EPCOS

Film Capacitors

EMI Suppression Capacitors (MKP)

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

X2 / 275 VAC "B81130_0"

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
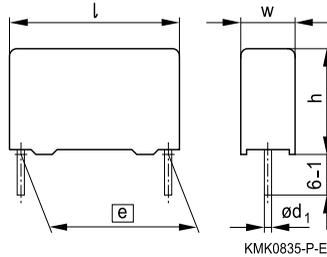- Special lead lengths available on request

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".

Dimensional drawing

KMK0835-P-E

Dimensions in mm

Lead spacing $\boxed{e}$ ±0.4	Lead diameter d_1
10 mm	0.6
15 ... 27.5 mm	0.8

Marking examples

$\boxed{e}$ = 10 mm

KMK0817-R

$\boxed{e}$ ≥15 mm/C_R≤1 µF

KMK0818-Z

$\boxed{e}$ = 27.5 mm/C_R>1 µF

KMK0819-8

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

"B81130_0"

X2 / 275 VAC
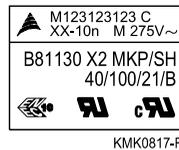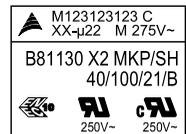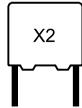
Not for new design

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				▒
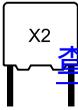
X2	**B81130**
	"B81130 Q"
	X2 / 275 VAC
	Not for new design

Ordering codes and packing units

Lead spacing	C_R	Max. dimensions $w \times h \times l$	Ordering code (composition see	Ammo pack	Reel	Untaped
mm	µF	mm	below)	pcs./unit	pcs./unit	pcs./unit
10	0.010	$4.0 \times 9.0 \times 13.0$	B81130C1103+***	1000	1700	1000
	0.015	$4.0 \times 9.0 \times 13.0$	B81130C1153+***	1000	1700	1000
	0.022	$5.0 \times 11.0 \times 13.0$	B81130C1223+***	830	1300	1000
	0.033	$5.0 \times 11.0 \times 13.0$	B81130C1333M***	830	1300	1000
	0.033	$6.0 \times 12.0 \times 13.0$	B81130A1333+***	680	1100	1000
	0.047	$6.0 \times 12.0 \times 13.0$	B81130C1473+***	680	1100	1000
15	0.022	$5.0 \times 10.5 \times 18.0$	B81130B1223+***	1170	1300	1000
	0.033	$5.0 \times 10.5 \times 18.0$	B81130B1333+***	1170	1300	1000
	0.047	$5.0 \times 10.5 \times 18.0$	B81130B1473+***	1170	1300	1000
	0.056	$5.0 \times 10.5 \times 18.0$	B81130C1563M***	1170	1300	1000
	0.068	$6.0 \times 11.0 \times 18.0$	B81130C1683+***	960	1100	1000
	0.10	$6.0 \times 12.0 \times 18.0$	B81130C1104M***	960	1100	1000
	0.10	$7.0 \times 12.5 \times 18.0$	B81130A1104+***	830	900	1000
	0.15	$8.5 \times 14.5 \times 18.0$	B81130C1154+***	680	700	500
	0.22	$9.0 \times 17.5 \times 18.0$	B81130C1224+***	640	700	500
22.5	0.15	$6.0 \times 15.0 \times 26.5$	B81130B1154+***	680	700	720
	0.22	$7.0 \times 16.0 \times 26.5$	B81130B1224+***	580	600	630
	0.33	$8.5 \times 16.5 \times 26.5$	B81130C1334+***	480	500	510
	0.47	$10.5 \times 16.5 \times 26.5$	B81130C1474M***	390	400	540
	0.47	$10.5 \times 18.5 \times 26.5$	B81130A1474+***	390	400	540
	0.68	$11.0 \times 20.5 \times 26.5$	B81130C1684+***	370	350	510
27.5	0.47	$11.0 \times 21.0 \times 31.5$	B81130B1474+***	−	350	320
	0.68	$11.0 \times 21.0 \times 31.5$	B81130B1684+***	−	350	320
	1.0	$12.5 \times 21.5 \times 31.5$	B81130C1105M***	−	300	280
	1.0	$13.5 \times 23.0 \times 31.5$	B81130A1105+***	−	250	260
	1.5	$15.0 \times 24.5 \times 31.5$	B81130C1155M***	−	−	240
	1.5	$18.0 \times 27.5 \times 31.5$	B81130A1155+***	−	−	200
	2.2	$18.0 \times 27.5 \times 31.5$	B81130C1225M***	−	−	200
	2.2	$19.0 \times 30.0 \times 31.5$	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 δ (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	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 ≤ 65% (minimum as-delivered values)	$C_R \leq 0.33~\mu F$	$C_R > 0.33~\mu F$	
	100 000 MΩ	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	$T_A \leq 100$ °C	$V_{op} = V_{AC}$ (continuously)	
	$T_A \leq 100$ °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 $\lvert \Delta C/C \rvert$	≤ 5%	
	Dissipation factor change Δ tan δ	≤ $0.5 \cdot 10^{-3}$ (at 1 kHz)	
	Insulation resistance R_{ins}	≤ $1.0 \cdot 10^{-3}$ (at 10 kHz)	
	or time constant $\tau = C_R \cdot R_{ins}$	≥ 50% of minimum as-delivered values	

X2
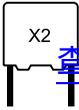
Pulse handling capability

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

"k_0" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V^2/μs.

Note:
The values of dV/dt and k_0 provided below must not be exceeded in order to avoid damaging the capacitor.

dV/dt and k_0 values

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm
dV/dt in V/μs	550	400	200	150
k_0 in V^2/μs	429 000	312 000	156 000	117 000

Impedance Z versus frequency f

(typical values)