



Film Capacitors

EMI Suppression Capacitors (MKP)

Series/Type: B81130
Date: August 2004

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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.

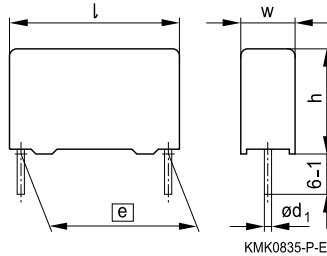
Delivery mode

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

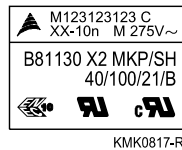


Dimensions in mm

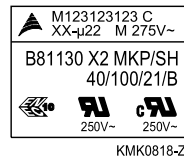
Lead spacing	Lead diameter d ₁
$e \pm 0.4$	
10 mm	0.6
15 ... 27.5 mm	0.8

Marking examples

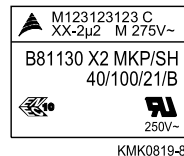
$e = 10 \text{ mm}$

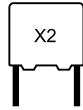


$e \geq 15 \text{ mm}/C_R \leq 1 \mu\text{F}$



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

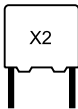




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Overview of available types

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm
C_R (μF)				
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 _R 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
22.5	0.22	9.0 × 17.5 × 18.0	B81130C1224+***	640	700	500
	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
27.5	0.68	11.0 × 20.5 × 26.5	B81130C1684+***	370	350	510
	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%

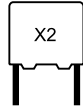
*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

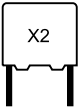
(Closer tolerances on request)



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Technical data

Max. operating temperature $T_{op,max}$	+100 °C		
Dissipation factor $\tan \delta$ (in 10^{-3}) at 20 °C (upper limit values)		$C_R \leq 0.1 \mu F$	$C_R > 0.1 \mu F$
	at 1 kHz 100 kHz	1.0 5.0	1.0 —
Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values)	$C_R \leq 0.33 \mu F$	$C_R > 0.33 \mu F$	
	100 000 M Ω	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	$T_A \leq 100 \text{ }^{\circ}\text{C}$	$V_{op} = V_{AC}$	(continuously)
	$T_A \leq 100 \text{ }^{\circ}\text{C}$	$V_{op} = 1.25 \cdot V_{AC}$	(1000 h)
Damp heat test	21 days / 40 °C / 93% relative humidity		
Limit values after damp heat test	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/ μ s.

"k₀" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V²/ μ s.

Note:

The values of dV/dt and k₀ provided below must not be exceeded in order to avoid damaging the capacitor.

dV/dt and k₀ values

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm
dV/dt in V/ μ s	550	400	200	150
k ₀ in V ² / μ s	429 000	312 000	156 000	117 000

Impedance Z versus frequency f

(typical values)

