



## Film Capacitors

### Metallized Polyester Film Capacitors (MKT)

**Series/Type:** B32232  
**Date:** August 2004

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**General purpose (wound)**
**Typical applications**

- Smoothing
- Filtering

**Climatic**

- Max. operating temperature: 100 °C
- Climatic category (IEC 60068-1): 40/100/21

**Construction**

- Dielectric: polyethylene terephthalate (polyester, PET)
- Cylindrical winding
- Insulating sleeve
- Face ends sealed with epoxy resin

**Terminals**

- Central axial wire leads, lead-free tinned

**Marking**

Manufacturer, series number, rated capacitance (coded), capacitance tolerance (code letter), rated DC voltage, date of manufacture (coded)

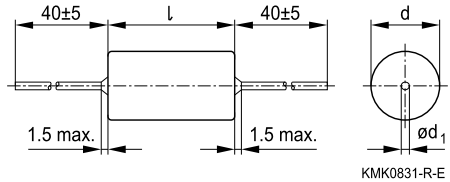
**Delivery mode**

Bulk (untaped)  
Taped (reel)

For notes on taping, refer to chapter "Taping and packing".

**Detail specification**

DIN 45910-112

**Dimensional drawing**


Dimensions in mm

Diameter d	Lead diameter d <sub>1</sub>
≤ 7.0	0.6
> 7.0	0.8

When bending leads take care to leave a clearance of 1 mm to the capacitor body.



**Overview of available types**

Type	B32232			
$V_R$ (VDC)	100	250	400	630
$V_{rms}$ (VAC)	63	160	200	200
$C_R$ ( $\mu F$ )				
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				


**B32232**
**General purpose (wound)**
**Ordering codes and packing units**

$V_R$	$V_{rms}$ $f \leq 60$ Hz	$C_R$	Max. dimensions $d \times l$ mm	Ordering code (composition see below)	Reel pcs./unit	Untaped pcs./unit
VDC	VAC	$\mu F$				
100	63	0.10	6.0 × 14.0	B32232A1104+***	1000	500
		0.15	6.0 × 14.0	B32232A1154+***	1000	500
		0.22	6.0 × 14.0	B32232A1224+***	1000	500
		0.33	6.0 × 19.0	B32232A1334+***	1000	500
		0.47	6.5 × 19.0	B32232A1474+***	1000	500
		0.68	7.0 × 19.0	B32232A1684+***	1000	500
		1.0	8.5 × 19.0	B32232A1105+***	1000	500
		1.5	8.0 × 27.0	B32232A1155+***	1000	500
		2.2	9.5 × 27.0	B32232A1225+***	800	500
		3.3	11.5 × 27.0	B32232A1335+***	500	500
		4.7	12.0 × 32.0	B32232A1475+***	500	500
		6.8	14.0 × 32.0	B32232A1685+***	500	250
250	160	0.10	6.0 × 14.0	B32232A3104+***	1000	500
		0.15	7.0 × 14.0	B32232A3154+***	1000	500
		0.22	6.0 × 19.0	B32232A3224+***	1000	500
		0.33	8.0 × 19.0	B32232A3334+***	1000	500
		0.47	7.5 × 19.0	B32232A3474+***	1000	500
		0.68	8.0 × 27.0	B32232A3684+***	1000	500
		1.0	10.0 × 27.0	B32232A3105+***	500	500
		1.5	11.0 × 32.0	B32232A3155+***	500	500
		2.2	10.5 × 32.0	B32232A3225+***	500	500
		3.3	14.0 × 32.0	B32232A3335+***	500	250
		4.7	16.5 × 32.0	B32232A3475+000	–	250
		6.8	16.0 × 42.0	B32232A3685+000	–	200
400	200	0.10	7.0 × 19.0	B32232A6104+***	1000	500
		0.15	8.5 × 19.0	B32232A6154+***	1000	500
		0.22	8.0 × 27.0	B32232A6224+***	1000	500
		0.33	9.5 × 27.0	B32232A6334+***	800	500
		0.47	11.0 × 27.0	B32232A6474+***	500	500
		0.68	11.5 × 32.0	B32232A6684+***	500	500
		1.0	13.5 × 32.0	B32232A6105+***	500	500

Further E series and intermediate capacitance values on request.

**Composition of ordering code**

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

J = ±5%

\*\*\* = Packaging code:

189 = Reel

000 = Untaped


**Ordering codes and packing units**

$V_R$	$V_{rms}$ $f \leq 60$ Hz	$C_R$	Max. dimensions $d \times l$	Ordering code (composition see below)	Reel	Untaped
VDC	VAC	$\mu F$	mm		pcs./unit	pcs./unit
630	200	0.033	$6.5 \times 19.0$	B32232A8333+***	1000	500
		0.047	$7.5 \times 19.0$	B32232A8473+***	1000	500
		0.068	$8.5 \times 19.0$	B32232A8683+***	1000	500
		0.10	$10.5 \times 19.0$	B32232A8104+***	500	500
		0.15	$10.0 \times 27.0$	B32232A8154+***	500	500
		0.22	$11.5 \times 27.0$	B32232A8224+***	500	500
		0.33	$13.5 \times 27.0$	B32232A8334+***	500	500
		0.47	$14.5 \times 32.0$	B32232A8474+000	–	500
		0.68	$15.0 \times 32.0$	B32232A8684+000	–	500
		1.0	$16.0 \times 32.0$	B32232A8105+000	–	500

Further E series and intermediate capacitance values on request.

**Composition of ordering code**

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**B32232**
**General purpose (wound)**
**Technical data**

Operating temperature range	Max. operating temperature $T_{op,max}$			+100 °C
	Upper category temperature $T_{max}$			+100 °C
	Lower category temperature $T_{min}$			-40 °C
	Rated temperature $T_R$			+85 °C
Dissipation factor $\tan \delta$ (in $10^{-3}$ ) at 20 °C (upper limit values)	at	$C_R \leq 47$ nF	$47$ nF < $C_R \leq 1$ $\mu$ F	$C_R > 1$ $\mu$ F
	1 kHz	10	10	10
	10 kHz	20	25	-
Insulation resistance $R_{ins}$ or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values)	$V_R$	$C_R \leq 0.33$ $\mu$ F		$C_R > 0.33$ $\mu$ F
	100 VDC	3750 M $\Omega$		1250 s
	$\geq 250$ VDC	7500 M $\Omega$		2500 s
DC test voltage	$1.4 \cdot V_R$ , 2 s			
Category voltage $V_C$ (continuous operation with $V_{DC}$ or $V_{AC}$ at $f \leq 60$ Hz)	$T_A$ (°C)	DC voltage derating		AC voltage derating
	$T_A \leq 85$	$V_C = V_R$		$V_{C,rms} = V_{rms}$
	$85 < T_A \leq 100$	$V_C = V_R \cdot (165 - T_A)/80$		$V_{C,rms} = V_{rms} \cdot (165 - T_A)/80$
Operating voltage $V_{op}$ for short operating periods ( $V_{DC}$ or $V_{AC}$ at $f \leq 60$ Hz)	$T_A$ (°C)	DC voltage (max. hours)		AC voltage (max. hours)
	$T_A \leq 100$	$V_{op} = 1.25 \cdot V_C$ (2000 h)		$V_{op} = 1.0 \cdot V_{C,rms}$ (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 $\Delta \tan \delta$			$\leq 5 \cdot 10^{-3}$ (at 1 kHz)
				$\leq 7 \cdot 10^{-3}$ (at 10 kHz)
	Insulation resistance $R_{ins}$ or time constant $\tau = C_R \cdot R_{ins}$			$\geq 20\%$ 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<sub>0</sub>" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V<sup>2</sup>/μs.

*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 values**

Length of capacitor		14 mm	19 mm	27 mm	32 mm	42 mm
V <sub>R</sub> VDC	V <sub>rms</sub> VAC	dV/dt in V/μs				
100	63	6	3	2	1.5	–
250	160	10	5	3	2.5	2
400	200	–	7	4	3	–
630	200	–	10	7	5	–

**k<sub>0</sub> values**

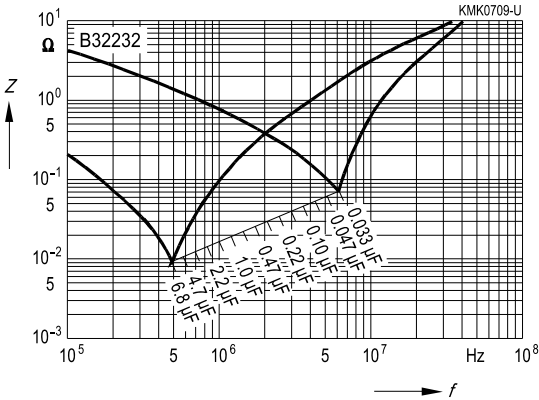
Length of capacitor		14 mm	19 mm	27 mm	32 mm	42 mm
V <sub>R</sub> VDC	V <sub>rms</sub> VAC	k <sub>0</sub> in V <sup>2</sup> /μs				
100	63	1 200	600	400	300	–
250	160	5 000	2 500	1 500	1 250	1 000
400	200	–	5 600	3 200	2 400	–
630	200	–	12 500	8 800	6 300	–



**B32232**

**General purpose (wound)**

**Impedance Z versus frequency f**  
(typical values)



**Permissible AC voltage  $V_{rms}$  versus frequency f**

Values can be obtained on request. In specific cases please provide a scaled voltage/ time graph and state operating conditions.