Aluminum Electrolytic Capacitors

Capacitors with screw terminals

Series/Type: **B43740, B43760**

Date: April 1, 2014

EPCOS AG is a TDK Group Company.

Long life grade capacitors
长寿命级电容器

Applications
应用

- Frequency converters
  变频器
- Traction
  机车牵引装置
- Professional power supplies
  专业电源
- Solar and wind power generator
  太阳能和风力发电设备

Features
特点

- Outstanding reliability
  卓越的可靠性
- Good thermal characteristics and high ripple current capability
  优异的导热能力与高耐纹波电流能力
- Extra long useful life
  超长使用寿命
- Wide temperature range
  工作温度范围宽
- All-welded constructions ensure reliable elecrical contact
  全焊结构，确保可靠的电气接触性
- PAPR terminals available (Protection Against Polarity Reversal)
  可选PAPR型端子 （极性颠倒保护）
- Version with optimized construction for base cooling (heat sink mounting) available
  可选底部散热结构优化型 （散热板安装）
- 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

Capacitors with screw terminals 螺钉式电容器 B43740,B43760

Extra long useful life − 105ºC 超长使用寿命型 − 105ºC

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

Rated voltage V_R 额定电压V_R	350…450 V DC	
Surge voltage V_S 浪涌电压V_S	1.10 · V_R (105℃: $V_R \leqslant$ 400V DC; 85℃: V_R = 450V DC)	
Operating temperature range 工作温度范围	-40 ºC…+105 ºC	
Rated capacitance C_R 额定电容量C_R (20 ºC,120 Hz)	1000…18000 µF	
Capacitance tolerance 电容量公差	±20% M	
Dissipation factor(max.) 损耗正切角（最大值） 20ºC,120Hz.	0.2	
Leakage current I_{leak} (20 ºC,after 5 minutes) 漏电流 I_{leak} (20 ºC,5分钟后)	$I_{leak} \leq 0.018\mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right)^{0.85} + 4\mu A$	
Low temperature stability 低温稳定性 (max impedance ratio) (最大阻抗比率)	$\frac{Z\ (-25\ ºC)}{Z\ (+20\ ºC)}$	4
	$\frac{Z\ (-40\ ºC)}{Z\ (+20\ ºC)}$	10
Useful life 使用寿命 (105 ºC,V_R,$I_{AC,R}$)	6000h	Requirements 要求: △C/C ⩽ ±15% of initial value 初始值的±15% tanδ ≤ 1.75 times initial specified limit 1.75倍初始规定值 I_{leak} ≤ initial specified limit 初始规定值
Shelf life 储存寿命	After storage for 1000 h at 105 ºC, 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. 105ºC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：先加额定电压充电30分钟，恢复24至48小时后再测试。	

Frequency multiplier for rated ripple current 额定纹波电流频率系数	50Hz	120Hz	300Hz	1kHz	10kHz	
	0.78	1	1.25	1.34	1.38	
Temperature multiplier for rated ripple current 额定纹波电流温度系数	+40 ºC	+55 ºC	+70 ºC	+90 ºC	+105 ºC	
	3.10	3.00	2.78	2.14	1.00	
Sectional specification 分规范	IEC 60384-4					

Capacitors with screw terminals 螺钉式电容器 B43740,B43760

Extra long useful life − 105ºC 超长使用寿命型 − 105ºC

Ripple current capability
耐纹波电流能力

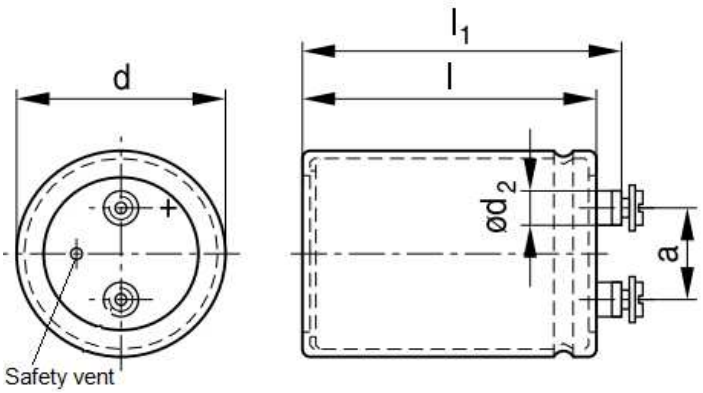
Due to the ripple current capability of the contact elements, the following current upper limits must not be exceed:

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

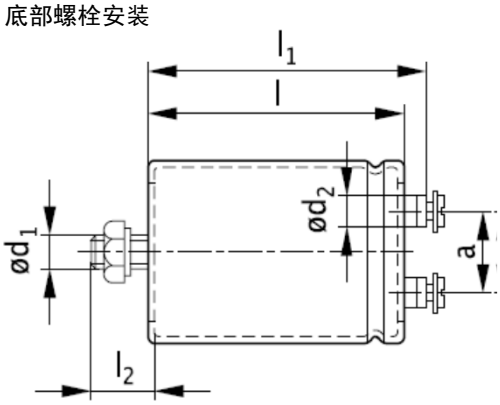
Capacitor diameter 电容器直径	51.6mm	64.3mm	76.9mm	91.0mm
$I_{AC,max}$	34A	45A	57A	80A

Dimensional drawings
尺寸图

B43740
Ring clip/clamp mounting
卡环或卡夹安装



B43760
Threaded stud mounting
底部螺栓安装



M5: Min. reach of screw = 9.5 mm
M5: 螺纹最小深度 = 9.5 mm

9 mm for low inductance design
低感抗设计 = 9 mm

M6: Min. reach of screw = 12 mm
M6: 螺纹最小深度 = 12 mm

9.5 mm for low inductance design
低感抗设计 = 9.5 mm

Positive pole marking: +
正极标志: +

The base of types with threaded stud and d = 91 mm is fully insulated (the lengths l and l_1 are increased by 0.5mm in these cases). For types with threaded stud and d ≤ 76mm the base is not insulated. For non-insulated and insulated mounting instructions and accessories, refer to chapter " Screw terminals - accessaries."

带底部螺栓，且d = 91 mm型号底部完全绝缘（这些产品的高度l和l_1都增加0.5mm）。带底部螺栓，且d≤ 76mm型号的底部不绝缘。关于非绝缘安装及绝缘安装说明及附件，参阅章节“螺钉式电容器 − 附件”。

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/-0.8	80.7	87.2	17	M12	10.2	22.2	220
		105.7	112.2					280
		118.2	124.7					320
		130.7	137.2					350
M5	64.3 +0/-0.8	80.7	87.2			13.2	28.5	370
		105.7	112.2					440
		118.2	124.7					510
		130.7	137.2					600
		143.2	149.7					630
M6	76.9 +0/-0.7	105.7	111.5			17.7	31.7	620
		118.2	124.0					700
		130.7	136.5					800
		143.2	149.0					840
		168.7	174.5					1000
		190.7	196.5					1150
		220.7	226.5					1300
M6	91.0 +0/-2	144.5	149.8			17.7	31.7	1200
		170.0	175.3					1400
		191.0	196.3					1650
		221.0	226.3					1900

Packing
包装

Capacitor diameter 电容器直径	Packing units (pcs.) 包装单位 (件)
51.6mm	22
64.3mm	15

Capacitor diameter 电容器直径	Packing units (pcs.) 包装单位 (件)
76.9mm	12
91.0mm	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	-	Outer hex-cross screw with spring and plain washer M5 × 10 外六角十字型螺钉及弹垫垫圈和平垫圈 M5 × 10	2.5 Nm
	M6	-	Outer hex-cross screw with spring and plain washer M6 × 12 外六角十字型螺钉及弹垫垫圈和平垫圈 M6 × 12	4.0 Nm
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 ≥ 64.3 mm 电容器用卡夹, d ≥ 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 dates and ordering codes

V_R V DC	C_R 120Hz 20 ºC µF	Case dimensions d × l mm	ESR_{typ} 120 Hz 20 ℃ mΩ	$I_{AC,max}$ 120 Hz 40 ºC A	$I_{AC,R}$ 120 Hz 105 ºC A	Ordering code
350	1000	51.6 x 80.7	92	13.0	4.3	B437*0A4108M0##
	1500	51.6 x 80.7	65	17.0	5.4	B437*0A4228M0##
	2200	51.6 x 105.7	43	22.0	7.3	B437*0A4228M0##
	2700	64.3 x 80.7	36	25.0	8.2	B437*0A4278M0##
	3300	64.3 x 105.7	31	29.0	9.4	B437*0A4338M0##
	3900	64.3 x 118.2	27	32.0	10.5	B437*0A4398M0##
	4700	64.3 x 143.2	23	37.0	11.9	B437*0A4478M0##
	4700	76.9 x 105.7	23	37.0	12.0	B437*0B4478M0##
	5600	76.9 x 130.7	18	43.0	14.0	B437*0A4568M0##
	6800	76.9 x 143.2	16	49.0	15.8	B437*0A4688M0##
	8200	76.9 x 168.7	12	57.0	19.1	B437*0A4828M0##
	8200	91.0 x 144.5	11	62.0	20.2	B437*0B4828M0##
	10000	76.9 x 190.7	10	57.0	22.0	B437*0A4109M0##
	10000	91.0 x 144.5	10	67.0	21.9	B437*0B4109M0##
	12000	76.9 x 220.7	8	57.0	25.9	B437*0A4129M0##
	12000	91.0 x 170.0	7	80.0	26.9	B437*0B4129M0##
	15000	91.0 x 191.0	7	80.0	28.4	B437*0A4159M0##
	18000	91.0 x 221.0	6	80.0	32.0	B437*0A4189M0##
400	1000	51.6 x 80.7	92	14.0	4.5	B437*0A9108M0##
	1500	51.6 x 105.7	60	19.0	6.1	B437*0A9158M0##
	2200	64.3 x 105.7	42	24.0	7.9	B437*0A9228M0##
	2200	51.6 x 130.7	36	27.0	8.7	B437*0B9228M0##
	2700	64.3 x 105.7	32	29.0	9.3	B437*0A9278M0##
	3300	64.3 x 130.7	27	33.0	10.8	B437*0A9338M0##
	3300	76.9 x 105.7	27	34.0	11.0	B437*0B9338M0##
	3900	76.9 x 118.2	22	38.0	12.5	B437*0A9398M0##
	4700	76.9 x 130.7	18	44.0	14.3	B437*0A9478M0##
	5600	76.9 x 143.2	16	50.0	16.2	B437*0A9568M0##
	6800	76.9 x 168.7	14	56.0	18.2	B437*0A9688M0##
	6800	91.0 x 144.5	13	58.0	19.0	B437*0B9688M0##
	8200	76.9 x 190.7	12	57.0	20.8	B437*0A9828M0##
	8200	91.0 x 144.5	11	66.0	21.4	B437*0B9828M0##

* = Mounting style
- 4 = for capacitors with ring clip/clamp mounting
- 6 = for capacitors with threaded stud

= Design
- 00 = for capacitors with standard inductance
- 03 = for capacitors with low inductance (13 nH) (only capacitors with diameter d≥ 64.3 mm)
- 07 = for heat sink mounting (only capacitors with diameter d≥64.3 mm and without threaded stud)
- 50 = for terminals with PAPR style (not for low -inductance)
- 57 = for terminals with PAPR style and heat sink mounting (only d≥64.3 mm and only without threaded stud; not for low inductance)

Technical dates and ordering codes

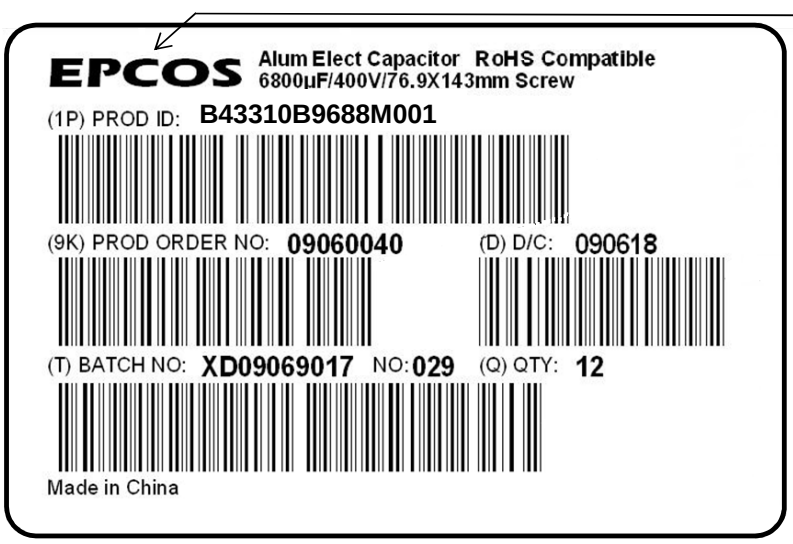
V_R V DC	C_R 120Hz 20 ºC µF	Case dimensions d × l mm	ESR_{typ} 120 Hz 20 ℃ mΩ	$I_{AC,max}$ 120 Hz 40 ºC A	$I_{AC,R}$ 120 Hz 105 ºC A	Ordering code
400	10000	76.9 x 220.7	9	57.0	25.4	B437*0A9109M0##
	10000	91.0 x 191.0	8	80.0	26.0	B437*0B9109M0##
	12000	91.0 x 221.0	6	80.0	31.1	B437*0A9129M0##
450	1000	51.6 x 105.7	88	15.0	4.9	B437*0A5108M0##
	1500	51.6 x 118.2	58	20.0	6.5	B437*0A5158M0##
	2200	64.3 x 118.2	40	26.0	8.5	B437*0A5228M0##
	2700	64.3 x 130.7	31	31.0	10.2	B437*0A5278M0##
	3300	76.9 x 130.7	25	37.0	11.9	B437*0A5338M0##
	3300	64.3 x 143.2	25	36.0	11.9	B437*0B5338M0##
	3900	76.9 x 143.2	21	41.0	13.4	B437*0A5398M0##
	4700	76.9 x 168.7	18	47.0	15.3	B437*0A5478M0##
	5600	76.9 x 190.7	16	54.0	17.5	B437*0A5568M0##
	5600	91.0 x 144.5	15	55.0	18.0	B437*0B5568M0##
	6800	76.9 x 220.7	13	57.0	20.5	B437*0A5688M0##
	6800	91.0 x 170.0	12	64.0	20.9	B437*0B5688M0##
	8200	91.0 x 191.0	9	77.0	25.0	B437*0A5828M0##
	10000	91.0 x 221.0	7	80.0	29.7	B437*0A5109M0##

* = Mounting style
- 4 = for capacitors with ring clip/clamp mounting
- 6 = for capacitors with threaded stud

= Design
- 00 = for capacitors with standard inductance
- 03 = for capacitors with low inductance (13 nH) (only capacitors with diameter d≥ 64.3 mm)
- 07 = for heat sink mounting (only capacitors with diameter d≥64.3 mm and without threaded stud)
- 50 = for terminals with PAPR style (not for low -inductance)
- 57 = for terminals with PAPR style and heat sink mounting (only d≥64.3 mm and only without threaded stud; not for low inductance)

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：

EPCOS	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）
400 V- 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(℃)	-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(℃)	+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（湿热、恒稳态），试验周期56天。

Important notes

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, EPCOS is 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 an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.

2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or lifesaving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.

3. **The warnings, cautions and product-specific notes must be observed.**

4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous).** Useful information on this will be found in our Material Data Sheets on the Internet (www.epcos.com/material). Should you have any more detailed questions, please contact our sales offices.

5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.

   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available.

   The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

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