Film Capacitors

EMI Suppression Capacitors (MKP)

Series/Type: **B32921C/D ... B32926C/D**

Date: February 2008

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

Climatic
- Max. operating temperature: 110 °C
- Climatic category (IEC 60068-1): 40/105/56

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

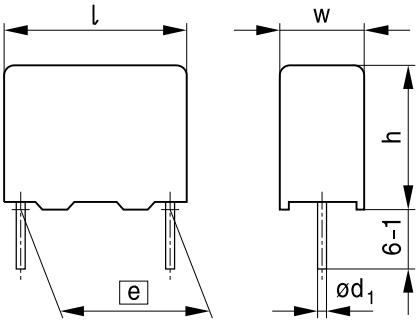
Features
- Very small dimensions
- Self-healing properties

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



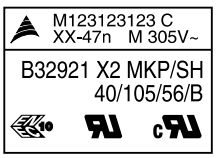
KMK0826-Q-E

Dimensions in mm

Lead spacing e ±0.4	Lead diameter d_1	Type
10	0.6	B32921
15	0.8	B32922
22.5	0.8	B32923
27.5	0.8	B32924
37.5	1.0	B32926

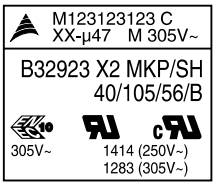
Marking Examples

e = 10 mm



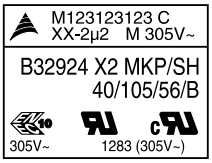
KMK0820-B

e ≥ 15 mm/C_R≤1 µF



KMK0821-J

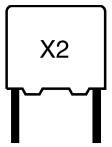
e = 22.5, 27.5,
37 mm/C_R>1 µF



KMK0822-S

Approvals

Marks of conformity	Standards	Certificate
	EN 132400, IEC 60384-14	40010694
	UL 1414 / UL 1283	E97863 / E157153
	CSA C22.2 No.1 / No. 8	E97863 / E157153 (approved by UL)
	CQC (GB/T 14472-1998)	CQC001007-14859



Overview of available types

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
Type	B32921	B32922	B32923	B32924	B32926
C_R (µF)					
0.010					
0.022					
0.033					
0.047					
0.068					
0.10					
0.15					
0.22					
0.33					
0.47					
0.68					
1.0					
1.5					
2.2					
3.3					
4.7					
6.8					
10					

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	B32921C3103+*** ◆	1000	1700	1000
	0.022	4.0 × 9.0 × 13.0	B32921C3223+*** ◆	1000	1700	1000
	0.033	4.0 × 9.0 × 13.0	B32921C3333+*** ◆	1000	1700	1000
	0.047	5.0 × 11.0 × 13.0	B32921C3473+*** ◆	830	1300	1000
	0.068	6.0 × 12.0 × 13.0	B32921C3683+***	680	1100	1000
	0.10	6.0 × 12.0 × 13.0	B32921C3104M***	680	1100	1000
15	0.033	5.0 × 10.5 × 18.0	B32922C3333K***	1170	1300	1000
	0.047	5.0 × 10.5 × 18.0	B32922C3473K***	1170	1300	1000
	0.068	5.0 × 10.5 × 18.0	B32922C3683K*** ◆	1170	1300	1000
	0.10	5.0 × 10.5 × 18.0	B32922C3104+*** ◆	1170	1300	1000
	0.15	6.0 × 12.0 × 18.0	B32922C3154+*** ◆	960	1100	1000
	0.22	7.0 × 12.5 × 18.0	B32922C3224+*** ◆	830	900	1000
	0.33	8.0 × 14.0 × 18.0	B32922C3334M*** ◆	730	750	500
	0.33	8.5 × 14.5 × 18.0	B32922D3334K***	680	700	500
	0.47	9.0 × 17.5 × 18.0	B32922C3474+*** ◆	640	700	500
	0.68	11.0 × 18.5 × 18.0	B32922C3684+*** ◆	–	550	250
22.5	0.22	6.0 × 15.0 × 26.5	B32923C3224+***	680	700	720
	0.33	6.0 × 15.0 × 26.5	B32923C3334M***	680	700	720
	0.33	7.0 × 16.0 × 26.5	B32923D3334K***	580	600	630
	0.47	8.5 × 16.5 × 26.5	B32923C3474+***	480	500	510
	0.68	10.5 × 16.5 × 26.5	B32923C3684+***	390	400	540
	1.0	11.0 × 20.5 × 26.5	B32923C3105+*** ◆	370	350	510
	1.5	12.0 × 22.0 × 26.5	B32923C3155M***	–	–	450
	2.2	14.5 × 29.5 × 26.5	B32923C3225+*** ■	–	–	260

◆ Preferred type

■ Not for new design

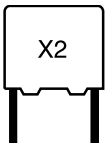
For new design, please refer to the B3292xE/F data sheet.
Further intermediate capacitance values on request.

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)



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
27.5	0.68	11.0 × 19.0 × 31.5	B32924C3684+***	–	350	320
	1.0	11.0 × 19.0 × 31.5	B32924C3105+***	–	350	320
	1.5	12.5 × 21.5 × 31.5	B32924C3155+*** ◆	–	300	280
	2.2	14.0 × 24.5 × 31.5	B32924C3225+*** ■	–	–	260
	3.3	16.0 × 32.0 × 31.5	B32924D3335K*** ■	–	–	220
	3.3	18.0 × 27.5 × 31.5	B32924C3335M*** ■	–	–	200
	4.7	18.0 × 33.0 × 31.5	B32924C3475M*** ■	–	–	200
	4.7	21.0 × 31.0 × 31.5	B32924D3475K*** ■	–	–	180
37.5	2.2	14.0 × 25.0 × 41.5	B32926C3225+*** ■	–	–	115
	3.3	16.0 × 28.5 × 41.5	B32926C3335+*** ■	–	–	100
	4.7	18.0 × 32.5 × 41.5	B32926C3475+*** ■	–	–	90
	6.8	20.0 × 39.5 × 41.5	B32926C3685+*** ■	–	–	75
	10.0	28.0 × 42.5 × 41.5	B32926C3106+*** ■	–	–	55

◆ Preferred type

■ Not for new design

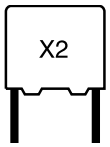
For new design, please refer to the B3292xE/F data sheet.
Further intermediate capacitance values on request.

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)

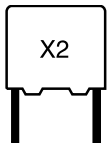


B32921C/D ... B32926C/D

X2 / 305 VAC

Technical data

Max. operating temperature $T_{op,max}$	+110 °C			
Dissipation factor tan δ (in 10^{-3}) at 20 °C (upper limit values)		$C_R \leq 0.1$ µF	0.1µF$< C_R \leq$2.2 µF	$C_R >$2.2 µF
	at 1 kHz	1.0	1.0	2.0
	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 µF	$C_R >$0.33 µF		
	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)	305 V (50/60 Hz)			
Operating AC voltage V_{op} at high temperature	$T_A \leq$ 110 °C	$V_{op} = V_{AC}$	(continuously)	
	$T_A \leq$ 110 °C	$V_{op} = 1.25 \cdot V_{AC}$	(1000 h)	
Damp heat test Limit values after damp heat test	56 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			



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 $V^2/\mu s$.

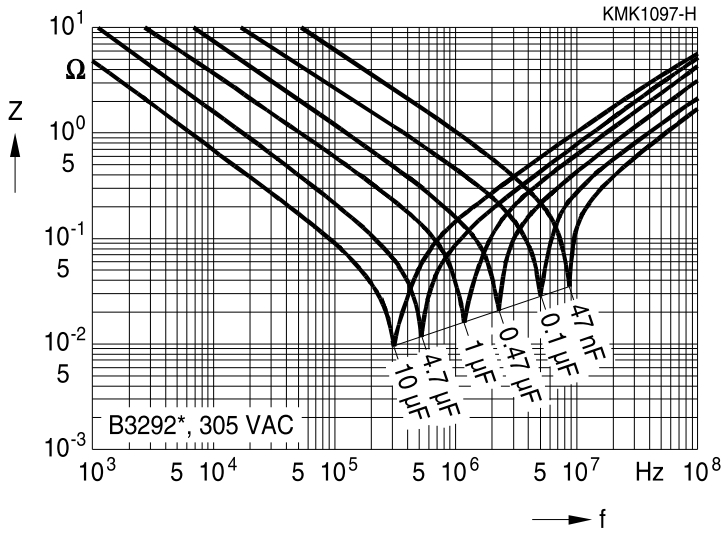
Note:
The values of dV/dt and k_0 provided below must not be exceeded in order to avoid damaging the capacitor.

dV/dt and k_0 values

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
Version	C/D	C/D	C/D	C/D	C/D
dV/dt in V/µs	475	340	170	120	80
k_0 in $V^2/\mu s$	408500	292400	146200	103200	68800

Impedance Z versus frequency f

(typical values)



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