



## Film Capacitors

EMI Suppression Capacitors (MKP)  
Not for new design

**Series/Type:** B32921A/B/T ...  
B32926A/B/T

**Date:** March 2008

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B32924A2225K189	B32924F3225K*	2008-11-21	2009-09-30	2009-12-31
B32924A2225K000	B32924F3225K*	2008-11-21	2009-09-30	2009-12-31
B32924A2155M289	B32924C3155M*	2008-11-21	2009-09-30	2009-12-31

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Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B32924A2155M189	B32924C3155M*	2008-11-21	2009-09-30	2009-12-31
B32924A2155M000	B32924C3155M*	2008-11-21	2009-09-30	2009-12-31
B32924A2105M289	B32924C3105*	2008-11-21	2009-09-30	2009-12-31
B32924A2105M189	B32924C3105*	2008-11-21	2009-09-30	2009-12-31
B32924A2105M000	B32924C3105*	2008-11-21	2009-09-30	2009-12-31
B32924A2105K289	B32924C3105*	2008-11-21	2009-09-30	2009-12-31
B32924A2105K189	B32924C3105*	2009-11-21	2009-09-30	2009-12-31
B32924A2105K000	B32924C3105*	2008-11-21	2009-09-30	2009-12-31
B32923B2684M289	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2684M189	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2684M000	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2684K289	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2684K189	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2684K000	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923B2474M289	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923B2474M189	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923B2474M000	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923B2474K289	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923B2474K189	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923B2474K000	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923A2684M289	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923A2684M189	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923A2684M000	B32923C3684*	2008-11-21	2009-09-30	2009-12-31
B32923A2474M189	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923A2474M000	B32923C3474*	2008-11-21	2009-09-30	2009-12-31
B32923A2334M289	B32923C3334M*	2008-11-21	2009-09-30	2009-12-31
B32923A2334M189	B32923C3334M*	2008-11-21	2009-09-30	2009-12-31
B32923A2334M000	B32923C3334M*	2008-11-21	2009-09-30	2009-12-31
B32923A2334K289	B32923D3334K*	2008-11-21	2009-09-30	2009-12-31
B32923A2334K189	B32923D3334K*	2008-11-21	2009-09-30	2009-12-31
B32923A2334K000	B32923D3334K*	2008-11-21	2009-09-30	2009-12-31
B32923A2105M289	B32923C3105M	2008-11-21	2009-09-30	2009-12-31
B32923A2105M189	B32923C3105M	2008-11-21	2009-09-30	2009-12-31
B32923A2105M000	B32923C3105M	2008-11-21	2009-09-30	2009-12-31
B32922T3224M289	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T3224M189	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T3224M000	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T3224K289	B32922C3224*	2008-11-21	2009-09-30	2009-12-31



Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B32922T3224K189	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T3224K000	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2334M189	B32922C3334M*	2008-11-21	2009-09-30	2009-12-31
B32922T2334M000	B32922C3334M*	2008-11-21	2009-09-30	2009-12-31
B32922T2334K189	B32922T3334K*	2008-11-21	2009-09-30	2009-12-31
B32922T2334K000	B32922T3334K*	2008-11-21	2009-09-30	2009-12-31
B32922T2224M289	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2224M189	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2224M000	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2224K289	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2224K189	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32922T2224K000	B32922C3224*	2008-11-21	2009-09-30	2009-12-31
B32921A3103*	B32921C3103*	2008-11-21	2009-09-30	2009-12-31
B32921A2683M289	B32921C3683*	2008-11-21	2009-09-30	2009-12-31
B32921A2683M189	B32921C3683*	2008-11-21	2009-09-30	2009-12-31
B32921A2683M000	B32921C3683*	2008-11-21	2009-09-30	2009-12-31
B32921A2473M289	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2473M189	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2473M000	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2473K289	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2473K189	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2473K000	B32921C3473*	2008-11-21	2009-09-30	2009-12-31
B32921A2104M289	B32921C3104M*	2008-11-21	2009-09-30	2009-12-31
B32921A2104M189	B32921C3104M*	2008-11-21	2009-09-30	2009-12-31
B32921A2104M000	B32921C3104M*	2008-11-21	2009-09-30	2009-12-31
B32923T3334M289	B32923D3334M*	2009-06-05	2009-12-31	2010-03-31
B32923T3334M189	B32923D3334M*	2009-06-05	2009-12-31	2010-03-31
B32923T3334M000	B32923D3334M*	2009-06-05	2009-12-31	2010-03-31
B32923T3334K289	B32923D3334K*	2009-06-05	2009-12-31	2010-03-31
B32923T3334K189	B32923D3334K*	2009-06-05	2009-12-31	2010-03-31
B32923T3334K000	B32923D3334K*	2009-06-05	2009-12-31	2010-03-31
B32924B2155M289	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924B2155M189	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924B2155M000	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924B2155K289	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924B2155K189	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924B2155K000	B32924C3155*	2008-11-21	2009-09-30	2009-12-31
B32924A2475M289	B32924E3475M*	2008-11-21	2009-09-30	2009-12-31



Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B32924A2475M189	B32924E3475M*	2008-11-21	2009-09-30	2009-12-31
B32924A2475M000	B32924E3475M*	2008-11-21	2009-09-30	2009-12-31
B32924A2335M289	B32924E3335M*	2008-11-21	2009-09-30	2009-12-31
B32924A2335M189	B32924E3335M*	2008-11-21	2009-09-30	2009-12-31
B32924A2335M000	B32924E3335M*	2008-11-21	2009-09-30	2009-12-31
B32924A2225M289	B32924E3225M*	2008-11-21	2009-09-30	2009-12-31
B32924A2225M189	B32924E3225M*	2008-11-21	2009-09-30	2009-12-31
B32924A2225M000	B32924E3225M*	2008-11-21	2009-09-30	2009-12-31
B32924A2225K289	B32924F3225K*	2008-11-21	2009-09-30	2009-12-31

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**X2 / 305 VAC**
**Not for new design**
**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**

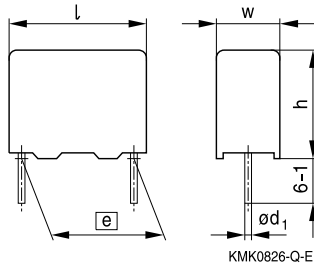
Manufacturer's logo, lot number, date code, rated capacitance (coded), cap. tolerance (code letter), rated AC voltage, series number, sub-class (X2), dielectric code (MKP), climatic category, passive flammability category, approvals.

**Delivery mode**

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

**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

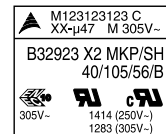
**Dimensional drawing**


Dimensions in mm

Lead spacing $e \pm 0.4$	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**
 $e = 10 \text{ mm}$ 

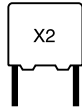

KMK0820-B

 $e = 22.5, 27.5, 37 \text{ mm}/C_R > 1 \mu\text{F}$ 
 $e \geq 15 \text{ mm}/C_R \leq 1 \mu\text{F}$ 


KMK0821-J



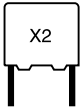
KMK0822-S



Not for new design

**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
$C_R$ ( $\mu F$ )					
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					
5.6					
6.8					
8.2					


**B32921A/B/T ... B32926A/B/T**
**X2 / 305 VAC**

Not for new design

**Ordering codes and packing units**

Lead spacing	C <sub>R</sub>	Max. dimensions w × h × l	Ordering code (composition see below)	Ammo pack	Reel	Untaped
mm	μF	mm		pcs./unit	pcs./unit	pcs./unit
10	0.047	6.0 × 12.0 × 13.0	B32921A2473+***	680	1100	1000
	0.068	6.0 × 12.0 × 13.0	B32921A2683M***	680	1100	1000
	0.10	6.0 × 12.0 × 13.0	B32921A2104M***	680	1100	1000
15	0.068	6.0 × 11.0 × 18.0	B32922A2683+***	960	1100	1000
	0.10	6.0 × 11.0 × 18.0	B32922A2104+***	960	1100	1000
	0.15	7.0 × 12.5 × 18.0	B32922A2154+***	830	900	1000
	0.22	8.0 × 14.0 × 18.0	B32922T2224+***	730	750	500
	0.22	8.0 × 14.0 × 18.0	B32922T3224+***	730	750	500
	0.22	8.5 × 14.5 × 18.0	B32922A2224+***	680	700	500
	0.33	9.0 × 17.5 × 18.0	B32922A2334+***	640	700	500
	0.33	13.0 × 14.0 × 18.0	B32922T2334+***	–	500	300
	0.33	13.0 × 14.0 × 18.0	B32922T3334+***	–	500	300
22.5	0.33	7.5 × 14.0 × 26.5	B32923T3334+***	550	500	570
	0.33	8.5 × 16.5 × 26.5	B32923A2334+***	480	500	510
	0.47	8.5 × 16.5 × 26.5	B32923A2474M***	480	500	510
	0.47	10.5 × 16.5 × 26.5	B32923B2474+***	390	400	540
	0.68	10.5 × 18.5 × 26.5	B32923A2684M***	390	400	540
	0.68	10.5 × 20.5 × 26.5	B32923B2684+***	390	400	540
	1.0	12.0 × 22.0 × 26.5	B32923A2105M***	–	–	450
27.5	1.0	11.0 × 21.0 × 31.5	B32924A2105+***	–	350	320
	1.5	13.5 × 23.0 × 31.5	B32924A2155M***	–	250	260
	1.5	14.0 × 24.5 × 31.5	B32924B2155+***	–	–	260
	2.2	18.0 × 27.5 × 31.5	B32924A2225+***	–	–	200
	3.3	21.0 × 31.0 × 31.5	B32924A2335M***	–	–	180
	4.7	22.0 × 36.5 × 31.5	B32924A2475M***	–	–	160
37.5	3.3	18.0 × 32.5 × 41.5	B32926A2335+***	–	–	90
	4.7	20.0 × 39.5 × 41.5	B32926A2475M***	–	–	75
	5.6	20.0 × 39.5 × 41.5	B32926A2565M***	–	–	75
	6.8	28.0 × 42.5 × 41.5	B32926A2685M***	–	–	55
	8.2	28.0 × 42.5 × 41.5	B32926A2825M***	–	–	55

For new design, please refer to the B3292xE/F data sheet for C<sub>R</sub> ≥ 2.2 μF and to the B3292xC/D data sheet for C<sub>R</sub> < 2.2 μF.

**Composition of ordering code**

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

\*\*\* = Packaging code:

289 = Ammo pack

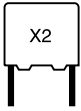
189 = Reel

000 = Untaped (lead length 6 – 1 mm)

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

Max. operating temperature $T_{op,max}$	+125 °C (for $C_R \leq 1 \mu F$ ) +110 °C (for $C_R > 1 \mu F$ )			
Dissipation factor $\tan \delta$ (in $10^{-3}$ ) at 20 °C (upper limit values)		$C_R \leq 0.1 \mu F$	$0.1 \mu F < C_R \leq 2.2 \mu F$	$C_R > 2.2 \mu F$
	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 $\leq 65\%$ (minimum as-delivered values)	$C_R \leq 0.33 \mu F$	$C_R > 0.33 \mu F$		
	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)	305 V (50/60 Hz)			
Maximum continuous DC voltage $V_{DC}$	760 V			
Operating AC voltage $V_{op}$ at high temperature	$T_A \leq 110 \text{ °C}$	$V_{op} = V_{AC}$ (continuously)		
	$T_A \leq 110 \text{ °C}$	$V_{op} = 1.25 \cdot V_{AC}$ (1000 h)		
	$110 \text{ °C} < T_A \leq 125 \text{ °C}$	$V_{op} = V_{AC}$ (1000 h)		
Damp heat test	56 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			





B32921A/B/T ... B32926A/B/T

X2 / 305 VAC

Not for new design

### 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:

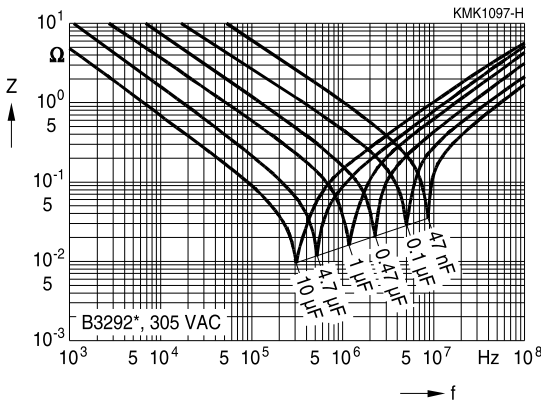
The values of dV/dt and k<sub>0</sub> provided below must not be exceeded in order to avoid damaging the capacitor.

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

Lead spacing	10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
dV/dt in V/ $\mu$ s	550	400	200	150	100
k <sub>0</sub> in V <sup>2</sup> / $\mu$ s	473000	344000	172000	129000	86000

### Impedance Z versus frequency f

(typical values)



## Important notes

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