



MKV AC capacitors

Damping

Ordering code: B25835
Date: September 2005

Damping

Features

- High dielectric strength
- High peak-current capability

Applications

- Especially suitable for snubber circuits

Construction

- Self-healing
- Plastic dielectric
- Oil-impregnated tubular windings (no PCB)
- Metal-sprayed end faces ensure reliable contacting
- Cylindrical aluminum case
- 1-pole version, ceramic lead-through
- Mounting bolts M8 or M12

Terminals

- Tab connector 6.3 mm

Mounting

- If the vibration stress is $\leq 5 g$ the bolt is used for mounting.

Grounding

- 1-pole capacitors need not be grounded.

Individual data sheets

Individual data sheets contain detailed specification incl. thermal data. Upon request, these data sheets are available for each capacitor type.



Technical data

| | | |
|--|----------------------------------|--|
| Standards | | IEC 1071-1/2 EN 61071-1/2 VDE 0560 part 120 and 121 |
| Dielectric dissipation factor | $\tan \delta_0$ | $2 \cdot 10^{-4}$ |
| Capacitance tolerance | | $\pm 10\%$ |
| Max. repetitive rate of voltage rise | $(dv/dt)_{\max}$ | $\frac{\hat{i}}{C}$ |
| Max. non-repetitive rate of voltage rise | $(dv/dt)_s$ | $\frac{I_s}{C}$ |
| Climatic data: | | |
| Min. operating temperature | T_{\min} | $-25\text{ }^{\circ}\text{C}$ |
| Max. operating temperature | T_{\max} | $+85\text{ }^{\circ}\text{C}$ |
| Average relative humidity | | $\leq 95\%$ |
| Failure quota | $\alpha_{\text{FQ}(\text{co})}$ | 300 failures per 10^9 component hours |
| Load duration | $t_{\text{LD}(\text{co})}$ | 100 000 h |
| Storage temperature limit | T_{stg} | $-55/+85\text{ }^{\circ}\text{C}$ |
| IEC climatic category (IEC 68-1 and 2) | | 25/085/56 |
| Test data: | | |
| AC test voltage between terminals | V_{TT} | $1.25 \times V_R, 50\text{ Hz}, 10\text{ s}$ (or DC $1.75 \times V_R, 10\text{ s}$) |
| Insulation resistance | R_{ins} | $C_R \leq 1\text{ }\mu\text{F}: \geq 10\text{ }000\text{ M}\Omega$ |
| Self-discharge time constant | $\tau = R_{\text{ins}} \times C$ | $C_R > 1\text{ }\mu\text{F}: \geq 10\text{ }000\text{ s}$ |
| Dissipation factor (50 Hz) | $\tan \delta$ | $\leq 3 \cdot 10^{-4}$ |

Damping
Characteristics and ordering codes

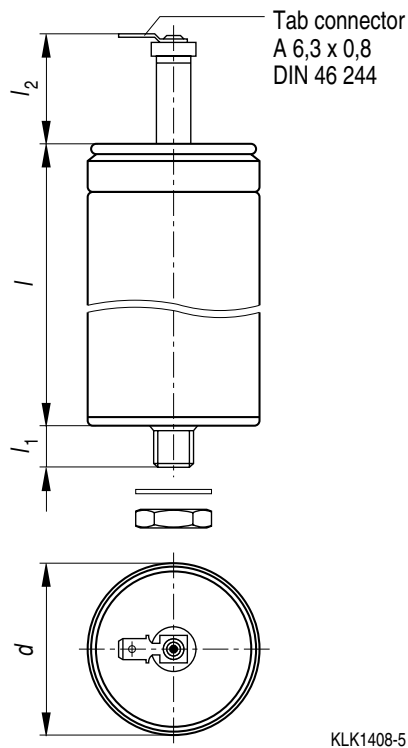
| $C_R^{1)}$ | I_{\max} | \hat{i} | I_s | R_S 20 °C | L_{self} | Dimensions $d \times l$ | Fig. | Appr. weight | Ordering code |
|---|------------|-----------|-------|--|-------------------|--|------|--|-----------------|
| μF | A | A | A | m Ω | nH | mm | | g | |
| $V_R = \text{AC } 900 \text{ V}$ | | | | | | | | | |
| | | | | $\hat{v} = 1100 \text{ V}$ | | $v_s = 1500 \text{ V}$ | | $V_{\text{TT}} = \text{AC } 1150 \text{ V, } 10 \text{ s}$ | |
| 0.22 | 10 | 90 | 220 | 15.0 | 110 | 25 × 57 | 1 | 40 | B25835M6224K007 |
| 0.33 | 10 | 130 | 330 | 11.0 | 110 | 25 × 57 | 1 | 40 | B25835M6334K007 |
| 0.47 | 10 | 100 | 250 | 19.0 | 110 | 25 × 57 | 1 | 40 | B25835M6474K007 |
| 0.68 | 18 | 150 | 370 | 14.0 | 110 | 30 × 57 | 1 | 50 | B25835M6684K007 |
| 1.00 | 18 | 220 | 550 | 10.0 | 110 | 30 × 57 | 1 | 50 | B25835M6105K007 |
| 2.20 | 18 | 480 | 1200 | 6.6 | 110 | 45 × 57 | 1 | 110 | B25835M6225K007 |
| 4.70 | 18 | 1000 | 2500 | 4.6 | 110 | 60 × 57 | 1 | 190 | B25835M6475K007 |
| $V_R = \text{AC } 1400 \text{ V}$ | | | | | | | | | |
| | | | | $\hat{v} = 1800 \text{ V}$ | | $v_s = 2400 \text{ V}$ | | $V_{\text{TT}} = \text{AC } 1800 \text{ V, } 10 \text{ s}$ | |
| 0.10 | 10 | 150 | 380 | 20.0 | 110 | 25 × 57 | 2 | 40 | B25835M0104K007 |
| 0.22 | 10 | 220 | 550 | 18.0 | 140 | 25 × 70 | 1 | 50 | B25835M0224K007 |
| 0.33 | 10 | 200 | 500 | 27.0 | 190 | 25 × 95 | 1 | 60 | B25835M0334K007 |
| 0.47 | 18 | 280 | 700 | 20.0 | 190 | 30 × 95 | 1 | 90 | B25835M0474K007 |
| 0.68 | 18 | 400 | 1000 | 15.0 | 190 | 30 × 95 | 1 | 90 | B25835M0684K007 |
| 1.00 | 18 | 600 | 1500 | 12.0 | 190 | 35 × 95 | 1 | 110 | B25835M0105K007 |
| 2.20 | 18 | 1300 | 3300 | 7.6 | 190 | 50 × 95 | 1 | 220 | B25835M0225K007 |
| $V_R = \text{AC } 1700 \text{ V}$ | | | | | | | | | |
| | | | | $\hat{v} = 2100 \text{ V}$ | | $v_s = 2900 \text{ V}$ | | $V_{\text{TT}} = \text{AC } 2100 \text{ V, } 10 \text{ s}$ | |
| 0.10 | 10 | 200 | 500 | 16.0 | 110 | 25 × 57 | 2 | 40 | B25835M7104K007 |
| 0.22 | 10 | 300 | 750 | 15.0 | 140 | 25 × 70 | 1 | 50 | B25835M7224K007 |
| 0.47 | 18 | 660 | 1600 | 8.4 | 140 | 35 × 70 | 1 | 90 | B25835M7474K007 |

1) Other capacitance values upon request

Damping
Characteristics and ordering codes

| $C_R^{1)}$ | I_{\max} | \hat{i} | I_s | R_S 20 °C | L_{self} | Dimensions $d \times l$ | Fig. | Appr. weight | Ordering code |
|---|------------|-----------|--|----------------|--|----------------------------|--|-----------------|-----------------|
| μF | A | A | A | m Ω | nH | mm | | g | |
| $V_R = \text{AC } 2100 \text{ V}$ | | | $\hat{v} = 2600 \text{ V}$ | | $v_s = 3600 \text{ V}$ | | $V_{\text{TT}} = \text{AC } 2600 \text{ V, } 10 \text{ s}$ | | |
| 0.47 | 18 | 750 | 1900 | 11.0 | 190 | 35 × 95 | 2 | 110 | B25835M1474K007 |
| 0.68 | 18 | 1100 | 2700 | 8.7 | 190 | 40 × 95 | 1 | 140 | B25835M1684K007 |
| 1.00 | 18 | 1600 | 4000 | 7.1 | 190 | 45 × 95 | 1 | 180 | B25835M1105K007 |
| 2.20 | 18 | 1100 | 2800 | 13.0 | 250 | 60 × 131 | 1 | 440 | B25835M1225K007 |
| $V_N = \text{AC } 3400 \text{ V}$ | | | $\hat{v} = 4300 \text{ V}$ | | $v_s = 5800 \text{ V}$ | | $V_{\text{TT}} = \text{AC } 4300 \text{ V, } 10 \text{ s}$ | | |
| 0.10 | 18 | 280 | 700 | 33.0 | 250 | 35 × 131 | 1 | 150 | B25835M2104K007 |
| 0.15 | 18 | 400 | 1000 | 24.0 | 250 | 35 × 131 | 1 | 150 | B25835M2154K007 |
| 0.22 | 18 | 600 | 1500 | 18.0 | 250 | 35 × 131 | 1 | 150 | B25835M2224K007 |
| 0.33 | 18 | 900 | 2300 | 15.0 | 250 | 50 × 131 | 1 | 300 | B25835M2334K007 |
| 0.47 | 18 | 1300 | 3300 | 12.0 | 250 | 50 × 131 | 1 | 300 | B25835M2474K007 |
| 0.68 | 18 | 1900 | 4800 | 11.0 | 250 | 60 × 131 | 1 | 440 | B25835M2684K007 |

1) Other capacitance values upon request

Dimensional drawing


| $d_{-0.2}^{+0.5}$ | l_{-2}^{+1} | $l_1 + 1^*)$ | l_{2max} | Creepage distance | Clearance |
|-------------------|---------------|--------------|------------|-------------------|-----------|
| mm | mm | mm | mm | mm | mm |
| 25 | 57 | 8 | 15 | 6 | 6 |
| 25 | 57 | 8 | 23 | 14 | 14 |
| 25 | 70 | 8 | 23 | 14 | 14 |
| 25 | 95 | 8 | 23 | 14 | 14 |
| 30 | 57 | 8 | 15 | 6 | 6 |
| 30 | 95 | 8 | 23 | 14 | 14 |
| 35 | 70 | 8 | 26 | 14 | 14 |
| 35 | 95 | 8 | 26 | 14 | 14 |
| 35 | 95 | 8 | 32 | 20 | 20 |
| 35 | 131 | 8 | 32 | 20 | 20 |
| 40 | 95 | 8 | 32 | 20 | 20 |
| 45 | 57 | 8 | 22 | 10 | 10 |
| 45 | 95 | 8 | 32 | 20 | 20 |
| 50 | 95 | 12 | 26 | 14 | 14 |
| 50 | 131 | 12 | 32 | 20 | 20 |
| 60 | 57 | 12 | 22 | 10 | 10 |
| 60 | 131 | 12 | 32 | 20 | 20 |

*) 8 mm =threaded bolt M8
12 mm =threaded bolt M12

Mounting parts (included in delivery)

| Threaded bolt | Max. torque | Washer | Hex nut |
|---------------|-------------|------------------|-------------|
| M8 | 4 Nm | A 8.4 DIN 125-Ms | M 8 DIN 439 |
| M12 | 10 Nm | A 13 DIN 125-Ms | M12 DIN 439 |

Cautions and warnings

Safety

- In case of dents of more than 1 mm depth or any other mechanical damage, capacitors must not be used at all. This applies also in cases of oil leakage.
- Electrical or mechanical misapplication of capacitors may be hazardous. Personal injury or property damage may result from bursting of the capacitor or from expulsion of oil or melted material due to mechanical disruption of the capacitor.
- Ensure good, effective grounding for capacitor enclosures.
- Observe appropriate safety precautions during operation (self-recharging phenomena and the high energy contained in capacitors).
- Handle capacitors carefully, because they may still be charged even after disconnection.
- The terminals of capacitors, connected bus bars and cables as well as other devices may also be energized.
- Follow good engineering practice.
- Failure to follow cautions may result, worst case, in premature failures, bursting and fire.

Thermal load

After installation of the capacitor it is necessary to verify that maximum hot-spot temperature is not exceeded at extreme service conditions (see www.epcos.com/thermal_design/).

Mechanical protection

The capacitor has to be installed in a way that mechanical damages and dents in the aluminum can are avoided.

Storage and operating conditions

Do not use or store capacitors in corrosive atmosphere especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In dusty environments, regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phases and/or phases and ground.

Overpressure disconnecter

To ensure full functionality of an overpressure disconnecter, the following must be observed:

- The elastic elements must not be hindered, i.e.
 - connecting lines must be flexible leads (cables),
 - there must be sufficient space (minimum 12 mm) above the connections for expansion of the overpressure disconnecter,
 - folding crimps must not be retained by clamps.
- Stress parameters of the capacitor must be within the IEC61071 specification.

Service life expectancy

Electrical components do not have an unlimited service life expectancy; this applies to self-healing capacitors too. The maximum service life expectancy may vary depending on the application the capacitor is used in.

Important notes

The following applies to all products named in this publication:

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