



# **Aluminum electrolytic capacitors**

## Alu-X product lines

Snap-in capacitors

**Series/Type:** B41231, B43231  
**Date:** April 2008

## General-purpose grade capacitors

### Applications

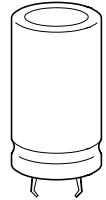
- Switch-mode power supplies in industrial and entertainment electronics

### Features

- High ripple current capability
- RoHS-compatible
- Load life of 2000 h at 85 °C

### Construction

- Aluminum case, fully insulated
- Snap-in solder pins to hold component in place on PC-board
- Minus pole marking on the insulating sleeve
- Case with safety vent



**Specifications and characteristics in brief**

Rated voltage $V_R$	10 ... 500 V DC												
Operating temperature range	$V_R \leq 250$ V DC: $-40$ °C ... $+85$ °C $V_R \geq 315$ V DC: $-25$ °C ... $+85$ °C												
Rated capacitance $C_R$ (20 °C, 120 Hz)	56 ... 68000 $\mu$ F												
Capacitance tolerance	$\pm 20\% \triangleq M$												
Load life (85 °C, $V_R$ , $I_{AC,R}$ )	2000 h	Requirements: $\Delta C/C \leq \pm 20\%$ of initial value $\tan \delta \leq 2$ times initial specified limit $I_{leak} \leq$ initial specified limit											
Leakage current $I_{leak}$ (20 °C, after 5 minutes)	$I_{leak} \leq 0.02 \mu A \cdot \left( \frac{C_R}{\mu F} \cdot \frac{V_R}{V} \right)$												
Dissipation factor (max.) (20 °C, 120 Hz)	$V_R$ (V DC)	10	16	25	35	50	63	80	100	160 ... 200	250 ... 400	450 ... 500	
	$\tan \delta$	0.50	0.50	0.40	0.40	0.30	0.25	0.20	0.15	0.12	0.15	0.20	
Low temperature stability (impedance ratio) (120 Hz)	$V_R$ (V DC)	10			16 ... 160			200 ... 250		315 ... 400		450 ... 500	
	$\frac{Z(-25 \text{ °C})}{Z(+20 \text{ °C})}$	5			4			7		8		8	
	$\frac{Z(-40 \text{ °C})}{Z(+20 \text{ °C})}$	18			15			12		–		–	
Shelf life	After storage for 1000 h at 85 °C, the capacitors shall meet the requirement of load life test after reforming process. After test: $V_R$ to be applied for 30 minutes, 24 to 48 hours before measurement.												
Frequency multiplier for rated ripple current		50 Hz	120 Hz	1 kHz	10 kHz	20 kHz							
	$\leq 50$ V	0.95	1.00	1.10	1.15	1.15							
	63 ... 100 V	0.95	1.00	1.16	1.30	1.33							
	$\geq 160$ V	0.90	1.00	1.20	1.50	1.55							
Temperature multiplier for rated ripple current		+40 °C	+55 °C	+70 °C	+85 °C								
	$< 160$ V	2.1	2.1	1.5	1.0								
	$\geq 160$ V	1.7	1.5	1.3	1.0								

Dimensional drawing



\* = Shorter terminal ( $4.0 \pm 0.5$ ) is also available upon request.

**Overview of available types B41231**

$V_R$ (V DC)	10	16	25	35
	Case dimensions d × l (mm)			
$C_R$ (μF)				
4700				22 × 30 25.4 × 25
5600			22 × 25	22 × 35 25.4 × 30
6800			22 × 30 25.4 × 25	22 × 40 25.4 × 30 30 × 25
8200			22 × 35 25.4 × 30	22 × 45 25.4 × 35 30 × 30
10000		22 × 25	22 × 40 25.4 × 30	22 × 50 25.4 × 40 30 × 30
12000	22 × 25	22 × 30 25.4 × 25	22 × 45 25.4 × 35 30 × 25	25.4 × 45 30 × 35 35 × 30
15000	22 × 30 25.4 × 25	22 × 35 25.4 × 30 30 × 25	22 × 50 25.4 × 40 30 × 30	30 × 40 35 × 35
18000	22 × 35 25.4 × 25	22 × 40 25.4 × 35 30 × 30	25.4 × 45 30 × 35	30 × 45 35 × 40
22000	22 × 40 25.4 × 30 30 × 25	22 × 50 25.4 × 40 30 × 30	30 × 35 35 × 30	35 × 45
27000	22 × 45 25.4 × 35 30 × 30	25.4 × 45 30 × 35 35 × 25	30 × 45 35 × 35	
33000	22 × 50 25.4 × 40 30 × 30 35 × 25	30 × 40 35 × 30	30 × 50 35 × 40	
39000	25.4 × 45 30 × 35 35 × 30	30 × 45 35 × 35	35 × 45	
47000	25.4 × 50 30 × 40 35 × 30	30 × 50 35 × 40		
56000	30 × 45 35 × 35	35 × 45		
68000	35 × 40	35 × 50		

**Overview of available types B41231**

$V_R$ (V DC)	50	63	80	100
	Case dimensions d × l (mm)			
$C_R$ (μF)				
1200			22 × 25	22 × 30 25.4 × 25
1500			22 × 30	22 × 35 25.4 × 30 30 × 25
1800		22 × 25	22 × 30 25.4 × 25	22 × 40 25.4 × 35 30 × 30
2200		22 × 30 25.4 × 25	22 × 35 25.4 × 30 30 × 25	22 × 45 25.4 × 40 30 × 30
2700		22 × 35 25.4 × 30	22 × 40 25.4 × 35 30 × 30	25.4 × 45 30 × 35 35 × 30
3300	22 × 30 25.4 × 25	22 × 35 25.4 × 30 30 × 25	22 × 45 25.4 × 40 30 × 30	25.4 × 50 30 × 40 35 × 35
3900		22 × 40 25.4 × 35 30 × 30	22 × 50 25.4 × 45 30 × 35	30 × 45 35 × 35
4700	22 × 40 25.4 × 35 30 × 25 35 × 25	22 × 50 25.4 × 40 30 × 35 35 × 30	25.4 × 50 30 × 40 35 × 30	30 × 50 35 × 40
5600	22 × 45 25.4 × 40 30 × 30 35 × 25	25.4 × 45 30 × 35 35 × 30	30 × 45 35 × 35	35 × 45
6800	22 × 50 25.4 × 45 30 × 35 35 × 30	25.4 × 50 30 × 40 35 × 30	35 × 40	
8200	25.4 × 50 30 × 40 35 × 30	30 × 45 35 × 35	35 × 45	
10000	30 × 45 35 × 35	30 × 50 35 × 40		
12000	30 × 50 35 × 40	35 × 45		
15000	35 × 45			
18000	35 × 50			

**Overview of available types B43231**

$V_R$ (V DC)	160	200	250	315
	Case dimensions d × l (mm)			
$C_R$ (μF)				
100				22 × 20
120				22 × 25 25.4 × 20
150			22 × 25 25.4 × 20	22 × 30 25.4 × 25 30 × 20
180		22 × 20	22 × 25 25.4 × 20	22 × 35 25.4 × 30 30 × 25 35 × 20
220	22 × 20	22 × 25 25.4 × 20	22 × 25 25.4 × 25 30 × 20	22 × 40 25.4 × 30 30 × 25 35 × 20
270	22 × 25 25.4 × 20	22 × 25 25.4 × 25 30 × 20	22 × 30 25.4 × 25 30 × 20	22 × 45 25.4 × 35 30 × 30 35 × 25
330	22 × 25 25.4 × 20	22 × 30 25.4 × 25 30 × 20	22 × 35 25.4 × 30 30 × 25 35 × 20	22 × 50 25.4 × 40 30 × 35 35 × 30
390	22 × 25 25.4 × 25 30 × 20	22 × 30 25.4 × 25 30 × 25 35 × 20	22 × 40 25.4 × 30 30 × 25 35 × 20	25.4 × 45 30 × 35 35 × 30
470	22 × 30 25.4 × 25 30 × 20	22 × 35 25.4 × 30 30 × 25 35 × 20	22 × 45 25.4 × 35 30 × 30 35 × 25	35 × 35 30 × 40
560	22 × 35 25.4 × 30 30 × 25 35 × 20	22 × 40 25.4 × 35 30 × 25 35 × 20	22 × 50 25.4 × 40 30 × 30 35 × 25	35 × 40
680	22 × 40 25.4 × 30 30 × 25 35 × 20	22 × 45 25.4 × 40 30 × 30 35 × 25	25.4 × 45 30 × 35 35 × 30	35 × 45
820	22 × 45 25.4 × 35 30 × 30 35 × 25	22 × 50 25.4 × 45 30 × 35 35 × 30	30 × 40 35 × 35	35 × 50

**Overview of available types B43231**

$V_R$ (V DC)	160	200	250	315
	Case dimensions $d \times l$ (mm)			
$C_R$ ( $\mu\text{F}$ )				
1000	22 $\times$ 50 25.4 $\times$ 40 30 $\times$ 30 35 $\times$ 25	30 $\times$ 40 35 $\times$ 30	30 $\times$ 45 35 $\times$ 40	
1200	25.4 $\times$ 45 30 $\times$ 35 35 $\times$ 30	30 $\times$ 45 35 $\times$ 35	35 $\times$ 45	
1500	30 $\times$ 40 35 $\times$ 35	30 $\times$ 50 35 $\times$ 40	35 $\times$ 50	
1800	35 $\times$ 40	35 $\times$ 45		



**Overview of available types B43231**

$V_R$ (V DC)	350	400	450	500
	Case dimensions $d \times l$ (mm)			
$C_R$ ( $\mu$ F)				
56			22 × 20	
68		22 × 20	22 × 25 25.4 × 20	22 × 30
82	22 × 20	22 × 25 25.4 × 20	22 × 30 25.4 × 25 30 × 20	22 × 35 25.4 × 30
100	22 × 25 25.4 × 20	22 × 30 25.4 × 25 30 × 20	22 × 35 25.4 × 30 30 × 25 35 × 20	22 × 40 25.4 × 35
120	22 × 30 25.4 × 25 30 × 20	22 × 30 25.4 × 25 30 × 20	22 × 40 25.4 × 35 30 × 25 35 × 20	25.4 × 40
150	22 × 35 25.4 × 30 30 × 20	22 × 35 25.4 × 30 30 × 25 35 × 20	22 × 50 25.4 × 40 30 × 30 35 × 25	30 × 35
180	22 × 40 25.4 × 35 30 × 25 35 × 20	22 × 40 25.4 × 35 30 × 25 35 × 25	25.4 × 45 30 × 35 35 × 25	30 × 40
220	22 × 45 25.4 × 35 30 × 30 35 × 25	22 × 45 25.4 × 40 30 × 30 35 × 25	25.4 × 50 30 × 40 35 × 30	30 × 45
270	25.4 × 45 30 × 35 35 × 25	25.4 × 45 30 × 35 35 × 30	30 × 45 35 × 35	35 × 45
330	25.4 × 50 30 × 40 35 × 30	25.4 × 50 30 × 40 35 × 30	30 × 50 35 × 40	35 × 50
390	30 × 45 35 × 35	30 × 45 35 × 35	35 × 45	
470	30 × 50 35 × 40	30 × 50 35 × 40	35 × 50	
560	35 × 45	35 × 45		
680	35 × 50			

**Technical data and ordering codes B41231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
10	12000	22 × 25	3.31	B41231A3129M000
	15000	22 × 30	3.82	B41231A3159M000
	15000	25.4 × 25	3.39	B41231B3159M000
	18000	22 × 35	4.28	B41231A3189M000
	18000	25.4 × 25	4.17	B41231B3189M000
	22000	22 × 40	4.79	B41231A3229M000
	22000	25.4 × 30	4.71	B41231B3229M000
	22000	30 × 25	4.83	B41231C3229M000
	27000	22 × 45	5.30	B41231A3279M000
	27000	25.4 × 35	5.26	B41231B3279M000
	27000	30 × 30	5.41	B41231C3279M000
	33000	22 × 50	5.82	B41231A3339M000
	33000	25.4 × 40	5.81	B41231B3339M000
	33000	30 × 30	5.69	B41231C3339M000
	33000	35 × 25	5.81	B41231D3339M000
	39000	25.4 × 45	6.31	B41231A3399M000
	39000	30 × 35	6.22	B41231B3399M000
	39000	35 × 30	6.38	B41231C3399M000
	47000	25.4 × 50	6.83	B41231A3479M000
	47000	30 × 40	6.78	B41231B3479M000
	47000	35 × 30	6.62	B41231C3479M000
	56000	30 × 45	7.31	B41231A3569M000
	56000	35 × 35	7.18	B41231B3569M000
68000	35 × 40	7.76	B41231A3689M000	
16	10000	22 × 25	3.32	B41231A4109M000
	12000	22 × 30	3.55	B41231A4129M000
	12000	25.4 × 25	3.89	B41231B4129M000
	15000	22 × 35	4.29	B41231A4159M000
	15000	25.4 × 30	4.45	B41231B4159M000
	15000	30 × 25	4.56	B41231C4159M000
	18000	22 × 40	4.77	B41231A4189M000
	18000	25.4 × 35	4.96	B41231B4189M000
	18000	30 × 30	5.10	B41231C4189M000
	22000	22 × 50	5.51	B41231A4229M000
	22000	25.4 × 40	5.51	B41231B4229M000
	22000	30 × 30	5.39	B41231C4229M000
	27000	25.4 × 45	6.06	B41231A4279M000
	27000	30 × 35	5.98	B41231B4279M000
	27000	35 × 25	5.80	B41231C4279M000
	33000	30 × 40	6.56	B41231A4339M000
	33000	35 × 30	6.41	B41231B4339M000
	39000	30 × 45	7.08	B41231A4399M000

**Technical data and ordering codes B41231**

$V_R$	$C_R$ 120 Hz 20 °C $\mu\text{F}$	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
16	39000	35 × 35	6.96	B41231B4399M000
	47000	30 × 50	7.62	B41231A4479M000
	47000	35 × 40	7.54	B41231B4479M000
	56000	35 × 45	8.08	B41231A4569M000
	68000	35 × 50	8.53	B41231A4689M000
25	5600	22 × 25	2.65	B41231A5568M000
	6800	22 × 30	3.06	B41231A5688M000
	6800	25.4 × 25	3.15	B41231B5688M000
	8200	22 × 35	3.45	B41231A5828M000
	8200	25.4 × 30	3.57	B41231B5828M000
	10000	22 × 40	3.95	B41231A5109M000
	10000	25.4 × 30	3.89	B41231B5109M000
	12000	22 × 45	4.41	B41231A5129M000
	12000	25.4 × 35	4.37	B41231B5129M000
	12000	30 × 25	3.99	B41231C5129M000
	15000	22 × 50	4.94	B41231A5159M000
	15000	25.4 × 40	4.94	B41231B5159M000
	15000	30 × 30	4.50	B41231C5159M000
	18000	25.4 × 45	5.45	B41231A5189M000
	18000	30 × 35	5.10	B41231B5189M000
	22000	30 × 35	5.38	B41231A5229M000
	22000	35 × 30	5.51	B41231B5229M000
	27000	30 × 45	6.22	B41231A5279M000
	27000	35 × 35	6.12	B41231B5279M000
	33000	30 × 50	6.82	B41231A5339M000
33000	35 × 40	6.74	B41231B5339M000	
39000	35 × 45	7.35	B41231A5399M000	
35	4700	22 × 30	3.06	B41231A7478M000
	4700	25.4 × 25	2.98	B41231B7478M000
	5600	22 × 35	3.28	B41231A7568M000
	5600	25.4 × 30	3.39	B41231B7568M000
	6800	22 × 40	3.73	B41231A7688M000
	6800	25.4 × 30	3.67	B41231B7688M000
	6800	30 × 25	3.76	B41231C7688M000
	8200	22 × 45	4.13	B41231A7828M000
	8200	25.4 × 35	4.10	B41231B7828M000
	8200	30 × 30	4.22	B41231C7828M000
	10000	22 × 50	4.68	B41231A7109M000
	10000	25.4 × 40	4.68	B41231B7109M000
	10000	30 × 30	4.58	B41231C7109M000
	12000	25.4 × 45	5.18	B41231A7129M000

**Technical data and ordering codes B41231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
35	12000	30 × 35	5.11	B41231C7129M000
	12000	35 × 30	5.24	B41231D7129M000
	15000	30 × 40	5.72	B41231A7159M000
	15000	35 × 35	5.88	B41231B7159M000
	18000	30 × 45	6.28	B41231A7189M000
	18000	35 × 40	6.46	B41231B7189M000
	22000	35 × 45	7.07	B41231A7229M000
50	3300	22 × 30	2.97	B41231A6338M000
	3300	25.4 × 25	3.06	B41231B6338M000
	4700	22 × 40	3.83	B41231A6478M000
	4700	25.4 × 35	3.98	B41231B6478M000
	4700	30 × 25	3.86	B41231C6478M000
	4700	35 × 25	4.19	B41231D6478M000
	5600	22 × 45	4.26	B41231A6568M000
	5600	25.4 × 40	4.44	B41231B6568M000
	5600	30 × 30	4.35	B41231C6568M000
	5600	35 × 25	4.44	B41231D6568M000
	6800	22 × 50	4.77	B41231A6688M000
	6800	25.4 × 45	4.76	B41231B6688M000
	6800	30 × 35	4.92	B41231C6688M000
	6800	35 × 30	5.04	B41231D6688M000
	8200	25.4 × 50	5.43	B41231A6828M000
	8200	30 × 40	5.38	B41231B6828M000
	8200	35 × 30	5.26	B41231C6828M000
	10000	30 × 45	6.07	B41231A6109M000
	10000	35 × 35	5.97	B41231B6109M000
	12000	30 × 50	6.62	B41231A6129M000
	12000	35 × 40	6.55	B41231B6129M000
15000	35 × 45	7.20	B41231A6159M000	
18000	35 × 50	7.74	B41231A6189M000	
63	1800	22 × 25	2.20	B41231A8188M000
	2200	22 × 30	2.50	B41231A8228M000
	2200	25.4 × 25	2.58	B41231B8228M000
	2700	22 × 35	2.94	B41231A8278M000
	2700	25.4 × 30	3.04	B41231B8278M000
	3300	22 × 35	3.14	B41231A8338M000
	3300	25.4 × 30	3.26	B41231B8338M000
	3300	30 × 25	3.34	B41231C8338M000
	3900	22 × 40	3.60	B41231A8398M000
	3900	25.4 × 35	3.74	B41231B8398M000
	3900	30 × 30	3.85	B41231C8398M000

**Technical data and ordering codes B41231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
63	4700	22 × 50	4.19	B41231A8478M000
	4700	25.4 × 40	4.19	B41231B8478M000
	4700	30 × 35	4.10	B41231C8478M000
	4700	35 × 30	4.19	B41231D8478M000
	5600	25.4 × 45	4.65	B41231A8568M000
	5600	30 × 35	4.58	B41231B8568M000
	5600	35 × 30	4.70	B41231C8568M000
	6800	25.4 × 50	5.20	B41231A8688M000
	6800	30 × 40	5.16	B41231B8688M000
	6800	35 × 30	5.04	B41231C8688M000
	8200	30 × 45	5.62	B41231A8828M000
	8200	35 × 35	5.53	B41231B8828M000
	10000	30 × 50	6.32	B41231A8109M000
	10000	35 × 40	6.25	B41231B8109M000
12000	35 × 45	6.83	B41231A8129M000	
80	1200	22 × 25	2.24	B41231A0128M000
	1500	22 × 30	2.67	B41231A0158M000
	1800	22 × 30	2.92	B41231A0188M000
	1800	25.4 × 25	3.01	B41231B0188M000
	2200	22 × 35	3.25	B41231A0228M000
	2200	25.4 × 30	3.36	B41231B0228M000
	2200	30 × 25	3.45	B41231C0228M000
	2700	22 × 40	3.79	B41231A0278M000
	2700	25.4 × 35	3.94	B41231B0278M000
	2700	30 × 30	4.05	B41231C0278M000
	3300	22 × 45	4.18	B41231A0338M000
	3300	25.4 × 40	4.36	B41231B0338M000
	3300	30 × 30	4.27	B41231C0338M000
	3900	22 × 50	4.75	B41231A0398M000
	3900	25.4 × 45	4.96	B41231B0398M000
	3900	30 × 35	4.89	B41231C0398M000
	4700	25.4 × 50	5.44	B41231A0478M000
	4700	30 × 40	5.39	B41231B0478M000
	4700	35 × 30	5.27	B41231C0478M000
	5600	30 × 45	5.91	B41231A0568M000
	5600	35 × 35	5.81	B41231B0568M000
	6800	35 × 40	5.46	B41231A0688M000
	8200	35 × 45	6.91	B41231A0828M000

**Technical data and ordering codes B41231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
V DC	$\mu F$			
100	1200	22 × 30	2.39	B41231A9128M000
	1200	25.4 × 25	2.46	B41231B9128M000
	1500	22 × 35	2.83	B41231A9158M000
	1500	25.4 × 30	2.93	B41231B9158M000
	1500	30 × 25	3.00	B41231C9158M000
	1800	22 × 40	3.26	B41231A9188M000
	1800	25.4 × 35	3.39	B41231B9188M000
	1800	30 × 30	3.49	B41231C9188M000
	2200	22 × 45	3.58	B41231A9228M000
	2200	25.4 × 40	3.74	B41231B9228M000
	2200	30 × 30	3.66	B41231C9228M000
	2700	25.4 × 45	4.33	B41231A9278M000
	2700	30 × 35	4.27	B41231B9278M000
	2700	35 × 30	4.37	B41231C9278M000
	3300	25.4 × 50	4.76	B41231A9338M000
	3300	30 × 40	4.72	B41231B9338M000
	3300	35 × 35	4.85	B41231C9338M000
	3900	30 × 45	5.36	B41231A9398M000
	3900	35 × 35	5.27	B41231B9398M000
	4700	30 × 50	5.86	B41231A9478M000
4700	35 × 40	5.80	B41231B9478M000	
5600	35 × 45	6.34	B41231A9568M000	

**Technical data and ordering codes B43231**

$V_R$	$C_R$ 120 Hz 20 °C $\mu\text{F}$	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
160	220	22 × 20	1.01	B43231A1227M000
	270	22 × 25	1.20	B43231A1277M000
	270	25.4 × 20	1.32	B43231B1277M000
	330	22 × 25	1.33	B43231A1337M000
	330	25.4 × 20	1.36	B43231B1337M000
	390	22 × 25	1.45	B43231A1397M000
	390	25.4 × 25	1.59	B43231B1397M000
	390	30 × 20	1.62	B43231C1397M000
	470	22 × 30	1.69	B43231A1477M000
	470	25.4 × 25	1.75	B43231B1477M000
	470	30 × 20	1.78	B43231C1477M000
	560	22 × 35	1.96	B43231A1567M000
	560	25.4 × 30	2.03	B43231B1567M000
	560	30 × 25	2.08	B43231C1567M000
	560	35 × 20	2.12	B43231D1567M000
	680	22 × 40	2.27	B43231A1687M000
	680	25.4 × 30	2.23	B43231B1687M000
	680	30 × 25	2.29	B43231C1687M000
	680	35 × 20	2.33	B43231D1687M000
	820	22 × 45	2.61	B43231A1827M000
	820	25.4 × 35	2.59	B43231B1827M000
	820	30 × 30	2.67	B43231C1827M000
	820	35 × 25	2.73	B43231D1827M000
	1000	22 × 50	3.01	B43231A1108M000
	1000	25.4 × 40	3.01	B43231B1108M000
	1000	30 × 30	2.95	B43231C1108M000
	1000	35 × 25	3.01	B43231D1108M000
	1200	25.4 × 45	3.23	B43231A1128M000
	1200	30 × 35	3.18	B43231B1128M000
	1200	35 × 30	3.26	B43231C1128M000
1500	30 × 40	3.73	B43231A1158M000	
1500	35 × 35	3.83	B43231B1158M000	
1800	35 × 40	4.39	B43231A1188M000	
200	180	22 × 20	0.91	B43231A2187M000
	220	22 × 25	1.09	B43231A2227M000
	220	25.4 × 20	1.11	B43231B2227M000
	270	22 × 25	1.20	B43231A2277M000
	270	25.4 × 25	1.32	B43231B2277M000
	270	30 × 20	1.35	B43231C2277M000
	330	22 × 30	1.42	B43231A2337M000
	330	25.4 × 25	1.46	B43231B2337M000

**Technical data and ordering codes B43231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
200	330	30 × 20	1.49	B43231C2337M000
	390	22 × 30	1.54	B43231A2397M000
	390	25.4 × 25	1.59	B43231B2397M000
	390	30 × 25	1.74	B43231C2397M000
	390	35 × 20	1.77	B43231D2397M000
	470	22 × 35	1.79	B43231A2477M000
	470	25.4 × 30	1.86	B43231B2477M000
	470	30 × 25	1.90	B43231C2477M000
	470	35 × 20	1.94	B43231D2477M000
	560	22 × 40	2.06	B43231A2567M000
	560	25.4 × 35	2.14	B43231B2567M000
	560	30 × 25	2.08	B43231C2567M000
	560	35 × 20	2.25	B43231D2567M000
	680	22 × 45	2.38	B43231A2687M000
	680	25.4 × 40	2.48	B43231B2687M000
	680	30 × 30	2.43	B43231C2687M000
	680	35 × 25	2.48	B43231D2687M000
	820	22 × 50	2.73	B43231A2827M000
	820	25.4 × 45	2.85	B43231B2827M000
	820	30 × 35	2.81	B43231C2827M000
	820	35 × 30	2.88	B43231D2827M000
	1000	30 × 40	3.26	B43231A2108M000
	1000	35 × 30	3.18	B43231B2108M000
	1200	30 × 45	3.49	B43231A2128M000
	1200	35 × 35	3.43	B43231B2128M000
	1500	30 × 50	4.06	B43231A2158M000
	1500	35 × 40	4.01	B43231B2158M000
1800	35 × 45	4.58	B43231A2188M000	
250	150	22 × 25	0.90	B43231E2157M000
	150	25.4 × 20	0.92	B43231F2157M000
	180	22 × 25	0.90	B43231E2187M000
	180	25.4 × 20	1.01	B43231F2187M000
	220	22 × 25	1.09	B43231E2227M000
	220	25.4 × 25	1.19	B43231F2227M000
	220	30 × 20	1.22	B43231G2227M000
	270	22 × 30	1.28	B43231E2277M000
	270	25.4 × 25	1.32	B43231F2277M000
	270	30 × 20	1.35	B43231G2277M000
	330	22 × 35	1.50	B43231E2337M000
	330	25.4 × 30	1.56	B43231F2337M000
	330	30 × 25	1.60	B43231G2337M000



**Technical data and ordering codes B43231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
250	330	35 × 20	1.62	B43231H2337M000
	390	22 × 40	1.72	B43231E2397M000
	390	25.4 × 30	1.69	B43231F2397M000
	390	30 × 25	1.73	B43231G2397M000
	390	35 × 20	1.77	B43231H2397M000
	470	22 × 45	1.98	B43231E2477M000
	470	25.4 × 35	1.96	B43231F2477M000
	470	30 × 30	2.02	B43231G2477M000
	470	35 × 25	2.06	B43231H2477M000
	560	22 × 50	2.26	B43231E2567M000
	560	25.4 × 40	2.25	B43231F2567M000
	560	30 × 30	2.20	B43231G2567M000
	560	35 × 25	2.25	B43231H2567M000
	680	25.4 × 45	2.60	B43231F2687M000
	680	30 × 35	2.56	B43231E2687M000
	680	35 × 30	2.62	B43231G2687M000
	820	30 × 40	2.95	B43231E2827M000
	820	35 × 35	3.03	B43231F2827M000
	1000	30 × 45	3.40	B43231E2108M000
	1000	35 × 40	3.50	B43231F2108M000
1200	35 × 45	3.74	B43231E2128M000	
1500	35 × 50	4.35	B43231E2158M000	
315	100	22 × 20	0.68	B43231A0107M000
	120	22 × 25	0.80	B43231A0127M000
	120	25.4 × 20	0.82	B43231B0127M000
	150	22 × 30	0.96	B43231A0157M000
	150	25.4 × 25	0.99	B43231B0157M000
	150	30 × 20	1.01	B43231C0157M000
	180	22 × 35	1.11	B43231A0187M000
	180	25.4 × 30	1.15	B43231B0187M000
	180	30 × 25	1.18	B43231C0187M000
	180	35 × 20	1.20	B43231D0187M000
	220	22 × 40	1.29	B43231A0227M000
	220	25.4 × 30	1.27	B43231B0227M000
	220	30 × 25	1.30	B43231C0227M000
	220	35 × 20	1.33	B43231D0227M000
	270	22 × 45	1.50	B43231A0277M000
	270	25.4 × 35	1.49	B43231B0277M000
	270	30 × 30	1.53	B43231C0277M000
	270	35 × 25	1.56	B43231D0277M000
	330	22 × 50	1.73	B43231A0337M000

**Technical data and ordering codes B43231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
315	330	25.4 × 40	1.73	B43231B0337M000
	330	30 × 35	1.78	B43231C0337M000
	330	35 × 30	1.83	B43231D0337M000
	390	25.4 × 45	1.97	B43231A0397M000
	390	30 × 35	1.94	B43231B0397M000
	390	35 × 30	1.99	B43231C0397M000
	470	30 × 40	2.23	B43231A0477M000
	470	35 × 35	2.29	B43231B0477M000
	560	35 × 40	2.62	B43231A0567M000
	680	35 × 45	3.01	B43231A0687M000
	820	35 × 50	3.44	B43231A0827M000
350	82	22 × 20	0.62	B43231A4826M000
	100	22 × 25	0.73	B43231A4107M000
	100	25.4 × 20	0.75	B43231B4107M000
	120	22 × 30	0.86	B43231A4127M000
	120	25.4 × 25	0.88	B43231B4127M000
	120	30 × 20	0.90	B43231C4127M000
	150	22 × 35	1.01	B43231A4157M000
	150	25.4 × 30	1.05	B43231B4157M000
	150	30 × 20	1.01	B43231C4157M000
	180	22 × 40	1.17	B43231A4187M000
	180	25.4 × 35	1.21	B43231B4187M000
	180	30 × 25	1.18	B43231C4187M000
	180	35 × 20	1.20	B43231D4187M000
	220	22 × 45	1.35	B43231A4227M000
	220	25.4 × 35	1.34	B43231B4227M000
	220	30 × 30	1.38	B43231C4227M000
	220	35 × 25	1.41	B43231D4227M000
	270	25.4 × 45	1.64	B43231A4277M000
	270	30 × 35	1.61	B43231B4277M000
	270	35 × 25	1.65	B43231C4277M000
	330	25.4 × 50	1.89	B43231A4337M000
	330	30 × 40	1.87	B43231B4337M000
	330	35 × 30	1.83	B43231C4337M000
	390	30 × 45	2.12	B43231A4397M000
	390	35 × 35	2.09	B43231B4397M000
	470	30 × 50	2.43	B43231A4477M000
	470	35 × 40	2.40	B43231B4477M000
	560	35 × 45	2.73	B43231A4567M000
	680	35 × 50	3.13	B43231A4687M000

**Technical data and ordering codes B43231**

$V_R$	$C_R$ 120 Hz 20 °C	Case dimensions $d \times l$ mm	$I_{AC,R}$ 120 Hz 85 °C A	Ordering code
400	68	22 × 20	0.56	B43231A9686M000
	82	22 × 25	0.66	B43231A9826M000
	82	25.4 × 20	0.68	B43231B9826M000
	100	22 × 30	0.78	B43231A9107M000
	100	25.4 × 25	0.81	B43231B9107M000
	100	30 × 20	0.82	B43231C9107M000
	120	22 × 30	0.86	B43231B9127M000
	120	25.4 × 25	0.88	B43231A9127M000
	120	30 × 20	0.90	B43231C9127M000
	150	22 × 35	1.01	B43231A9157M000
	150	25.4 × 30	1.05	B43231B9157M000
	150	30 × 25	1.08	B43231C9157M000
	150	35 × 20	1.09	B43231D9157M000
	180	22 × 40	1.17	B43231A9187M000
	180	25.4 × 35	1.21	B43231B9187M000
	180	30 × 25	1.18	B43231C9187M000
	180	35 × 25	1.28	B43231D9187M000
	220	22 × 45	1.35	B43231E9227M000
	220	25.4 × 40	1.41	B43231F9227M000
	220	30 × 30	1.38	B43231B9227M000
	220	35 × 25	1.41	B43231D9227M000
	270	25.4 × 45	1.64	B43231A9277M000
	270	30 × 35	1.61	B43231B9277M000
	270	35 × 30	1.65	B43231C9277M000
	330	25.4 × 50	1.89	B43231C9337M000
	330	30 × 40	1.87	B43231A9337M000
	330	35 × 30	1.83	B43231B9337M000
390	30 × 45	2.12	B43231C9397M000	
390	35 × 35	2.09	B43231B9397M000	
470	30 × 50	2.43	B43231B9477M000	
470	35 × 40	2.40	B43231A9477M000	
560	35 × 45	2.73	B43231A9567M000	
450	56	22 × 20	0.39	B43231A5566M000
	68	22 × 25	0.46	B43231A5686M000
	68	25.4 × 20	0.47	B43231B5686M000
	82	22 × 30	0.54	B43231A5826M000
	82	25.4 × 25	0.56	B43231B5826M000
	82	30 × 20	0.57	B43231C5826M000
	100	22 × 35	0.63	B43231A5107M000
	100	25.4 × 30	0.65	B43231B5107M000
	100	30 × 25	0.67	B43231C5107M000

**Technical data and ordering codes B43231**

$V_R$	$C_R$	Case dimensions	$I_{AC,R}$	Ordering code
	120 Hz	$d \times l$	120 Hz	
V DC	20 °C	mm	85 °C	
	$\mu F$		A	
450	100	35 × 20	0.68	B43231D5107M000
	120	22 × 40	0.73	B43231B5127M000
	120	25.4 × 35	0.76	B43231A5127M000
	120	30 × 25	0.73	B43231C5127M000
	120	35 × 20	0.75	B43231D5127M000
	150	22 × 50	0.89	B43231A5157M000
	150	25.4 × 40	0.89	B43231B5157M000
	150	30 × 30	0.87	B43231C5157M000
	150	35 × 25	0.89	B43231D5157M000
	180	25.4 × 45	1.02	B43231A5187M000
	180	30 × 35	1.01	B43231B5187M000
	180	35 × 25	0.98	B43231C5187M000
	220	25.4 × 50	1.18	B43231B5227M000
	220	30 × 40	1.17	B43231A5227M000
	220	35 × 30	1.14	B43231C5227M000
	270	30 × 45	1.35	B43231A5277M000
	270	35 × 35	1.33	B43231B5277M000
	330	30 × 50	1.55	B43231B5337M000
	330	35 × 40	1.54	B43231A5337M000
	390	35 × 45	1.74	B43231A5397M000
470	35 × 50	1.99	B43231A5477M000	
500	68	22 × 30	0.49	B43231A6686M000
	82	22 × 35	0.57	B43231A6826M000
	82	25.4 × 30	0.59	B43231B6826M000
	100	22 × 40	0.67	B43231A6107M000
	100	25.4 × 35	0.69	B43231B6107M000
	120	25.4 × 40	0.80	B43231A6127M000
	150	30 × 35	0.92	B43231A6157M000
	180	30 × 40	1.06	B43231A6187M000
	220	30 × 45	1.22	B43231A6227M000
	270	35 × 45	1.45	B43231A6277M000
	330	35 × 50	1.66	B43231A6337M000

## Cautions and warnings

### General

Also see "Important notes" on page 23.

- 1 Aluminum electrolytic capacitors have a bi-polar structure. This is marked on the body of the capacitor. A capacitor must not be mounted with reversed polarity. The application of an AC or reverse voltage may cause a short circuit or damage the capacitor. Bi-polar capacitors must not be used in AC applications, where the polarity may be reversed in the circuits or is unknown.
- 2 The DC voltage applied to the capacitor terminal must not exceed its rated operating voltage, as this will result in a rapid increase of the leakage current and may damage the capacitor. It is recommended to operate the capacitor at 70–80% of its rated voltage to optimize its service life.
- 3 The ripple current applied to the capacitor must be within the permitted range. An excessive ripple current leads to impaired electrical properties and may damage the capacitor. Note that the sum of the peak values of the ripple voltage and the DC operating voltage must not exceed the rated DC voltage.
- 4 Capacitors must be used within their permitted range of operating temperature. Operation at room temperature optimizes their service life.
- 5 Capacitors with case diameter  $\geq 8$  mm are equipped with a safety vent. In capacitors fitted with a lead or soldering lug, the safety vent is usually located at the base of the case. It needs sufficient space around it to operate optimally. The following dimensions are recommended: for case diameter  $d = 8$  to 16 mm, more than 2 mm; for  $d = 18$  to 35 mm, more than 3 mm; and for  $d = 42$  mm or more, more than 5 mm.
- 6 Capacitors should not be mounted with the safety vent face down on the board. Do not locate any wire or copper trace near the safety vent. Do not reverse the voltage, as this may result in excess pressure and the leakage of electrolyte.
- 7 Gas is released through the safety vent when the pressure inside the capacitor is too high. A gaseous liquid around the safety vent does not indicate a leakage of electrolyte.
- 8 The capacitor should be stored under conditions of normal temperature and in a non-acid, non-alkali environment of normal humidity. Exposure to high temperatures, for example under direct sunlight, will reduce its operating life. If the capacitor is stored in an environment containing acids or alkalis, the solderability of the leads may be affected.
- 9 The leakage current of an aluminum electrolytic capacitor may increase after a long period of storage. After such storage, the capacitor must be aged by applying the rated operating voltage for 6–8 hours before use.
- 10 Manual soldering:
  - a Soldering must be performed within the specified conditions.  
Bit temperature: 350 °C; application time of soldering iron: 3 seconds.
  - b Ensure that the soldering iron does not touch any part of the capacitor body.

## Cautions and warnings

- 11 Do not apply excessive force to the leads and terminals. Do not move the capacitor after soldering it onto the PC board and do not carry the PC board by gripping the capacitor. Observe the following rules to prevent undue stress to the capacitor:
  - a Do not tilt or bend the capacitor after soldering.
  - b Ensure that the terminal spacing matches the corresponding hole spacing on the PC board.
- 12 The aluminum case is not insulated from the cathode. Do not place a conductor under the aluminum capacitors on the PC board as this may cause a short circuit. The case and top of capacitors used in switched mode power supplies have a high-voltage-resistant heat shrink sleeve to ensure safe usage.
- 13 The leads of capacitors with a case diameter exceeding 14 mm cannot be used for fixing.

## 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 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.
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](http://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 case of individual agreements deviating from the foregoing for customer-specific products.
6. Unless otherwise agreed in individual contracts, **all orders are subject to the current version of the “General Terms of Delivery for Products and Services in the Electrical Industry” published by the German Electrical and Electronics Industry Association (ZVEI)**.
7. The trade names EPCOS, BAOKE, Alu-X, CeraDiode, C5SP, CTVS, D5SP, MiniBlue, MKK, MLSC, MotorCap, PCC, PhaseCap, PhaseMod, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SIMID, SineFormer, SIOV, SIP5D, SIP5K, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at [www.epcos.com/trademarks](http://www.epcos.com/trademarks).