



## Film Capacitors

### EMI Suppression Capacitors (MKP)

**Series/Type:** B81130  
**Date:** August 2004

www.DataSheet

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**X2 / 275 VAC**
**Not for new design**
**Typical applications**

- X2 class for interference suppression
- "Across the line" applications

**Climatic**

- Max. operating temperature: 100 °C
- Climatic category (IEC 60068-1): 40/100/21

**Construction**

- Dielectric: polypropylene (MKP)
- Plastic case (UL 94 V-0)
- Epoxy resin sealing (UL 94 V-0)

**Features**

- Small dimensions
- Self-healing properties

**Terminals**

- Parallel wire leads, lead-free tinned
- Standard lead lengths: 6 – 1 mm
- Special lead lengths available on request





**Marking**

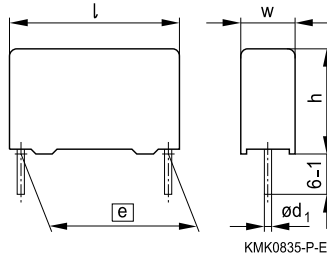
Manufacturer's logo, lot number, date code, rated capacitance (coded), cap. tolerance (code letter), rated AC voltage, series number, sub-class (X2), dielectric code (MKP), climatic category, passive flammability category, approvals.

**Delivery mode**

Bulk (untaped)  
 Taped (Ammo pack or reel)  
 For taping details, refer to chapter "Taping and packing".

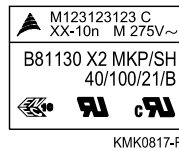
**Approvals**

Marks of conformity	Standards	Certificate
	EN 132400, IEC 60384-14	138554
	UL 1414 / UL 1283	E97863 / E157153
	CSA C22.2 No.1	E97863
	CQC (GB/T 14472-1998)	CQC02001001667

**Dimensional drawing**


Dimensions in mm

Lead spacing	Lead diameter $d_1$
$e \pm 0.4$	
10 mm	0.6
15 ... 27.5 mm	0.8

**Marking examples**
 $e = 10$  mm


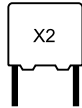
KMK0817-R

 $e \geq 15$  mm/ $C_R \leq 1$   $\mu$ F


KMK0818-Z

 $e = 27.5$  mm/ $C_R > 1$   $\mu$ F

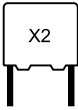

KMK0819-B



Not for new design

**Overview of available types**

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm
$C_R$ ( $\mu\text{F}$ )				
0.010				
0.015				
0.022				
0.033				
0.047				
0.056				
0.068				
0.10				
0.15				
0.22				
0.33				
0.47				
0.68				
1.0				
1.5				
2.2				


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**Ordering codes and packing units**

Lead spacing mm	C <sub>R</sub> μF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
10	0.010	4.0 × 9.0 × 13.0	B81130C1103+***	1000	1700	1000
	0.015	4.0 × 9.0 × 13.0	B81130C1153+***	1000	1700	1000
	0.022	5.0 × 11.0 × 13.0	B81130C1223+***	830	1300	1000
	0.033	5.0 × 11.0 × 13.0	B81130C1333M***	830	1300	1000
	0.033	6.0 × 12.0 × 13.0	B81130A1333+***	680	1100	1000
	0.047	6.0 × 12.0 × 13.0	B81130C1473+***	680	1100	1000
15	0.022	5.0 × 10.5 × 18.0	B81130B1223+***	1170	1300	1000
	0.033	5.0 × 10.5 × 18.0	B81130B1333+***	1170	1300	1000
	0.047	5.0 × 10.5 × 18.0	B81130B1473+***	1170	1300	1000
	0.056	5.0 × 10.5 × 18.0	B81130C1563M***	1170	1300	1000
	0.068	6.0 × 11.0 × 18.0	B81130C1683+***	960	1100	1000
	0.10	6.0 × 12.0 × 18.0	B81130C1104M***	960	1100	1000
	0.10	7.0 × 12.5 × 18.0	B81130A1104+***	830	900	1000
	0.15	8.5 × 14.5 × 18.0	B81130C1154+***	680	700	500
	0.22	9.0 × 17.5 × 18.0	B81130C1224+***	640	700	500
22.5	0.15	6.0 × 15.0 × 26.5	B81130B1154+***	680	700	720
	0.22	7.0 × 16.0 × 26.5	B81130B1224+***	580	600	630
	0.33	8.5 × 16.5 × 26.5	B81130C1334+***	480	500	510
	0.47	10.5 × 16.5 × 26.5	B81130C1474M***	390	400	540
	0.47	10.5 × 18.5 × 26.5	B81130A1474+***	390	400	540
	0.68	11.0 × 20.5 × 26.5	B81130C1684+***	370	350	510
27.5	0.47	11.0 × 21.0 × 31.5	B81130B1474+***	–	350	320
	0.68	11.0 × 21.0 × 31.5	B81130B1684+***	–	350	320
	1.0	12.5 × 21.5 × 31.5	B81130C1105M***	–	300	280
	1.0	13.5 × 23.0 × 31.5	B81130A1105+***	–	250	260
	1.5	15.0 × 24.5 × 31.5	B81130C1155M***	–	–	240
	1.5	18.0 × 27.5 × 31.5	B81130A1155+***	–	–	200
	2.2	18.0 × 27.5 × 31.5	B81130C1225M***	–	–	200
	2.2	19.0 × 30.0 × 31.5	B81130A1225+***	–	–	180

Further E series and intermediate capacitance values on request.

**Composition of ordering code**

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

\*\*\* = Packaging code:

289 = Ammo pack

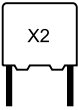
189 = Reel

000 = Untaped (lead length 6 – 1 mm)

(Closer tolerances on request)

**Not for new design**
**Technical data**

Max. operating temperature $T_{op,max}$	+100 °C		
Dissipation factor $\tan \delta$ (in $10^{-3}$ ) at 20 °C (upper limit values)		$C_R \leq 0.1 \mu\text{F}$	$C_R > 0.1 \mu\text{F}$
	at 1 kHz	1.0	1.0
	100 kHz	5.0	–
Insulation resistance $R_{ins}$ or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values)	$C_R \leq 0.33 \mu\text{F}$	$C_R > 0.33 \mu\text{F}$	
	100 000 M $\Omega$	30 000 s	
DC test voltage	2121 V, 2 s		
Passive flammability category to IEC 40 (CO) 752	B		
Maximum continuous AC voltage ( $V_{AC}$ )	310 V (50/60 Hz)		
Rated AC voltage (IEC 60384-14)	275 V (50/60 Hz)		
Maximum continuous DC voltage ( $V_{DC}$ )	760 V		
Operating AC voltage $V_{op}$ at high temperature	$T_A \leq 100 \text{ °C}$	$V_{op} = V_{AC}$ (continuously)	
	$T_A \leq 100 \text{ °C}$	$V_{op} = 1.25 \cdot V_{AC}$ (1000 h)	
Damp heat test Limit values after damp heat test	21 days / 40 °C / 93% relative humidity Capacitance change $ \Delta C/C  \leq 5\%$ Dissipation factor change $\Delta \tan \delta \leq 0.5 \cdot 10^{-3}$ (at 1 kHz) Insulation resistance $R_{ins} \leq 1.0 \cdot 10^{-3}$ (at 10 kHz) or time constant $\tau = C_R \cdot R_{ins} \geq 50\%$ of minimum as-delivered values		



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**Pulse handling capability**

"dV/dt" represents the maximum permissible voltage change per unit of time for non-sinusoidal voltages, expressed in V/ $\mu$ s.

"k<sub>0</sub>" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V<sup>2</sup>/ $\mu$ s.

*Note:*

*The values of dV/dt and k<sub>0</sub> provided below must not be exceeded in order to avoid damaging the capacitor.*

**dV/dt and k<sub>0</sub> values**

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm
dV/dt in V/ $\mu$ s	550	400	200	150
k <sub>0</sub> in V <sup>2</sup> / $\mu$ s	429 000	312 000	156 000	117 000

**Impedance Z versus frequency f**

(typical values)

