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Aluminum Electrolytic Capacitors

Capacitors with screw terminals

Series/Type: B43740, B43760

Date: April 1, 2014

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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 electrical contact
全焊结构，确保可靠的电气接触性
- P APR terminals available (Protection Against Polarity Reversal)
可选P APR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

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°C: $V_R \leq 400V$ DC; 85°C: $V_R = 450V$ DC)					
Operating temperature range 工作温度范围	-40 °C...+105 °C					
Rated capacitance C_R 额定电容量 C_R (20 °C, 120 Hz)	1000...18000 μ F					
Capacitance tolerance 电容量公差	$\pm 20\%$ M					
Dissipation factor(max.) 损耗正切角(最大值) 20°C, 120Hz.	0.2					
Leakage current I_{leak} (20 °C, after 5 minutes) 漏电流 I_{leak} (20 °C, 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)	$Z(-25\text{ °C})$	4				
	$Z(+20\text{ °C})$					
	$Z(-40\text{ °C})$	10				
	$Z(+20\text{ °C})$					
Useful life 使用寿命 (105 °C, $V_R, I_{AC,R}$)	6000h					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 $I_{leak} \leq$ initial specified limit 初始规定值
Shelf life 储存寿命	After storage for 1000 h at 105 °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. 105°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 °C	+55 °C	+70 °C	+90 °C	+105 °C	
	3.10	3.00	2.78	2.14	1.00	
Sectional specification 分规范	IEC 60384-4					

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

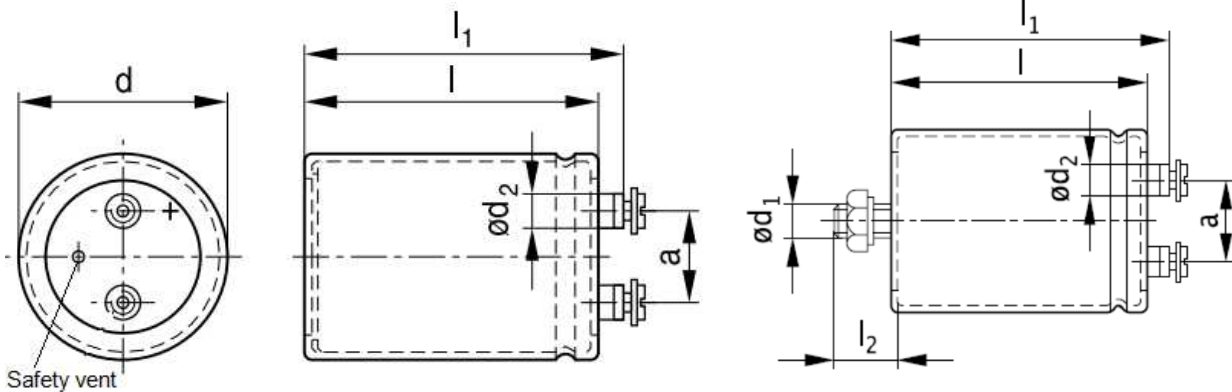
Capacitor diameter 电容器直径	51.6mm	64.3mm	76.9mm	91.0mm
$I_{AC,max}$	34A	45A	57A	80A

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 $d \leq 76$ mm the base is not insulated. For non-insulated and insulated mounting instructions and accessories, refer to chapter "Screw terminals - accessories."

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 $d \leq 76$ mm 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	17	M12	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	M12	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
M6	91.0 +0/-2	220.7	226.5	17	M12	17.7	31.7	1300
		144.5	149.8					1200
		170.0	175.3					1400
		191.0	196.3					1650
		221.0	226.3					1900

Capacitors with screw terminals 螺钉式电容器	B43740, B43760
Extra long useful life – 105°C 超长使用寿命型 – 105°C	

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)
51.6mm	22	76.9mm	12
64.3mm	15	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 $d \geq 64.3$ 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。

Capacitors with screw terminals 螺钉式电容器 B43740,B43760
Extra long useful life – 105°C 超长使用寿命型 – 105°C

Technical dates and ordering codes

V _R	C _R 120Hz 20 °C μF	Case dimensions d × l mm	ESR _{typ} 120 Hz 20 °C mΩ	I _{AC,max} 120 Hz 40 °C A	I _{AC,R} 120 Hz 105 °C A	Ordering code
V DC						
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 $d \geq 64.3$ mm)

07 = for heat sink mounting (only capacitors with diameter $d \geq 64.3$ 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 $d \geq 64.3$ mm and only without threaded stud; not for low inductance)

Capacitors with screw terminals 螺钉式电容器 B43740,B43760
Extra long useful life – 105°C 超长使用寿命型 – 105°C

Technical dates and ordering codes

V_R	C_R 120Hz 20 °C μF	Case dimensions $d \times l$ mm	ESR_{typ} 120 Hz 20 °C m Ω	$I_{AC,max}$ 120 Hz 40 °C A	$I_{AC,R}$ 120 Hz 105 °C 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

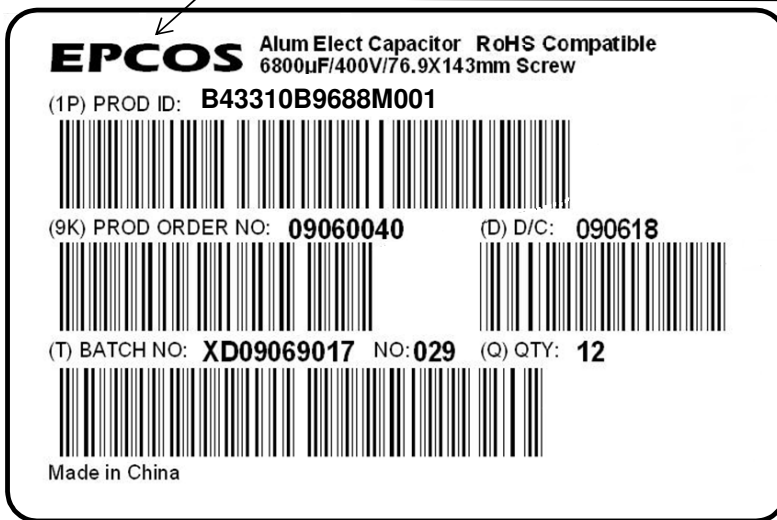
= Design

- 00 = for capacitors with standard inductance
- 03 = for capacitors with low inductance (13 nH) (only capacitors with diameter $d \geq 64.3$ mm)
- 07 = for heat sink mounting (only capacitors with diameter $d \geq 64.3$ 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 $d \geq 64.3$ 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:



Brand 品牌

- (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)
- 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。

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