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# Power Capacitors

**Series/Type: B25838**

The following products presented in this data sheet are being withdrawn.

| Ordering Code   | Substitute Product | Date of Withdrawal | Deadline Last Orders | Last Shipments |
|-----------------|--------------------|--------------------|----------------------|----------------|
| B25838L8475K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L8226K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L8186K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |

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| B25838L8156K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L8126K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L8106K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6685K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6336K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6226K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6156K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6126K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L6106K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L4476K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L4336K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L4226K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L4156K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838L4106K004 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K8225K001 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K8105K001 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K6475K009 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K6225K001 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K6105K001 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K4475K009 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |
| B25838K4225K001 |                    | 2014-08-14         | 2015-03-31           | 2016-09-30     |

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### Features

- High dielectric strength
- High peak-current capability

### Applications

- For damping and commutating in the upper frequency range

### Construction

- Self-healing
- Plastic dielectric
- Oil-impregnated tubular windings (no PCB)
- Metal-sprayed end faces ensure reliable contacting
- Cylindrical aluminum case
- Ceramic lead-throughs
- Mounting bolts M8 or M12

### Terminals

- Screw terminals M10
- Tab connectors 6.3 mm
- Dual tab connectors 6.3 mm

### Mounting

- If the vibration stress is  $\leq 5 g$  and the capacitors are  $\leq 60$  mm in diameter and  $\leq 160$  mm in height the bolt is used for mounting.

### Grounding

- Mounting bolt for grounding in accordance with VDE 0100
- Grounding identification in accordance with DIN 40 011

### 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<br>EN 61071-1/2<br>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                | $T_{\text{stg}}$                | $-55/+85\text{ }^{\circ}\text{C}$                                                                                          |
| IEC climatic category (IEC 68-1 and 2)   |                                 | 25/085/56                                                                                                                  |
| Test data:                               |                                 |                                                                                                                            |
| AC test voltage                          |                                 |                                                                                                                            |
| between terminals                        | $V_{\text{TT}}$                 | $1,25 \cdot V_R$ , 50 Hz, 10 s (or DC $1.75 \times V_R$ , 10 s)                                                            |
| between terminals and case               | $V_{\text{TC}}$                 | $2 \cdot V_i + 1000\text{ V}$ , 50 Hz, 10 s<br>Insulating voltage $V_i$ = max. recurrent peak voltage $\hat{v} / \sqrt{2}$ |
| Insulation resistance                    | $R_{\text{ins}}$                | $C_R \leq 1\text{ }\mu\text{F}$ : $\geq 10\text{ }000\text{ M}\Omega$                                                      |
| Self-discharge time constant             | $\tau = R_{\text{ins}} \cdot C$ | $C_R > 1\text{ }\mu\text{F}$ : $\geq 10\text{ }000\text{ s}$                                                               |
| Dissipation factor (50 Hz)               | $\tan \delta$                   | $\leq 3 \cdot 10^{-4}$                                                                                                     |



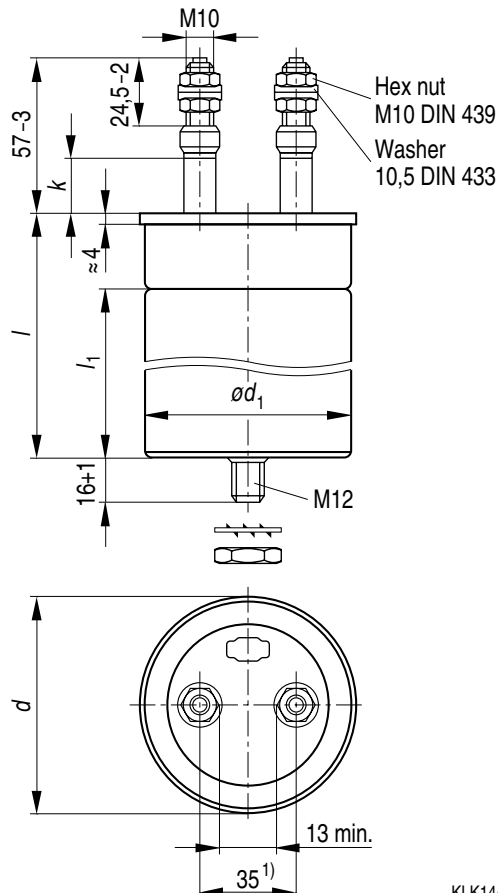
**MKV AC Capacitors**
**B25838**
**Damping**
**Characteristics and ordering codes**

| $C_R^{1)}$                                          | $I_{\max}$ | $\hat{I}$ | $I_s$ | $R_{\text{ins}}$<br>20 °C                            | $L_{\text{self}}$ | Dimensions<br>$d \times l$                                                                                               | Fig. | Appr.<br>weight | Ordering code   |
|-----------------------------------------------------|------------|-----------|-------|------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|------|-----------------|-----------------|
| $\mu\text{F}$                                       | A          | A         | A     | m $\Omega$                                           | nH                | mm                                                                                                                       |      | g               |                 |
| <b><math>V_R = \text{AC } 600 \text{ V}</math></b>  |            |           |       | $\hat{V} = 750 \text{ V}$<br>$v_s = 1000 \text{ V}$  |                   | $V_{\text{TT}} = \text{AC } 750 \text{ V, } 10 \text{ s}$<br>$V_{\text{TC}} = \text{AC } 2100 \text{ V, } 10 \text{ s}$  |      |                 |                 |
| 2.2                                                 | 20         | 350       | 880   | 8.0                                                  | 60                | 40.0 × 57                                                                                                                | 3    | 90              | B25838K4225K001 |
| 4.7                                                 | 40         | 750       | 1900  | 4.5                                                  | 70                | 40.0 × 95                                                                                                                | 2    | 140             | B25838K4475K009 |
| 10                                                  | 80         | 1600      | 4000  | 2.4                                                  | 90                | 64.2 × 115                                                                                                               | 1    | 450             | B25838L4106K004 |
| 15                                                  | 80         | 2400      | 6000  | 2.2                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L4156K004 |
| 22                                                  | 80         | 3500      | 8800  | 1.7                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L4226K004 |
| 33                                                  | 80         | 5300      | 13000 | 1.4                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L4336K004 |
| 47                                                  | 80         | 7500      | 19000 | 1.1                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L4476K004 |
| <b><math>V_R = \text{AC } 900 \text{ V}</math></b>  |            |           |       | $\hat{V} = 1100 \text{ V}$<br>$v_s = 1500 \text{ V}$ |                   | $V_{\text{TT}} = \text{AC } 1150 \text{ V, } 10 \text{ s}$<br>$V_{\text{TC}} = \text{AC } 2600 \text{ V, } 10 \text{ s}$ |      |                 |                 |
| 1.0                                                 | 20         | 280       | 700   | 9.6                                                  | 60                | 40.0 × 57                                                                                                                | 3    | 90              | B25838K6105K001 |
| 2.2                                                 | 20         | 620       | 1500  | 4.9                                                  | 60                | 50.0 × 57                                                                                                                | 3    | 130             | B25838K6225K001 |
| 4.7                                                 | 40         | 1300      | 3300  | 3.1                                                  | 70                | 50.0 × 95                                                                                                                | 2    | 220             | B25838K6475K009 |
| 6.8                                                 | 80         | 1900      | 4800  | 2.0                                                  | 90                | 64.2 × 115                                                                                                               | 1    | 450             | B25838L6685K004 |
| 10                                                  | 80         | 2800      | 7000  | 1.9                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L6106K004 |
| 12                                                  | 80         | 3400      | 8400  | 1.7                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L6126K004 |
| 15                                                  | 80         | 4200      | 10500 | 1.5                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L6156K004 |
| 22                                                  | 80         | 6200      | 15000 | 1.2                                                  | 140               | 79.2 × 194                                                                                                               | 1    | 1100            | B25838L6226K004 |
| 33                                                  | 80         | 9200      | 23000 | 1.1                                                  | 140               | 89.3 × 194                                                                                                               | 1    | 1500            | B25838L6336K004 |
| <b><math>V_R = \text{AC } 1100 \text{ V}</math></b> |            |           |       | $\hat{V} = 1400 \text{ V}$<br>$v_s = 1900 \text{ V}$ |                   | $V_{\text{TT}} = \text{AC } 1400 \text{ V, } 10 \text{ s}$<br>$V_{\text{TC}} = \text{AC } 3000 \text{ V, } 10 \text{ s}$ |      |                 |                 |
| 1,0                                                 | 20         | 600       | 1500  | 13,0                                                 | 90                | 40,0 × 95                                                                                                                | 3    | 140             | B25838K8105K001 |
| 2,2                                                 | 20         | 1300      | 3300  | 6,5                                                  | 70                | 50,0 × 95                                                                                                                | 3    | 220             | B25838K8225K001 |
| 4,7                                                 | 80         | 2800      | 7000  | 3,5                                                  | 170               | 64,2 × 194                                                                                                               | 1    | 750             | B25838L8475K004 |
| 10                                                  | 80         | 6000      | 15000 | 2,1                                                  | 170               | 79,2 × 194                                                                                                               | 1    | 1100            | B25838L8106K004 |
| 12                                                  | 80         | 7200      | 18000 | 2,0                                                  | 170               | 89,3 × 194                                                                                                               | 1    | 1500            | B25838L8126K004 |
| 15                                                  | 80         | 9000      | 23000 | 1,7                                                  | 170               | 89,3 × 194                                                                                                               | 1    | 1500            | B25838L8156K004 |
| 18                                                  | 80         | 11000     | 27000 | 1,5                                                  | 170               | 89,3 × 194                                                                                                               | 1    | 1500            | B25838L8186K004 |
| 22                                                  | 80         | 13000     | 33000 | 1,4                                                  | 170               | 89,3 × 194                                                                                                               | 1    | 1500            | B25838L8226K004 |

1) Other capacitance values upon request

**Dimensional drawing 1**

Screw terminals M10



KLK1440-3

Dimensions in mm

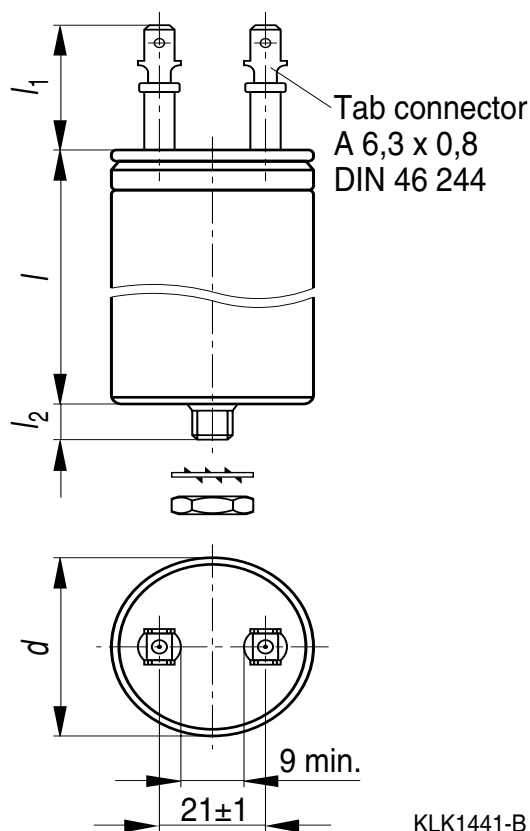
| $d-1,2$                 | $l-4$ | $\varnothing d_1 -0,4$ | $l_1 \text{ min}$ | Creepage distance $k$ | Clearance |
|-------------------------|-------|------------------------|-------------------|-----------------------|-----------|
| 64.2                    | 115   | 60.2                   | 78                | 20                    | 13        |
| 64.2                    | 194   | 60.2                   | 150               | 20                    | 13        |
| 79.2                    | 194   | 75.2                   | 150               | 20                    | 13        |
| 89.3                    | 194   | 85.2                   | 150               | 20                    | 13        |
| Max. torque terminals*) |       |                        |                   | 7 Nm                  |           |

\*) The terminal torque must not act upon the ceramic. So the lead should be locked between to nuts.

1) Dimensions only for orientation, subject for modifications

**Dimensional drawing 2**

Dual tab connectors 6.3 mm



KLK1441-B

Dimensions in mm

| $d^{+0,5}_{-0,2}$ | $l^{+1}_{-2}$ | $l_1 \text{ max}$ | $l_2 + 1^{**})$ | Creepage distance | Clearance |
|-------------------|---------------|-------------------|-----------------|-------------------|-----------|
| 40                | 95            | 28                | 8               | 10                | 9         |
| 50                | 95            | 32                | 12              | 14                | 9         |

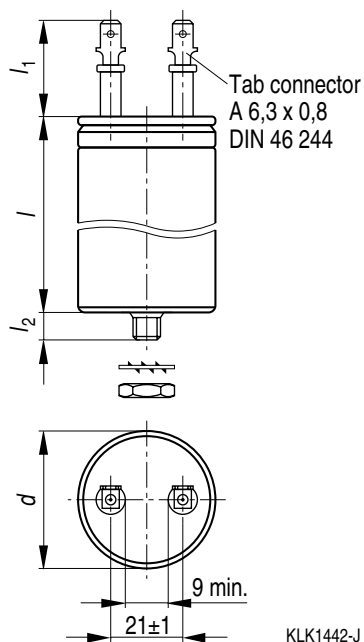
\*\*) 8 mm = threaded bolt M8  
12 mm = threaded bolt M12

**Mounting parts (included in delivery)**

| Threaded bolt | Max. torque | Toothed washer  | Hex nut     |
|---------------|-------------|-----------------|-------------|
| M8            | 4 Nm        | J 8.2 DIN 6797  | M 8 DIN 439 |
| M12           | 10 Nm       | J 12.5 DIN 6797 | M12 DIN 439 |

**Dimensional drawing 3**

Tab connectors 6.3 mm



Dimensions in mm

| $d^{+0,5}_{-0,2}$ | $l^{+1}_{-2}$ | $l_{1 \max}$ | $l_2 + 1^*)$ | Creepage distance | Clearance |
|-------------------|---------------|--------------|--------------|-------------------|-----------|
| 40                | 57            | 28           | 8            | 10 <sup>**)</sup> | 9         |
| 40                | 57            | 32           | 8            | 14                | 9         |
| 40                | 95            | 32           | 8            | 14                | 9         |
| 50                | 57            | 32           | 12           | 14                | 9         |
| 50                | 95            | 32           | 12           | 14                | 9         |

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

\*\*) Type B25838K4225K001

**Mounting parts (included in delivery)**

| Threaded bolt | Max. torque | Toothed washer  | Hex nut      |
|---------------|-------------|-----------------|--------------|
| M8            | 4 Nm        | J 8,2 DIN 6797  | M 8 DIN 439  |
| M12           | 10 Nm       | J 12,5 DIN 6797 | M 12 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](http://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:

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**.  
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2. We also point out that **in individual cases, a malfunction of passive 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 a passive 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 a passive electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
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