



# **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<br>$V_R \geq 315$ V DC: $-25$ °C ... $+85$ °C   |   |        |        |            |        |      |             |      |                |                |                |  |
| Rated capacitance $C_R$<br>(20 °C, 120 Hz)                    | 56 ... 68000 $\mu$ F   |   |        |        |            |        |      |             |      |                |                |                |  |
| Capacitance tolerance   | $\pm 20\% \triangleq M$  |   |        |        |            |        |      |             |      |                |                |                |  |
| Load life<br>(85 °C, $V_R$ , $I_{AC,R}$ )                     | 2000 h   | Requirements:<br>$\Delta C/C \leq \pm 20\%$ of initial value<br>$\tan \delta \leq 2$ times initial specified limit<br>$I_{leak} \leq$ initial specified limit |        |        |            |        |      |             |      |                |                |                |  |
| Leakage current $I_{leak}$<br>(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<br>(max.)<br>(20 °C, 120 Hz)               | $V_R$<br>(V DC)  | 10  | 16     | 25     | 35         | 50     | 63   | 80          | 100  | 160 ...<br>200 | 250 ...<br>400 | 450 ...<br>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<br>stability<br>(impedance ratio)<br>(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<br>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<br>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**

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

**Overview of available types B41231**

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

**Overview of available types B43231**

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

**Overview of available types B43231**

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



**Overview of available types B43231**

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

**Technical data and ordering codes B41231**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>A | Ordering code   |                 |
|-------|--------------------------|--|------------------------------------|-----------------|-----------------|
| V DC  | 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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C<br>$\mu\text{F}$ | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C<br>$\mu\text{F}$ | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C<br>$\mu\text{F}$ | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>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**

| $V_R$ | $C_R$<br>120 Hz<br>20 °C | Case<br>dimensions<br>$d \times l$<br>mm | $I_{AC,R}$<br>120 Hz<br>85 °C<br>A | Ordering code   |
|-------|--------------------------|--|------------------------------------|-----------------|
| 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.
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