

For low-inductance design the following deviation applies:

d = 64.3 mm: l₁ -0.7 mm

d = 90.0 mm: l₁ -1.7 mm

Packing
包装

| Capacitor diameter 电容器直径 | Packing units (pcs.) 包装单位 (件) | Capacitor diameter 电容器直径 | Packing units (pcs.) 包装单位 (件) |
|-----------------------------|----------------------------------|-----------------------------|----------------------------------|
| 51.6 mm | 22 | 76.9 mm | 12 |
| 64.3 mm | 15 | 90.0 mm | 8 |

For ecological reasons the packing is pure cardboard.

为保护生态环境，包装仅使用纸板。

Accessories
附件

The following items are included in the delivery package, but are not fastened to the capacitors:

以下物品已包含在交货包装中，但没有固定到电容器上：

| | Thread 螺纹 | Toothed washers 带齿垫圈 | Screws/nuts 螺钉或螺帽 | Maximum torque 最大扭矩 |
|--|--------------|-------------------------|---|---|
| For terminals 用于端子 | M5 | A5.1 DIN 6797 | Outer hex-cross screw with spring and plain washer M5 x 10 外六角十字型螺钉及弹垫垫圈和平垫圈 M5 x 10 | 2.5 Nm Thread depth $t \geq 8$ mm |
| | M6 | A6.4 DIN 6797 | Outer hex-cross screw with spring and plain washer M6 x 12 外六角十字型螺钉及弹垫垫圈和平垫圈 M6 x 12 | 4.0 Nm Thread depth $t \geq 9.5$ mm |
| For mounting ¹⁾ 用于安装 ¹⁾ | M12 | J 12.5 DIN 6797 | Hex nut BM 12 DIN 439 六角螺母 BM 12 DIN 439 | 10 Nm |

The following items must be ordered separately. For details, refer to chapter "Screw terminals – accessories"

以下物品需要另外购买。详情参阅章节“螺钉式电容器—附件”。

| Item 物品 | Type 型号 |
|---|------------|
| Ring clips 卡环 | B44030 |
| Clamps for capacitors with $d \geq 64.3$ mm 电容器用卡夹, $d \geq 64.3$ mm | B44030 |
| Insulating parts 绝缘部件 | B44020 |

¹⁾with different mounting method, this item is not always required. it will be delivered upon customer request accordingly.

由于安装方式不同，该配件不一定都适用。仅当客户提出需求时，EPCOS将配送该部件。

Technical datas and ordering codes 技术参数与订货编码

| V_R | C_R 120 Hz 20 °C μF | Case dimensions d x l mm | ESR_{typ} 120 Hz 20 °C m Ω | $I_{AC,max}$ 120 Hz 60 °C A | $I_{AC,R}$ 120 Hz 85 °C A | Ordering code |
|-------|-------------------------------------|-----------------------------------|--|--------------------------------------|------------------------------------|-----------------|
| 400 | 1800 | 51.6 x 80.7 | 60 | 13.1 | 7.23 | B437*3A9188M0## |
| | 2200 | 51.6 x 96.7 | 50 | 15.1 | 8.35 | B437*3A9228M0## |
| | 2700 | 51.6 x 105.7 | 40 | 17.2 | 9.49 | B437*3A9278M0## |
| | 2700 | 64.3 x 80.7 | 40 | 17.7 | 9.79 | B437*3B9278M0## |
| | 3300 | 51.6 x 130.7 | 34 | 20.1 | 11.1 | B437*3A9338M0## |
| | 3300 | 64.3 x 96.7 | 34 | 20.3 | 11.2 | B437*3B9338M0## |
| | 3900 | 64.3 x 96.7 | 28 | 22.1 | 12.1 | B437*3A9398M0## |
| | 4700 | 64.3 x 118.2 | 24 | 25.3 | 13.9 | B437*3A9478M0## |
| | 4700 | 76.9 x 96.7 | 22 | 28.0 | 15.4 | B437*3B9478M0## |
| | 5600 | 64.3 x 130.7 | 20 | 28.3 | 15.6 | B437*3A9568M0## |
| | 5600 | 76.9 x 105.7 | 19 | 31.0 | 17.1 | B437*3B9568M0## |
| | 6800 | 76.9 x 118.2 | 16 | 35.0 | 19.2 | B437*3A9688M0## |
| | 8200 | 76.9 x 130.7 | 14 | 39.3 | 21.6 | B437*3A9828M0## |
| | 8200 | 90.0 x 120.0 | 13 | 42.4 | 24.2 | B437*3B9828M0## |
| | 10000 | 76.9 x 156.2 | 11 | 45.1 | 24.8 | B437*3A9109M0## |
| | 10000 | 90.0 x 144.5 | 11 | 47.9 | 27.4 | B437*3B9109M0## |
| | 12000 | 76.9 x 190.7 | 9.3 | 51.4 | 29.4 | B437*3A9129M0## |
| | 12000 | 90.0 x 144.5 | 9.3 | 53.1 | 30.3 | B437*3B9129M0## |
| 15000 | 76.9 x 220.7 | 7.6 | 60.1 | 34.3 | B437*3A9159M0## | |
| 15000 | 90.0 x 170.0 | 7.5 | 61.3 | 35.0 | B437*3B9159M0## | |
| 18000 | 90.0 x 197.0 | 6.3 | 69.2 | 39.5 | B437*3A9189M0## | |

Composition of ordering code
订货编码规则

* = Mounting style 安装方式

0 = for capacitors with ring clip/clamp mounting

带卡环电容器

2 = for capacitors with threaded stud

带螺栓电容器

= Design 设计

00 = for standard capacitors 标准品

03 = for capacitors with low inductance (13 nH)

(only capacitors with diameter $d \geq 64.3$ mm and rated voltage ≤ 400 VDC)

低感抗设计(13 nH) (只针对 $d \geq 64.3$ mm 和额定电压 ≤ 400 VDC)

50 = for terminal with PAPR style(not for low inductance)

PAPR型端子(不适用于低感抗型)

Technical dates and ordering codes 技术参数与订货编码

| V_R | C_R | Case dimensions | ESR_{typ} | $I_{AC,max}$ | $I_{AC,R}$ | Ordering code |
|-------|----------------------------|-----------------|-------------------------------|----------------------|----------------------|-----------------|
| V DC | 120 Hz 20 °C μF | d x l mm | 120 Hz 20 °C m Ω | 120 Hz 60 °C A | 120 Hz 85 °C A | |
| 450 | 1500 | 51.6 x 80.7 | 60 | 12.4 | 6.83 | B437*3A5158M0## |
| | 1800 | 51.6 x 96.7 | 50 | 14.1 | 7.81 | B437*3A5188M0## |
| | 2200 | 51.6 x 105.7 | 40 | 16.0 | 8.55 | B437*3A5228M0## |
| | 2200 | 64.3 x 80.7 | 40 | 16.6 | 9.18 | B437*3B5228M0## |
| | 2700 | 51.6 x 118.2 | 36 | 18.3 | 10.1 | B437*3A5278M0## |
| | 2700 | 64.3 x 96.7 | 34 | 19.0 | 10.5 | B437*3B5278M0## |
| | 3300 | 64.3 x 96.7 | 30 | 21.0 | 11.5 | B437*3A5338M0## |
| | 3900 | 64.3 x 118.2 | 24 | 23.9 | 13.2 | B437*3A5398M0## |
| | 3900 | 76.9 x 96.7 | 24 | 26.4 | 14.5 | B437*3B5398M0## |
| | 4700 | 64.3 x 130.7 | 20 | 26.8 | 14.8 | B437*3A5478M0## |
| | 4700 | 76.9 x 105.7 | 20 | 29.4 | 16.2 | B437*3B5478M0## |
| | 5600 | 64.3 x 143.2 | 17 | 30.0 | 16.5 | B437*3A5568M0## |
| | 5600 | 76.9 x 118.2 | 17 | 32.7 | 18.0 | B437*3B5568M0## |
| | 6800 | 76.9 x 130.7 | 14 | 36.9 | 20.3 | B437*3A5688M0## |
| | 6800 | 90.0 x 120.0 | 14 | 39.9 | 22.9 | B437*3B5688M0## |
| | 8200 | 76.9 x 156.2 | 11 | 42.0 | 23.1 | B437*3A5828M0## |
| | 8200 | 90.0 x 144.5 | 11 | 44.8 | 25.7 | B437*3B5828M0## |
| | 10000 | 76.9 x 190.7 | 9.5 | 48.3 | 27.6 | B437*3A5109M0## |
| | 10000 | 90.0 x 144.5 | 9.5 | 50.0 | 28.6 | B437*3B5109M0## |
| | 12000 | 76.9 x 220.7 | 8.0 | 54.8 | 31.4 | B437*3A5129M0## |
| | 12000 | 90.0 x 170.0 | 7.9 | 56.3 | 32.2 | B437*3B5129M0## |
| | 15000 | 90.0 x 197.0 | 6.4 | 65.0 | 37.2 | B437*3A5159M0## |

Composition of ordering code
订货编码规则

* = Mounting style 安装方式

0 = for capacitors with ring clip/clamp mounting

带卡环电容器

2 = for capacitors with threaded stud

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= Design 设计

00 = for standard capacitors 标准品

03 = for capacitors with low inductance (13 nH)
(only capacitors with diameter $d \geq 64.3$ mm
and rated voltage ≤ 400 VDC)

低感抗设计(13 nH) (只针对 $d \geq 64.3$ mm 和
额定电压 ≤ 400 VDC)

50 = for terminal with PAPR style(not for low
inductance)

PAPR型端子(不适用于低感抗型)

Bar code label and marking of the capacitor 条形码标签和电容器标签

Below is an example of bar code label on package:

以下为包装箱上条形码标签示例:



- (1P) Ordering code 订购代码
- (9K) Product order number 订单号
- (D) Date code (yywwdd) 日期代码 (年月日)
- (T) Batch number 批号
- (Q) Quantity 数量

The example below shows how the capacitor sleeve are marked:

以下示例说明电容器套管上的标签内容:

| | | |
|-----------------|--|----------------|
| | Logo | 标志 |
| B43310-B9688-M1 | Part number (ordering code) | 料号 (订购代码) |
| 6800 µF (M) | Rated capacitance, tolerance (in coded form) | 额定电容、容差 (代码形式) |
| 400V 40/085/56 | Rated voltage, climatic category | 额定电压、气候分类 |
| 06.09 X | Month and year of production | 月.年 (生产日期) |

The climatic category is specified according to IEC 60068-1. If there is not enough space on the case, the following codes may be used:

气候类别符合 IEC 60068 - 1。如果壳体上没有足够空间，可使用以下代码:

E.g.: 40/085/56, in coded form, would read GPF 例如: 40/085/56的代码形式为GPF

1st letter(lower category temperature) 首字母 (下限类别温度)

| | | | |
|-----------------------|-----|-----|-----|
| Code letter 代码字母 | F | G | H |
| Temperature 温度(°C) | -55 | -40 | -25 |

2nd letter (upper category temperature) 第二字母 (上限类别温度)

| | | | | | |
|-----------------------|------|------------|-----|-----|-----|
| Code letter 代码字母 | K | M | P | S | U |
| Temperature 温度(°C) | +125 | +105(+100) | +85 | +70 | +60 |

3rd letter (humidity) 第三字母 (湿度)

Letter F: withstands IEC60068-2-78 Cab (damp heat, steady state), test duration 56 days.

字母F: 经受IEC 60068-2-78试验箱 (湿度、恒稳态), 试验周期56天

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The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.
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