

## X1 capacitors

Rated ac voltage 440 V, 50/60 Hz

### Construction

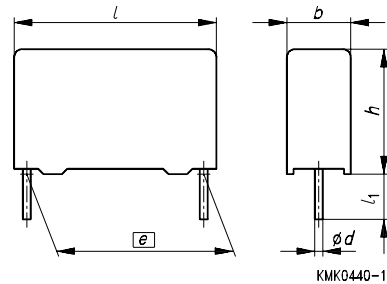
- Dielectric: polyester (MKT)
- Internal series connection
- Plastic case (UL 94 V-0)
- Epoxy resin sealing, flame-retardant

### Features

- Self-healing properties

### Terminals

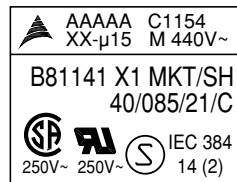
- Parallel wire leads, tinned
  - Two standard lead lengths available:  
6 mm and 26 mm
- Other lead lengths available upon request.



| Lead spacing<br>$e \pm 0,4$ | Lead diameter<br>$\varnothing d$ (mm) | Lead length $l_1$<br>(mm) |            |
|-----------------------------|---------------------------------------|---------------------------|------------|
| $\leq 27,5$ mm              | 0,8                                   | 6 – 1                     | $26 \pm 2$ |
| 37,5 mm                     | 1,0                                   | 6 – 1                     | $26 \pm 2$ |

### Marking

Manufacturer's logo, lot number, date code, rated capacitance (coded), capacitance tolerance (code letter), rated ac voltage, type number, interference suppression sub-class (X1), style (MKT), self-healing (SH), climatic category, awarded marks of conformity.



KMK0568-H

### Delivery mode

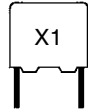
Bulk (untaped)

Taped (Ammo pack or reel)

For notes on taping, refer to chapter "Taping and packing", page 274.

### Marks of conformity

| Marks of conformity                                                                                                                                                        | Standards                                                                            | Certificate                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------|
| <br> | EN 132 400, IEC 384-14, 2nd edition<br>UL 1414 (250 V)<br>CSA C22.2 No. 0; 8 (250 V) | 9547071-01<br>E 97863<br>LR 59709 |



## Ordering codes and packing units

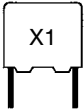
| Lead spacing<br>$\square \varnothing \pm 0,4$<br>mm | $C_R$        | Maximum dimensions<br>$b \times h \times l$<br>(mm) | Ordering code <sup>1)</sup> | Packing units (pcs) |      |                     |       |
|-----------------------------------------------------|--------------|-----------------------------------------------------|-----------------------------|---------------------|------|---------------------|-------|
|                                                     |              |                                                     |                             | Ammo pack           | Reel | Untaped Lead length |       |
|                                                     |              |                                                     |                             |                     |      | 6 mm                | 26 mm |
| 15                                                  | 10 nF        | $5,0 \times 10,5 \times 18,0$                       | B81141-C1103-M***           | 1170                | 1300 | 1000                | 1000  |
|                                                     | 22 nF        | $7,0 \times 12,5 \times 18,0$                       | B81141-C1223-M***           | 830                 | 900  | 1000                | 800   |
|                                                     | 33 nF        | $8,5 \times 14,5 \times 18,0$                       | B81141-C1333-M***           | 680                 | 700  | 500                 | 500   |
|                                                     | 47 nF        | $9,0 \times 17,5 \times 18,0$                       | B81141-C1473-M***           | 640                 | 700  | 500                 | 500   |
| 22,5                                                | 68 nF        | $8,5 \times 16,5 \times 26,5$                       | B81141-C1683-M***           | 480                 | 500  | 510                 | 450   |
|                                                     | 0,10 $\mu$ F | $10,5 \times 16,5 \times 26,5$                      | B81141-C1104-M***           | 390                 | 400  | 540                 | 350   |
|                                                     | 0,15 $\mu$ F | $11,0 \times 20,5 \times 26,5$                      | B81141-C1154-M***           | 370                 | 350  | 510                 | 300   |
| 27,5                                                | 0,22 $\mu$ F | $12,5 \times 21,5 \times 31,5$                      | B81141-C1224-M***           | —                   | 300  | 280                 | 200   |
|                                                     | 0,33 $\mu$ F | $14,0 \times 24,5 \times 31,5$                      | B81141-C1334-M***           | —                   | —    | 260                 | 150   |
|                                                     | 0,47 $\mu$ F | $18,0 \times 27,5 \times 31,5$                      | B81141-C1474-M***           | —                   | —    | 200                 | 100   |
| 37,5                                                | 0,68 $\mu$ F | $16,0 \times 28,5 \times 41,5$                      | B81141-C1684-M***           | —                   | —    | 100                 | —     |

Capacitance tolerance:  $\pm 20 \% \hat{=} M$  (closer tolerances upon request)

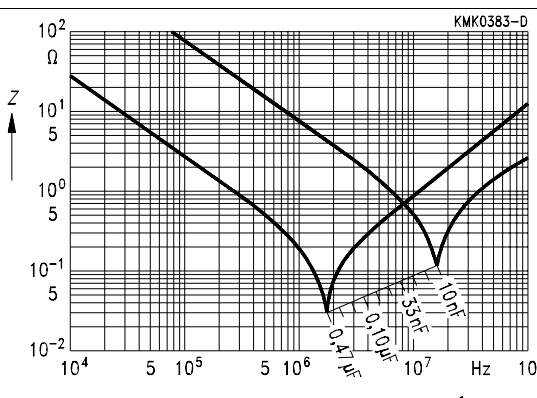
## Technical data

|                                                                     |                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climatic category<br>in accordance with IEC 60068-1                 | 40/085/21                                                                                                                                                                                                                                             |
| Lower category temperature $T_{\min}$                               | $-40\text{ }^{\circ}\text{C}$                                                                                                                                                                                                                         |
| Upper category temperature $T_{\max}$                               | $+85\text{ }^{\circ}\text{C}$                                                                                                                                                                                                                         |
| Passive flammability category<br>in accordance with IEC 40 (CO) 752 | C                                                                                                                                                                                                                                                     |
| Damp heat test                                                      | 21 days/40 °C/93 % relative humidity                                                                                                                                                                                                                  |
| Limit values after damp heat test                                   | Capacitance change $ \Delta C/C  \leq 5\%$<br>Dissipation factor change $\Delta \tan \delta \leq 5 \cdot 10^{-3}$ (at 1 kHz)<br>Insulation resistance $R_{is} \geq 50\%$ of minimum<br>or time constant $\tau = C_R \cdot R_{is}$ as-delivered values |
| Permissible continuous ac voltage                                   | 440 V (50/60 Hz)                                                                                                                                                                                                                                      |
| Permissible continuous dc voltage                                   | 1000 V                                                                                                                                                                                                                                                |
| DC test voltage                                                     | 2500 V, 2 s                                                                                                                                                                                                                                           |

1) Replace the \*\*\* by the code number for the required lead length or packing.  
000 = lead length 6 mm (untaped)  
026 = lead length 26 mm (untaped)  
289 = taped, Ammo pack  
189 = taped, reel


**B 81 141**
**440 Vac**

### Technical data

|                                                                                                                                                      |                                                                                   |                            |                                            |                       |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------|--------------------------------------------|-----------------------|----|
| Dissipation factor $\tan \delta$ (in $10^{-3}$ )<br>at 20 °C<br>(upper limit values)                                                                 |                                                                                   | $C_R \leq 0,1 \mu\text{F}$ | $0,1 \mu\text{F} < C_R \leq 1 \mu\text{F}$ | $C_R > 1 \mu\text{F}$ |    |
|                                                                                                                                                      | at                                                                                | 1 kHz                      | 8                                          | 8                     | 10 |
|                                                                                                                                                      |                                                                                   | 10 kHz                     | 15                                         | 15                    | —  |
|                                                                                                                                                      |                                                                                   | 100 kHz                    | 30                                         | —                     | —  |
| Insulation resistance $R_{is}$<br>or time constant $\tau = C_R \cdot R_{is}$<br>at 20 °C, rel. humidity $\leq 65\%$<br>(minimum as-delivered values) | $C_R \leq 0,33 \mu\text{F}$                                                       |                            | $C_R > 0,33 \mu\text{F}$                   |                       |    |
|                                                                                                                                                      | 30 000 M $\Omega$                                                                 |                            | 10 000 s                                   |                       |    |
| Impedance $Z$<br>versus frequency $f$<br>(typical values)                                                                                            |  |                            |                                            |                       |    |
|                                                                                                                                                      |                                                                                   |                            |                                            |                       |    |

### Pulse handling capability

Maximum permissible voltage change per unit of time for non-sinusoidal voltages (pulse, sawtooth).

|         |                                                                                         |         |         |         |
|---------|-----------------------------------------------------------------------------------------|---------|---------|---------|
| $V_R$   | Max. rate of voltage rise $V_{pp}/\tau$ in V/ $\mu\text{s}$ (for $V_{pp} = \hat{V}_R$ ) |         |         |         |
|         | Lead spacing                                                                            |         |         |         |
|         | 15 mm                                                                                   | 22,5 mm | 27,5 mm | 37,5 mm |
| 440 Vac | 80                                                                                      | 50      | 30      | 15      |

For  $V_{pp} < \hat{V}_R$ , the permissible voltage rise rate  $V_{pp}/\tau$  may be multiplied by the factor  $\hat{V}_R/V_{pp}$ .  
Also refer to the calculation example [in chapter "General technical information", page 302](#).

|         |                                                                                             |         |         |         |
|---------|---------------------------------------------------------------------------------------------|---------|---------|---------|
| $V_R$   | Pulse characteristic $k_0$ in V <sup>2</sup> / $\mu\text{s}$ (for $V_{pp} \leq \hat{V}_R$ ) |         |         |         |
|         | Lead spacing                                                                                |         |         |         |
|         | 15 mm                                                                                       | 22,5 mm | 27,5 mm | 37,5 mm |
| 440 Vac | 100 000                                                                                     | 50 000  | 30 000  | 18 000  |

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