



Aluminum Electrolytic Capacitors

Snap-in capacitors

Series/Type: **B43601**

Date: April 1, 2014

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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
- Uninterruptible power supplies
不间断电源
- Switch mode power supplies in industrial and entertainment electronics
工业和消费电子产品中的开关电源

Features

特点

- Ultra compact
体积小
- High reliability
可靠性高
- High ripple current capability
耐高纹波电流能力
- RoHS-compatible
符合RoHS要求
- Useful life of 10000h at 85 °C
85 °C 10000h使用寿命

Structure

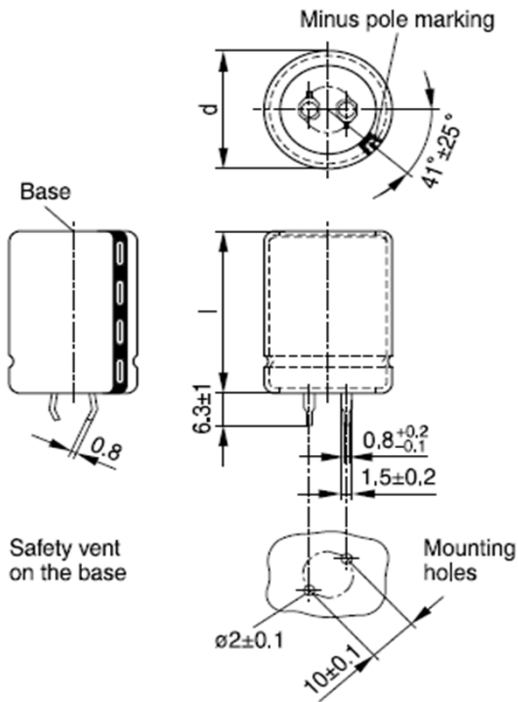
- Charge/discharge-proof, polar
耐充放电，有极性
- Aluminum case, fully insulated
铝质外壳，整体绝缘
- Minus pole marking on the insulating sleeve
绝缘套管上标注负极
- Overload protection by safety vent on the base
底部安全阀过载保护

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

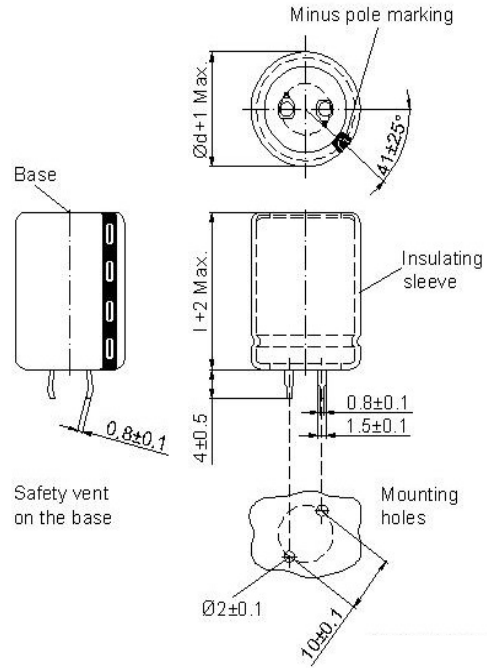
Rated voltage V_R 额定电压 V_R	200...450 V DC						
Surge voltage V_S 浪涌电压 V_S	1.15 · V_R (for $V_R \leq 250$ V DC) 1.10 · V_R (for $V_R \geq 400$ V DC)						
Operating temperature range 工作温度范围	$V_R \leq 250$ V DC: -40 °C...+105 °C $V_R \geq 400$ V DC: -25 °C...+105 °C						
Rated capacitance C_R 额定电容量 C_R	82...2700 μ F					20 °C, 120 Hz	
Capacitance tolerance 电容量公差	$\pm 20\%$ M						
Dissipation factor(max.) 损耗正切角(最大值)	V_R (V DC)	200...250		400...450		20°C, 120Hz.	
	$\tan\delta$	0.15		0.20			
Leakage current I_{leak} 漏电流 I_{leak}	$I_{leak} \leq 0.3\mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right)^{0.7} + 4\mu A$					20 °C, after 5 minutes 20 °C, 5分钟后	
Low temperature stability 低温稳定性 (max impedance ratio) (最大阻抗比率)	V_R (V DC)	200...250		400...450		120 Hz	
	Z (-25 °C)	4		7			
	Z (+20 °C)	7		12			
	Z (-40 °C) Z (+20 °C)	7		12			
Useful life 使用寿命 (85 °C, $V_R, I_{AC,R}$)	10000 h	Requirements 要求:					
		$\Delta C/C \leq \pm 20\%$ of initial value 初始值的 $\pm 20\%$					
		$\tan\delta \leq 2$ times initial specified limit 2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 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 额定纹波电流的频率系数	V_R (V DC)	d(mm)	50Hz	120Hz	1kHz	10kHz	20kHz
	200	22	0.75	1.00	1.52	1.68	1.69
		25	0.75	1.00	1.52	1.68	1.69
		30	0.80	1.00	1.25	1.31	1.32
		35	0.85	1.00	1.14	1.17	1.17
	250	22	0.75	1.00	1.52	1.68	1.69
		25	0.75	1.00	1.52	1.68	1.69
		30	0.80	1.00	1.25	1.31	1.32
		35	0.85	1.00	1.14	1.17	1.17
	400	22	0.78	1.00	1.35	1.43	1.44
		25	0.78	1.00	1.35	1.43	1.44
		30	0.80	1.00	1.25	1.31	1.32
		35	0.80	1.00	1.25	1.31	1.32
	450	22	0.78	1.00	1.35	1.43	1.44
		25	0.78	1.00	1.35	1.43	1.44
		30	0.78	1.00	1.35	1.43	1.44
35		0.80	1.00	1.25	1.31	1.32	
Temperature multiplier for rated ripple current 额定纹波电流的温度系数	+40 °C		+55 °C		+70 °C		+85 °C
	2.2		2.1		1.7		1.0
Sectional specification 分规范	IEC 60384-4						

Dimensional drawing

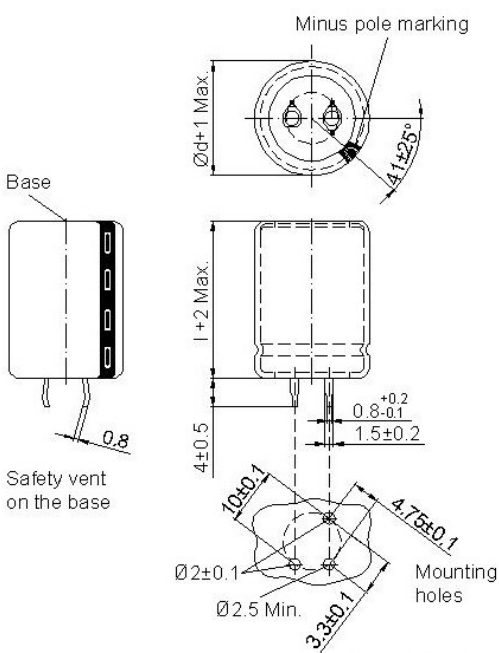
snap-in standard terminals (6.3±1) mm
digit 15 of part number = 0



snap-in short terminals (4.0±0.5) mm
digit 15 of part number = 7



snap-in 3 terminals terminals (4.0±0.5) mm
digit 15 of part number = 2



Technical dates and ordering codes

V_R	C_R	Case dimensions d x l mm	ESR_{typ} 120 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,R}$ 120 Hz 60 °C A	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC	μF						
200	330	22 x 25	270	400	2.87	1.46	B43601A2337M0*#
	390	22 x 30	240	340	3.27	1.66	B43601A2397M0*#
	470	22 x 35	190	280	3.71	1.90	B43601A2477M0*#
	470	25 x 25	190	280	3.53	1.80	B43601B2477M0*#
	560	22 x 35	160	240	4.05	2.06	B43601A2567M0*#
	560	25 x 30	160	240	4.03	2.05	B43601B2567M0*#
	680	22 x 40	130	190	4.60	2.35	B43601A2687M0*#
	680	25 x 35	130	190	4.59	2.34	B43601B2687M0*#
	680	30 x 25	130	190	4.24	2.16	B43601C2687M0*#
	820	22 x 50	110	160	5.33	2.71	B43601A2827M0*#
	820	25 x 40	110	160	5.21	2.66	B43601B2827M0*#
	820	30 x 30	110	160	4.86	2.47	B43601C2827M0*#
	1000	25 x 45	90	130	5.91	3.02	B43601A2108M0*#
	1000	30 x 35	90	130	5.56	2.83	B43601B2108M0*#
	1000	35 x 25	90	130	4.70	2.40	B43601C2108M0*#
	1200	25 x 50	80	110	6.63	3.38	B43601A2128M0*#
	1200	30 x 40	80	110	6.70	3.41	B43601B2128M0*#
	1200	35 x 30	80	110	5.72	2.91	B43601C2128M0*#
	1500	30 x 45	60	90	7.69	3.92	B43601A2158M0*#
	1500	35 x 35	60	90	6.61	3.38	B43601B2158M0*#
	1800	30 x 50	50	75	8.64	4.41	B43601A2188M0*#
	1800	35 x 40	50	75	7.48	3.81	B43601B2188M0*#
	2200	35 x 45	40	60	8.51	4.34	B43601A2228M0*#
	2700	35 x 55	30	50	9.89	5.04	B43601A2278M0*#
250	270	22 x 25	310	460	2.76	1.41	B43601E2277M0*#
	330	22 x 30	250	370	3.18	1.62	B43601E2337M0*#
	330	25 x 25	250	370	3.13	1.60	B43601F2337M0*#
	390	22 x 35	220	320	3.58	1.82	B43601E2397M0*#
	390	25 x 30	220	320	3.54	1.80	B43601F2397M0*#
	470	22 x 40	180	260	4.06	2.07	B43601E2477M0*#
	470	25 x 30	180	260	3.89	1.99	B43601F2477M0*#
	560	22 x 45	150	220	4.55	2.32	B43601E2567M0*#
	560	25 x 35	150	220	4.41	2.25	B43601F2567M0*#
	560	30 x 25	150	220	4.03	2.05	B43601G2567M0*#
	680	22 x 50	120	180	5.14	2.62	B43601E2687M0*#
	680	25 x 40	120	180	5.01	2.55	B43601F2687M0*#
	680	30 x 30	120	180	4.62	2.36	B43601G2687M0*#
	680	35 x 25	120	180	4.00	2.04	B43601H2687M0*#

* = Insulation feature

0 = PVC sleeve

6 = PET sleeve

= Terminal style

0 = snap-in standard terminals (6.3±1) mm

2 = snap-in 3 terminals (4.0±0.5) mm

7 = snap-in short terminals (4.0±0.5) mm

Technical dates and ordering codes

V_R	C_R	Case dimensions d × l mm	ESR_{typ} 120 Hz 20 °C mΩ	Z_{max} 10 kHz 20 °C mΩ	$I_{AC,R}$ 120 Hz 60 °C A	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC	μF						
250	820	25 x 45	100	150	5.65	2.88	B43601E2827M0*#
	820	30 x 35	100	150	5.26	2.69	B43601F2827M0*#
	820	35 x 30	100	150	4.87	2.48	B43601G2827M0*#
	1000	25 x 55	80	130	6.54	3.34	B43601E2108M0*#
	1000	30 x 40	80	130	6.40	3.25	B43601F2108M0*#
	1000	35 x 30	80	130	5.39	2.74	B43601G2108M0*#
	1200	30 x 45	70	110	7.20	3.67	B43601E2128M0*#
	1200	35 x 35	70	110	6.11	3.11	B43601F2128M0*#
	1500	30 x 55	60	85	8.45	4.31	B43601E2158M0*#
	1500	35 x 40	60	85	7.05	3.59	B43601F2158M0*#
	1800	35 x 45	50	70	7.94	4.05	B43601E2188M0*#
2200	35 x 55	40	60	9.21	4.70	B43601E2228M0*#	
400	100	22 x 25	1030	1470	1.73	0.89	B43601A9107M0*#
	120	22 x 30	850	1220	1.98	1.01	B43601A9127M0*#
	150	22 x 30	680	980	2.21	1.12	B43601A9157M0*#
	150	25 x 25	680	980	2.21	1.13	B43601B9157M0*#
	180	22 x 35	570	820	2.51	1.28	B43601A9187M0*#
	180	25 x 30	570	820	2.53	1.29	B43601B9187M0*#
	220	22 x 40	460	670	2.86	1.46	B43601A9227M0*#
	220	25 x 35	460	670	2.90	1.48	B43601B9227M0*#
	220	30 x 25	460	670	2.77	1.41	B43601C9227M0*#
	270	22 x 45	380	550	3.27	1.66	B43601A9277M0*#
	270	25 x 40	380	550	3.32	1.69	B43601B9277M0*#
	270	30 x 30	380	550	3.20	1.63	B43601C9277M0*#
	330	25 x 45	310	450	3.77	1.93	B43601A9337M0*#
	330	30 x 35	310	450	3.67	1.86	B43601B9337M0*#
	330	35 x 25	310	450	3.29	1.68	B43601C9337M0*#
	390	25 x 50	260	380	4.20	2.14	B43601A9397M0*#
	390	30 x 35	260	380	3.99	2.03	B43601B9397M0*#
	390	35 x 30	260	380	3.97	2.02	B43601C9397M0*#
	470	25 x 55	220	320	4.72	2.40	B43601A9477M0*#
	470	30 x 40	220	320	4.81	2.45	B43601B9477M0*#
470	35 x 35	220	320	4.51	2.30	B43601C9477M0*#	
560	30 x 45	180	270	5.41	2.75	B43601A9567M0*#	
560	35 x 35	180	270	4.92	2.51	B43601B9567M0*#	
680	30 x 55	150	220	6.24	3.18	B43601A9687M0*#	
680	35 x 40	150	220	5.60	2.85	B43601B9687M0*#	
820	35 x 50	120	180	6.49	3.31	B43601A9827M0*#	
1000	35 x 55	100	150	7.32	3.74	B43601A9108M0*#	

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Technical dates and ordering codes

V_R	C_R 120Hz 20 °C μF	Case dimensions d x l mm	ESR_{typ} 120 Hz 20 °C m Ω	Z_{max} 10 kHz 20 °C m Ω	$I_{\text{AC,R}}$ 120 Hz 60 °C A	$I_{\text{AC,R}}$ 120 Hz 85 °C A	Ordering code
450	82	22 x 25	1250	1860	1.63	0.82	B43601A5826M0*#
	100	22 x 30	1030	1520	1.87	0.95	B43601A5107M0*#
	120	22 x 30	850	1270	2.05	1.04	B43601A5127M0*#
	120	25 x 25	850	1270	2.05	1.04	B43601B5127M0*#
	150	22 x 35	680	1020	2.38	1.21	B43601A5157M0*#
	150	25 x 30	680	1020	2.39	1.22	B43601B5157M0*#
	180	22 x 40	570	850	2.69	1.37	B43601A5187M0*#
	180	25 x 35	570	850	2.71	1.38	B43601B5187M0*#
	180	30 x 25	570	850	2.69	1.37	B43601C5187M0*#
	220	22 x 50	460	700	3.12	1.59	B43601A5227M0*#
	220	25 x 40	460	700	3.09	1.58	B43601B5227M0*#
	220	30 x 30	460	700	3.10	1.58	B43601C5227M0*#
	220	35 x 25	460	700	2.91	1.48	B43601D5227M0*#
	270	25 x 45	380	570	3.52	1.79	B43601A5277M0*#
	270	30 x 35	380	570	3.56	1.81	B43601B5277M0*#
	270	35 x 30	380	570	3.58	1.82	B43601C5277M0*#
	330	25 x 50	310	470	4.00	2.04	B43601A5337M0*#
	330	30 x 40	310	470	4.33	2.20	B43601B5337M0*#
	330	35 x 30	310	470	3.97	2.02	B43601C5337M0*#
	390	30 x 45	260	390	4.84	2.46	B43601A5397M0*#
	390	35 x 35	260	390	4.46	2.28	B43601B5397M0*#
	470	30 x 50	220	330	5.45	2.78	B43601A5477M0*#
	470	35 x 40	220	330	5.06	2.58	B43601B5477M0*#
	560	30 x 55	180	280	6.09	3.10	B43601A5567M0*#
	560	35 x 45	180	280	5.68	2.89	B43601B5567M0*#
	680	35 x 50	150	230	6.41	3.27	B43601A5687M0*#

* = Insulation feature

0 = PVC sleeve

6 = PET sleeve

= Terminal style

0 = snap-in standard terminals (6.3±1) mm

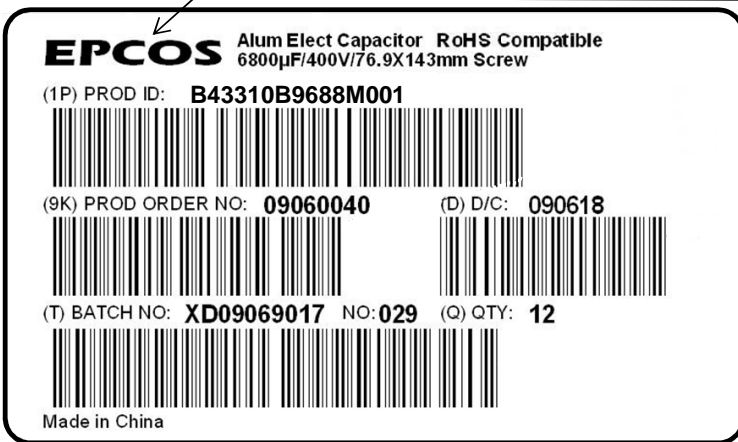
2 = snap-in 3 terminals (4.0±0.5) mm

7 = snap-in short terminals (4.0±0.5) mm

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 two examples below shows how the capacitor sleeve are marked according to case height:

以下两个示例说明不同壳体高度电容器套管上的标签内容:

Case height

壳体高度

20mm		<p>Brand</p> <p>Part number (ordering code)</p> <p>Rated capacitance, tolerance, rated voltage,</p> <p>Climatic category, month and year of production</p>	<p>品牌</p> <p>料号 (订购代码)</p> <p>额定电容、容差、额定电压</p> <p>气候分类、月.年 (生产日期)</p>
25mm		<p>Brand</p> <p>Part number (ordering code)</p> <p>Rated capacitance, tolerance, rated voltage,</p> <p>Climatic category</p> <p>Month and year of production</p>	<p>品牌</p> <p>料号 (订购代码)</p> <p>额定电容、容差、额定电压</p> <p>气候分类</p> <p>月.年 (生产日期)</p>
>25mm		<p>Brand</p> <p>Part number (ordering code)</p> <p>Rated capacitance, tolerance, rated voltage,</p> <p>Climatic category</p> <p>Month and year of production</p>	<p>品牌</p> <p>料号 (订购代码)</p> <p>额定电容、容差、额定电压</p> <p>气候分类</p> <p>月.年 (生产日期)</p>

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 字母代码	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.
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