



Aluminum Electrolytic Capacitors

Capacitors with 4-pin snap-in terminals

Series/Type: **B43513**

Date: September 27, 2016

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EPCOS AG is a TDK Group Company.

Long-life grade capacitors

长寿级电容器

Applications

应用

- Frequency converters
变频器
- Solar inverters
太阳能逆变器
- Uninterruptible power supplies
不间断电源
- Professional power supplies
专业电源
- Medical appliances
医疗设备

Features

特点

- RoHS-compatible
符合RoHS要求
- High ripple current capability
耐高纹波电流能力
- Useful life of 10000 h at 85 °C
85 °C 10000 h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
- Overload protection by safety vent on case wall
侧面安全阀过载保护

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

Rated voltage V_R 额定电压 V_R	350 ... 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	-40 °C ... +85 °C									
Rated capacitance C_R 额定电容量 C_R (20 °C, 120 Hz)	270 ... 2700 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, 120 Hz.	V_R (V DC)	≤ 400			> 400					
	$\tan \delta$	0.15			0.20					
Leakage current I_{leak} (20 °C, after 5 漏电流 I_{leak} (20 °C, 5分钟后)	$I_{leak} \leq 0.3 \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V} \right)^{0.7} + 4 \mu A$									
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 $\pm 20\%$							
		$\tan \delta$	≤ 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 (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	300 Hz	120 Hz	1 kHz	10 kHz	20 kHz	
			35	0.70	0.93	1.00	1.29	1.54	1.66	1.66
	40	420,450	0.71	0.94	1.00	1.26	1.46	1.56	1.57	
		400,450	0.72	0.94	1.00	1.24	1.42	1.50	1.50	
	45	350,420	0.74	0.95	1.00	1.20	1.33	1.37	1.38	
		400,450	0.73	0.95	1.00	1.22	1.39	1.45	1.45	
Temperature multiplier for rated ripple current at natural convection (Guiding values)* 额定纹波电流温度系数(参考值)*	d (mm)	V_R (V DC)	+40 °C	+50 °C	+60 °C	+70 °C	+85 °C			
			all	all	2.2	2.0	1.8	1.5	1.0	
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。

Dimensional drawing 尺寸图

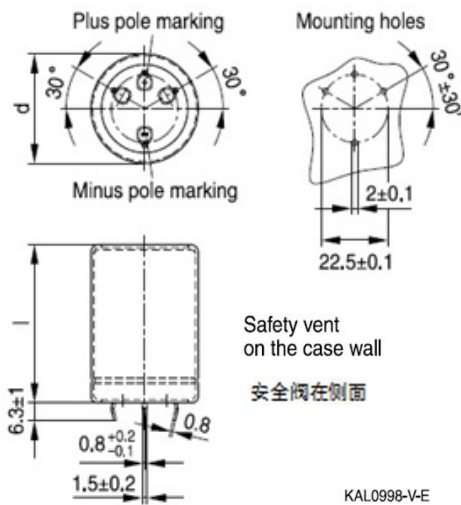
B43513, 4-Pin snap-in terminal, PVC insulation

B43513, 焊片式4针脚, PVC绝缘

4pin snap-in standard terminals (6.3±1) mm
digit 15 of part number = 0

4针焊片产品标准端子长度(6.3±1) mm

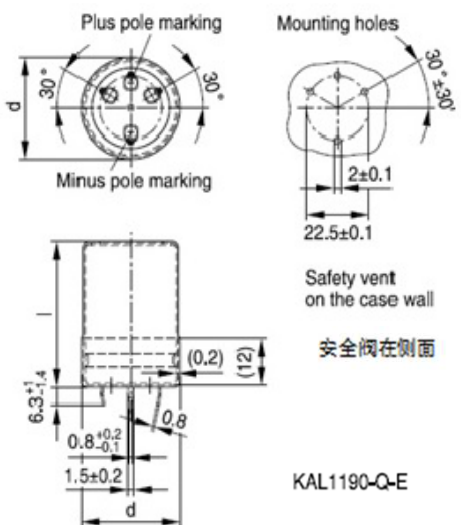
第15位编码 = 0



4pin snap-in standard terminals (4.5-1) mm
digit 15 of part number = 7

4针焊片产品标准端子长度(4.5-1) mm

第15位编码 = 7



Dimensions and weights

尺寸与重量

Dimensions (mm)		Approx. Weight (g)	Packing units (pcs.)
d +1.4	l +2.2/-2		
35	40	51	60
35	45	57	60
35	50	63	60
35	55	70	36
35	60	76	36
35	65	82	36
35	70	88	36
35	75	95	36
35	85	107	36
35	90	114	36
35	95	120	36
40	40	71	33
40	45	80	33
40	50	89	33
40	55	98	33
40	60	107	33
40	65	116	33
40	70	125	33
40	75	134	33
40	80	143	33
40	90	161	33
40	95	170	33
45	40	95	28
45	45	108	28
45	50	120	28
45	55	132	28
45	60	143	28
45	65	155	28
45	70	166	28
45	75	178	28
45	80	190	28
45	85	202	28
45	95	226	28
45	100	237	28

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

V _R V DC	C _R 120 Hz 20 °C μF	Case dimensions d x l mm	ESR _{typ}	I _{AC,R}	I _{AC,R}	Ordering code
			120 Hz 20 °C mΩ	120 Hz 60 °C A	120 Hz 85 °C A	
350	390	35 x 40	170	4.92	2.74	B43513A4397M0##
	470	35 x 45	140	5.57	3.10	B43513A4477M0##
	560	35 x 50	120	6.27	3.49	B43513A4567M0##
	560	40 x 40	120	6.26	3.48	B43513B4567M0##
	680	35 x 55	95	7.16	3.98	B43513A4687M0##
	680	40 x 45	100	7.09	3.94	B43513B4687M0##
	820	35 x 60	80	8.16	4.53	B43513A4827M0##
	820	40 x 50	85	8.01	4.45	B43513B4827M0##
	820	45 x 40	85	7.84	4.35	B43513C4827M0##
	1000	35 x 70	65	9.47	5.26	B43513A4108M0##
	1000	40 x 55	70	9.11	5.06	B43513B4108M0##
	1000	45 x 45	70	8.87	4.92	B43513C4108M0##
	1200	35 x 85	55	10.9	6.08	B43513A4128M0##
	1200	40 x 65	55	10.40	5.78	B43513B4128M0##
	1200	45 x 50	60	9.93	5.51	B43513C4128M0##
	1500	40 x 80	45	12.3	6.84	B43513A4158M0##
	1500	45 x 60	50	11.6	6.44	B43513B4158M0##
	1800	40 x 90	38	14.0	7.82	B43513A4188M0##
	1800	45 x 70	40	13.2	7.35	B43513B4188M0##
	2200	45 x 80	34	15.2	8.44	B43513A4228M0##
2700	45 x 100	28	17.8	9.95	B43513A4278M0##	
400	390	35 x 45	180	5.13	2.86	B43513A9397M0##
	470	35 x 50	150	5.82	3.24	B43513A9477M0##
	470	40 x 40	150	5.83	3.24	B43513B9477M0##
	560	35 x 55	130	6.57	3.65	B43513A9567M0##
	560	40 x 45	130	6.54	3.63	B43513B9567M0##
	560	45 x 40	130	6.64	3.69	B43513C9567M0##
	680	35 x 60	110	7.53	4.18	B43513A9687M0##
	680	40 x 50	110	7.42	4.12	B43513B9687M0##
	680	45 x 40	110	7.31	4.06	B43513C9687M0##
	820	35 x 70	90	8.66	4.81	B43513A9827M0##
	820	40 x 55	90	8.39	4.66	B43513B9827M0##

Composition of ordering code
订货编码规则

= Terminal style and insulation feature 端子类型和绝缘

 00 = 4pin snap-in standard terminal and PVC insulation
 4针焊片式标准脚和PVC绝缘

 07 = 4pin snap-in short terminals and PVC insulation
 4针焊片式短针脚和PVC绝缘

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

V _R V DC	C _R 120 Hz 20 °C μF	Case dimensions d x l mm	ESR _{typ}	I _{AC,R}	I _{AC,R}	Ordering code
			120 Hz 20 °C mΩ	120 Hz 60 °C A	120 Hz 85 °C A	
400	820	45 x 45	90	8.23	4.57	B43513C9827M0##
	1000	35 x 85	70	10.10	5.63	B43513A9108M0##
	1000	40 x 65	75	9.69	5.38	B43513B9108M0##
	1000	45 x 50	75	9.30	5.16	B43513C9108M0##
	1200	35 x 95	60	11.6	6.48	B43513A9128M0##
	1200	40 x 75	60	11.0	6.15	B43513B9128M0##
	1200	45 x 60	65	10.6	5.91	B43513C9128M0##
	1500	40 x 90	50	13.0	7.28	B43513A9158M0##
	1500	45 x 70	50	12.3	6.88	B43513B9158M0##
	1800	45 x 80	45	14.1	7.84	B43513A9188M0##
	2200	45 x 95	36	16.4	9.11	B43513A9228M0##
420	330	35 x 40	300	4.43	2.46	B43513A0337M0##
	390	35 x 45	250	4.97	2.76	B43513A0397M0##
	470	35 x 50	210	5.64	3.14	B43513A0477M0##
	470	40 x 40	210	5.64	3.13	B43513B0477M0##
	560	35 x 55	180	6.38	3.54	B43513A0567M0##
	560	40 x 45	180	6.33	3.52	B43513B0567M0##
	560	45 x 40	180	6.40	3.56	B43513C0567M0##
	680	35 x 65	150	7.37	4.10	B43513A0687M0##
	680	40 x 55	150	7.28	4.05	B43513B0687M0##
	680	45 x 40	150	7.06	3.91	B43513C0687M0##
	820	35 x 75	120	8.50	4.72	B43513A0827M0##
	820	40 x 60	120	8.25	4.58	B43513B0827M0##
	820	45 x 45	130	7.96	4.42	B43513C0827M0##
	1000	35 x 90	100	9.93	5.52	B43513A0108M0##
	1000	40 x 70	100	9.52	5.29	B43513B0108M0##
	1000	45 x 55	100	9.22	5.12	B43513C0108M0##
	1200	40 x 80	85	10.8	6.05	B43513A0128M0##
	1200	45 x 65	85	10.5	5.84	B43513B0128M0##
	1500	40 x 95	70	12.9	7.18	B43513A0158M0##
	1500	45 x 75	70	12.2	6.81	B43513B0158M0##
	1800	45 x 85	60	13.9	7.77	B43513A0188M0##

Composition of ordering code
订货编码规则

- ## = Terminal style and insulation feature 端子类型和绝缘
 00 = 4pin snap-in standard terminal and PVC insulation
 4针焊片式标准脚和PVC绝缘
 07 = 4pin snap-in short terminals and PVC insulation
 4针焊片式短针脚和PVC绝缘

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

V _R V DC	C _R 120 Hz 20 °C μF	Case dimensions d x l mm	ESR _{typ}	I _{AC,R}	I _{AC,R}	Ordering code
			120 Hz 20 °C mΩ	120 Hz 60 °C A	120 Hz 85 °C A	
450	270	35 x 40	340	4.03	2.24	B43513A5277M0##
	330	35 x 45	280	4.61	2.56	B43513A5337M0##
	390	35 x 50	240	5.17	2.87	B43513A5397M0##
	390	40 x 40	240	5.20	2.88	B43513B5397M0##
	470	35 x 55	200	5.88	3.27	B43513A5477M0##
	470	40 x 45	200	5.87	3.26	B43513B5477M0##
	470	45 x 40	200	5.96	3.31	B43513C5477M0##
	560	35 x 65	160	6.70	3.72	B43513A5567M0##
	560	40 x 50	170	6.60	3.66	B43513B5567M0##
	560	45 x 40	170	6.53	3.62	B43513C5567M0##
	680	35 x 75	140	7.74	4.31	B43513A5687M0##
	680	40 x 60	140	7.58	4.21	B43513B5687M0##
	680	45 x 45	140	7.39	4.10	B43513C5687M0##
	820	35 x 85	110	8.94	4.97	B43513A5827M0##
	820	40 x 65	110	8.61	4.78	B43513B5827M0##
	820	45 x 55	120	8.48	4.71	B43513C5827M0##
	1000	40 x 80	95	10.00	5.56	B43513A5108M0##
	1000	45 x 60	95	9.63	5.35	B43513B5108M0##
	1200	40 x 90	80	11.4	6.37	B43513A5128M0##
	1200	45 x 70	80	10.9	6.10	B43513B5128M0##
	1500	45 x 85	65	12.9	7.19	B43513A5158M0##
	1800	45 x 100	55	14.8	8.26	B43513A5188M0##

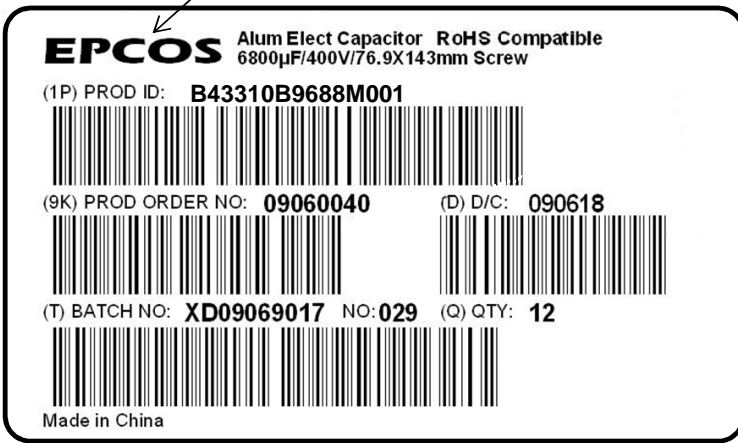
Composition of ordering code
订货编码规则

- ## = Terminal style and insulation feature 端子类型和绝缘
- 00 = 4pin snap-in standard terminal and PVC insulation
4针焊片式标准脚和PVC绝缘
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4针焊片式短针脚和PVC绝缘

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 three 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 B43231-A9337-M 330µF (M) 400V- 25/085/56 MM.JJ</p>	<p>Brand Part number (ordering code) Rated capacitance, tolerance, rated voltage, Climatic category, month and year of production</p>	<p>品牌 料号 (订购代码) 额定电容、容差、额定电压 气候分类、月、年 (生产日期)</p>
25mm	<p>EPCOS B43231-A9337-M 330µF (M) 400V- 25/085/56 MM.JJ</p>	<p>Brand Part number (ordering code) Rated capacitance, tolerance, rated voltage, Climatic category Month and year of production</p>	<p>品牌 料号 (订购代码) 额定电容、容差、额定电压 气候分类 月、年 (生产日期)</p>
25mm	<p>EPCOS B43231-A9337-M 330µF (M) 400V- 25/085/56 MM.JJ</p>	<p>Brand Part number (ordering code) Rated capacitance, tolerance, rated voltage, Climatic category Month and year of production</p>	<p>品牌 料号 (订购代码) 额定电容、容差、额定电压 气候分类 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)

	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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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 life-saving 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.
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