



# Aluminum Electrolytic Capacitors

Snap-in capacitors

**Series/Type:**            **B43501**

**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
- Uninterruptible power supplies  
不间断电源
- Switch mode power supplies in industrial electronics  
工业电子产品中的开关电源

## Features

### 特点

- Long useful life  
长使用寿命
- High reliability  
可靠性高
- High ripple current capability  
耐高纹波电流能力
- Low ESR  
低等效串联电阻
- RoHS-compatible  
符合RoHS要求
- Useful life of 10000h at 85 °C  
85 °C 10000h使用寿命

## Construction

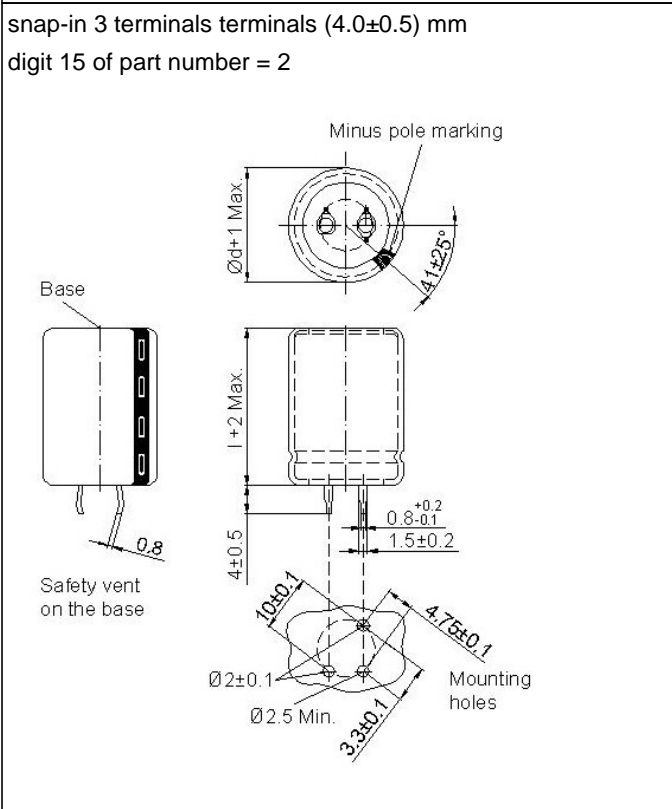
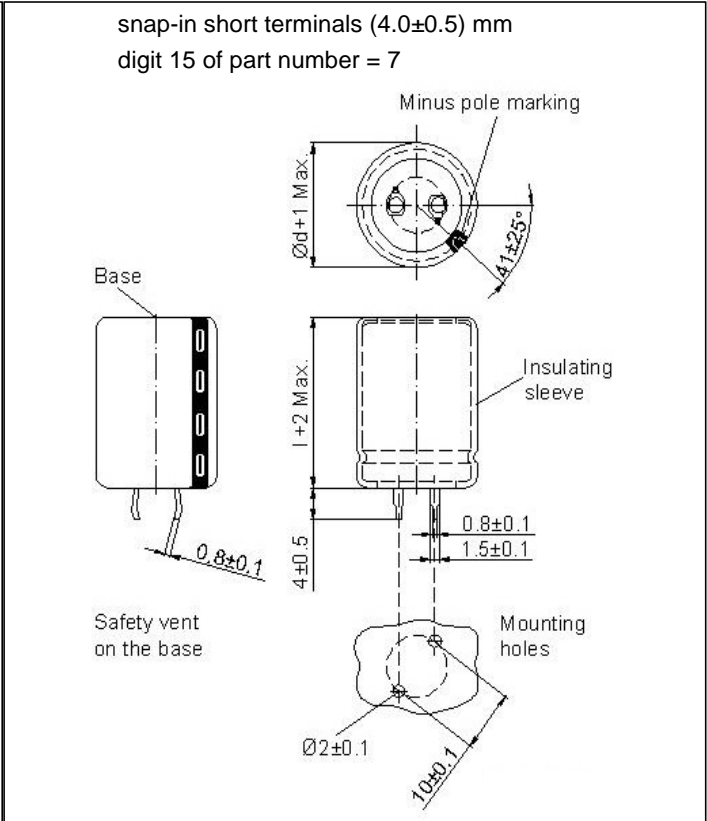
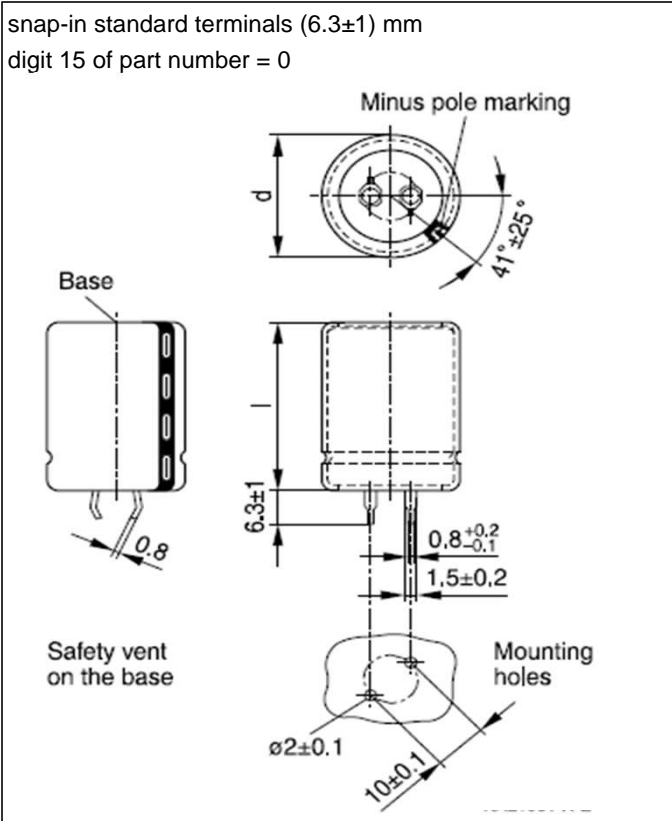
### 结构

- 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 $V_R$	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	$V_R = 400V$ DC: -40 °C...+85 °C $V_R \geq 420V$ DC: -25 °C...+85 °C						
Rated capacitance $C_R$ 额定电容量 $C_R$ (20 °C, 120 Hz)	47...680 $\mu$ 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.	$V_R$ (V DC)	400		420...450			
	$\tan\delta$	0.15		0.20			
Leakage current $I_{leak}$ (20 °C, after 5 minutes) 漏电流 $I_{leak}$ (20 °C, 5分钟后)	$I_{leak} \leq 0.3\mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right)^{0.7} + 4\mu A$						
Low temperature stability 低温稳定性 (max impedance ratio) (最大阻抗比率)	$V_R$ (V DC)	400		420...450		120 Hz	
	$\frac{Z(-25\text{ °C})}{Z(+20\text{ °C})}$	3		7			
	$\frac{Z(-40\text{ °C})}{Z(+20\text{ °C})}$	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					
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 额定纹波电流频率系数	50 Hz	120 Hz	1 kHz	10 kHz	20 kHz		
	0.85	1.00	1.30	1.31	1.32		
Temperature multiplier for rated ripple current 额定纹波电流温度系数	+40 °C	+55 °C	+70 °C	+85 °C			
	2.2	2.0	1.7	1.0			
Sectional specification 分规范	IEC 60384-4						

Dimensional drawing



**Technical dates and ordering codes**

$V_R$	$C_R$ 120Hz 20 °C $\mu F$	Case dimensions d x l mm	$ESR_{typ}$ 120 Hz 20 °C m $\Omega$	$Z_{max}$ 10 kHz 20 °C m $\Omega$	$I_{AC,R}$ 120 Hz 60 °C A	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC							
400	68	22 x 25	920	1560	1.23	0.63	B43501A9686M0*#
	100	22 x 30	630	1060	1.59	0.81	B43501A9107M0*#
	100	25 x 25	630	1060	1.61	0.82	B43501B9107M0*#
	120	22 x 35	520	890	1.85	0.95	B43501A9127M0*#
	150	22 x 40	420	710	2.21	1.13	B43501A9157M0*#
	150	30 x 25	420	710	2.21	1.13	B43501B9157M0*#
	180	30 x 30	350	590	2.52	1.29	B43501A9187M0*#
	220	25 x 40	280	490	2.84	1.45	B43501A9227M0*#
	220	30 x 30	280	490	2.78	1.42	B43501C9227M0*#
	270	25 x 45	230	400	3.29	1.68	B43501B9277M0*#
	270	30 x 35	230	400	3.27	1.67	B43501A9277M0*#
	270	35 x 30	230	400	3.43	1.75	B43501C9277M0*#
	330	25 x 55	190	330	3.96	2.02	B43501B9337M0*#
	330	30 x 45	190	330	4.04	2.06	B43501A9337M0*#
	330	35 x 30	190	330	3.79	1.94	B43501C9337M0*#
	390	30 x 45	160	280	4.30	2.19	B43501B9397M0*#
	390	35 x 35	160	280	4.34	2.21	B43501C9397M0*#
	470	30 x 50	130	230	4.92	2.51	B43501B9477M0*#
	470	35 x 45	130	230	5.24	2.68	B43501A9477M0*#
	560	35 x 45	110	190	5.69	2.90	B43501B9567M0*#
	680	35 x 55	90	160	6.72	3.43	B43501A9687M0*#
420	100	22 x 30	1270	1600	1.59	0.81	B43501A0107M0*#
	100	25 x 25	1270	1600	1.61	0.82	B43501E0107M0*#
	120	25 x 30	1060	1330	1.90	0.97	B43501A0127M0*#
	150	22 x 40	850	1070	2.17	1.11	B43501A0157M0*#
	150	25 x 35	850	1070	2.24	1.14	B43501E0157M0*#
	180	25 x 35	710	890	2.44	1.25	B43501A0187M0*#
	180	30 x 30	710	890	2.53	1.30	B43501E0187M0*#
	220	25 x 40	580	730	2.84	1.45	B43501A0227M0*#
	220	30 x 35	580	730	2.95	1.50	B43501E0227M0*#

\* = 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**

$V_R$	$C_R$ 120Hz 20 °C $\mu F$	Case dimensions d x l mm	$ESR_{typ}$ 120 Hz 20 °C m $\Omega$	$Z_{max}$ 10 kHz 20 °C m $\Omega$	$I_{AC,R}$ 120 Hz 60 °C A	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC							
420	270	25 x 55	470	590	3.56	1.82	B43501B0277M0*#
	270	30 x 35	470	590	3.27	1.67	B43501A0277M0*#
	270	35 x 30	470	590	3.45	1.76	B43501E0277M0*#
	330	30 x 45	390	490	3.96	2.02	B43501A0337M0*#
	330	35 x 35	390	490	4.00	2.04	B43501E0337M0*#
	390	30 x 50	330	410	4.48	2.29	B43501A0397M0*#
	470	30 x 55	270	340	5.10	2.61	B43501B0477M0*#
	470	35 x 45	270	340	5.20	2.66	B43501A0477M0*#
	560	35 x 50	230	290	5.91	3.02	B43501A0567M0*#
450	47	22 x 25	2710	3390	1.02	0.53	B43501A5476M0*#
	68	22 x 30	1870	2350	1.31	0.67	B43501A5686M0*#
	68	25 x 25	1870	2350	1.33	0.68	B43501B5686M0*#
	100	22 x 35	1270	1600	1.67	0.85	B43501D5107M0*#
	100	25 x 30	1270	1600	1.73	0.89	B43501B5107M0*#
	100	30 x 25	1270	1600	1.81	0.93	B43501C5107M0*#
	150	25 x 35	850	1070	2.21	1.13	B43501C5157M0*#
	150	30 x 30	850	1070	2.30	1.17	B43501B5157M0*#
	180	30 x 35	710	890	2.66	1.36	B43501A5187M0*#
	220	25 x 50	580	730	3.10	1.59	B43501B5227M0*#
	220	30 x 35	580	730	2.95	1.50	B43501C5227M0*#
	270	25 x 55	470	590	3.56	1.82	B43501B5277M0*#
	270	30 x 40	470	590	3.43	1.75	B43501C5277M0*#
	270	35 x 35	470	590	3.61	1.84	B43501D5277M0*#
	330	30 x 50	390	490	4.11	2.10	B43501B5337M0*#
	330	35 x 40	390	490	4.23	2.16	B43501A5337M0*#
	390	30 x 55	330	410	4.64	2.37	B43501A5397M0*#
	390	35 x 45	330	410	4.66	2.38	B43501B5397M0*#
	470	35 x 50	270	340	5.45	2.78	B43501A5477M0*#
	560	35 x 55	230	290	5.87	3.00	B43501A5567M0*#

\* = Insulation feature

# = Terminal style

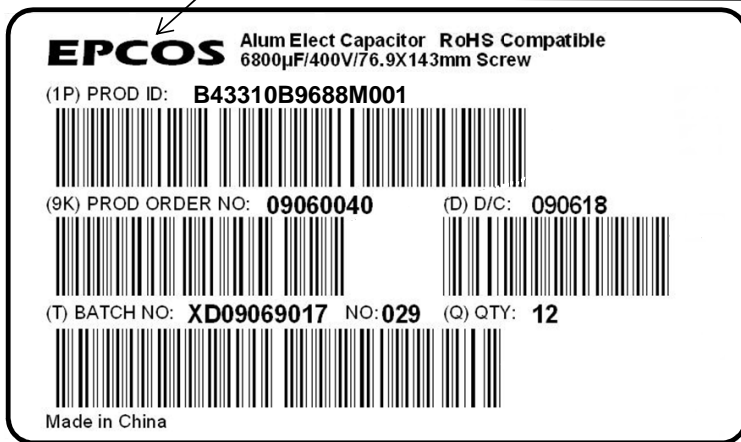
 0 = PVC sleeve  
 6 = PET sleeve

 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>EPCOS</p> <p>B43231-A9337-M</p> <p>330µF (M) 400V-</p> <p>25/085/56 MM.JJ</p>	<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>EPCOS</p> <p>B43231-A9337-M</p> <p>330µF (M) 400V-</p> <p>25/085/56</p> <p>MM.JJ</p>	<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>EPCOS</p> <p>B43231-A9337-M</p> <p>330µF (M) 400V-</p> <p>25/085/56</p> <p>MM.JJ</p>	<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。

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