

**X2 capacitors with very small dimensions  
Rated ac voltage 275 V, 50/60 Hz**
**Construction**

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

**Features**

- Very small dimensions
- Self-healing properties

**Terminals**

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


**Marking**

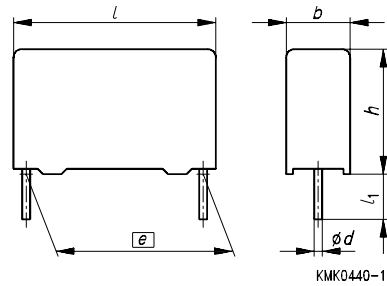
Manufacturer's logo and lot number date code, rated capacitance (coded), capacitance tolerance (code letter), rated ac voltage, type number, interference suppression sub-class (X2), style (MKP), climatic category, awarded marks of conformity.

**Delivery mode**

Bulk (untaped)  
Taped (Ammo pack or reel)  
For notes on taping,  
[refer to chapter "Taping and packing", page 274.](#)

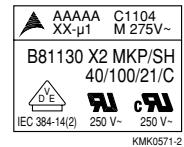
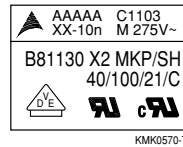
**Marks of conformity**

Marks of conformity	Standards	Certificate
	EN 132400 / IEC 384-14, 2nd edition UL 1414 ( $V_R = 250$ Vac) Approved by UL according to CSA C22.2 No. 0; 1 ( $V_R = 250$ Vac)	18643-4670-1010/A1G E97863/97NK11940A E97863/97NK11940A

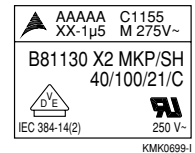


Lead spacing $\overline{e} \pm 0,4$	Lead diameter $\varnothing d$ (mm)	Lead length $l_1$ (mm)	
10 mm	0,6	6 – 1	—
$\geq 15$ mm	0,8	6 – 1	$26 \pm 2$

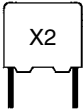
Lead spacing = 10 mm    Lead spacing  $\geq 15$  mm  
(22 nF ... 1,0  $\mu$ F)



Lead spacing = 27,5 mm  
(1,5 and 2,2  $\mu$ F)



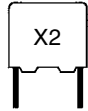
1) Not for 1,5 and 2,2  $\mu$ F

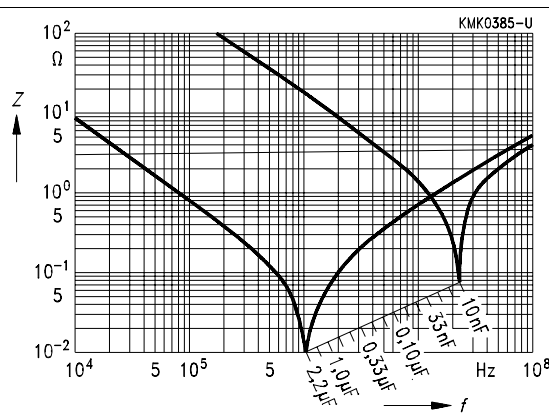

**B 81 130**
**275 Vac**
**Ordering codes and packing units**

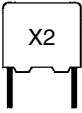
Lead spacing $\square @ \pm 0,4$ mm	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)			
				Ammo pack	Reel	Untaped Lead length	
						6 mm	26 mm
10	10 nF	4,0 × 9,0 × 13,0	B81130-C1103-+***	1000	1700	1000	—
	15 nF	4,0 × 9,0 × 13,0	B81130-C1153-+***	1000	1700	1000	—
	22 nF	5,0 × 11,0 × 13,0	B81130-C1223-+***	830	1300	1000	—
	33 nF	5,0 × 11,0 × 13,0	B81130-C1333-M***	830	1300	1000	—
	33 nF	6,0 × 12,0 × 13,0	B81130-A1333-+***	680	1100	1000	—
	47 nF	6,0 × 12,0 × 13,0	B81130-C1473-+***	680	1100	1000	—
15	22 nF	5,0 × 10,5 × 18,0	B81130-B1223-+***	1170	1300	1000	1000
	33 nF	5,0 × 10,5 × 18,0	B81130-B1333-+***	1170	1300	1000	1000
	47 nF	5,0 × 10,5 × 18,0	B81130-B1473-+***	1170	1300	1000	1000
	68 nF	6,0 × 11,0 × 18,0	B81130-C1683-+***	960	1100	1000	1000
	0,10 μF	6,0 × 12,0 × 18,0	B81130-C1104-M***	960	1100	1000	1000
	0,10 μF	7,0 × 12,5 × 18,0	B81130-A1104-+***	830	900	1000	800
	0,15 μF	8,5 × 14,5 × 18,0	B81130-C1154-+***	680	700	500	500
	0,22 μF	9,0 × 17,5 × 18,0	B81130-C1224-+***	640	700	500	500
22,5	0,15 μF	6,0 × 15,0 × 26,5	B81130-B1154-+***	680	700	720	500
	0,22 μF	7,0 × 16,0 × 26,5	B81130-B1224-+***	580	600	630	500
	0,33 μF	8,5 × 16,5 × 26,5	B81130-C1334-+***	480	500	510	450
	0,47 μF	10,5 × 16,5 × 26,5	B81130-C1474-M***	390	400	540	350
	0,47 μF	10,5 × 18,5 × 26,5	B81130-A1474-+***	390	400	540	300
	0,68 μF	11,0 × 20,5 × 26,5	B81130-C1684-M***	370	350	510	300
27,5	0,47 μF	11,0 × 21,0 × 31,5	B81130-B1474-+***	—	350	320	200
	0,68 μF	11,0 × 21,0 × 31,5	B81130-B1684-+***	—	350	320	200
	1,0 μF	12,5 × 21,5 × 31,5	B81130-C1105-M***	—	300	280	200
	1,0 μF	13,5 × 23,0 × 31,5	B81130-A1105-+***	—	250	260	150
	1,5 μF	15,0 × 24,5 × 31,5	B81130-C1155-M***	—	—	240	150
	1,5 μF	18,0 × 27,5 × 31,5	B81130-A1155-+***	—	—	200	100
	2,2 μF	18,0 × 27,5 × 31,5	B81130-C1225-M***	—	—	200	100
	2,2 μF	19,0 × 30,0 × 31,5	B81130-A1225-+***	—	—	180	100

 Capacitance tolerance:  $\pm 20\% \hat{=} M$ ,  $\pm 10\% \hat{=} K$  (closer tolerances upon request)

- 1) Replace the + by the code letter for the required capacitance tolerance.  
 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


**Technical data**

Climatic category in accordance with IEC 60068-1	40/100/21			
Lower category temperature $T_{\min}$	- 40 °C			
Upper category temperature $T_{\max}$	+ 100 °C			
Passive flammability category 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 $\Delta C/C$	$\leq 3 \%$		
	Dissipation factor change $\Delta \tan \delta$	$\leq 0,5 \cdot 10^{-3}$ (at 1 kHz) $\leq 1,0 \cdot 10^{-3}$ (at 10 kHz)		
	Insulation resistance $R_{is}$ or time constant $\tau = C_R \cdot R_{is}$	$\geq 50 \%$ of minimum as-delivered values		
Permissible continuous ac voltage	275 V (50/60 Hz)			
Permissible continuous dc voltage	560 V			
DC test voltage	2121 V, 2 s			
Dissipation factor $\tan \delta$ (in $10^{-3}$ ) at 20 °C (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	1,0	1,0	1,0
	100 kHz	5	10	13
Insulation resistance $R_{is}$ or time constant $\tau = C_R \cdot R_{is}$ 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 G $\Omega$	30 000 s		
Impedance $Z$ versus frequency $f$ (typical values)				


**B 81 130**
**275 Vac**
**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/ $\mu$ s (for $V_{pp} = \hat{V}_R$ )			
	Lead spacing			
	10 mm	15 mm	22,5 mm	27,5 mm
275 Vac	290	110	50	30

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> / $\mu$ s (for $V_{pp} \leq \hat{V}_R$ )			
	Lead spacing			
	10 mm	15 mm	22,5 mm	27,5 mm
275 Vac	220 000	80 000	35 000	21 000

**Herausgegeben von EPCOS AG**

**Marketing Kommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND**

© EPCOS AG 2000. Alle Rechte vorbehalten. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Mit den Angaben in dieser Broschüre werden die Bauelemente spezifiziert, keine Eigenschaften zugesichert. Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland.

Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

**Published by EPCOS AG**

**Marketing Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY**

© EPCOS AG 2000. All Rights Reserved. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

The information contained in this brochure describes the type of component and shall not be considered as guaranteed characteristics. Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.