Film Capacitors

Metallized Polyester Film Capacitors (MKT)

Series/Type: **B32231**
Date: August 2004

Typical applications

- Smoothing
- Filtering

Climatic

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

Construction

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

Terminals

- Central axial wire leads, lead-free tinned

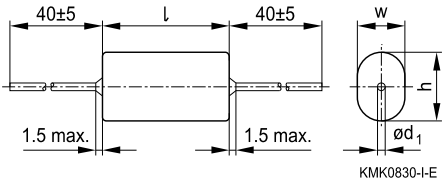
Marking

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

Delivery mode

Bulk (untaped)

Dimensional drawing



Dimensions in mm

Width w_{max}	≤6.0	>6.0 ... 13.0
Lead diameter d_1	0.6	0.8

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

Overview of available types

Type	B32231			
V_R (VDC)	100	250	400	630
V_{rms} (VAC)	63	160	200	200
C_R (µF)				
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

V_R VDC	V_{rms} f ≤60 Hz VAC	C_R µF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Untaped pcs./unit
100	63	0.15	5.5 × 8.5 × 14.0	B32231D1154+000	1500
		0.22	5.5 × 8.5 × 14.0	B32231D1224+000	1500
		0.33	5.5 × 8.5 × 14.0	B32231D1334+000	1500
		0.47	5.5 × 9.0 × 19.0	B32231D1474+000	1500
		0.68	5.5 × 9.0 × 19.0	B32231D1684+000	1500
		1.0	7.0 × 12.0 × 19.0	B32231D1105+000	1000
		1.5	8.0 × 13.0 × 19.0	B32231D1155+000	1000
		2.2	8.0 × 13.0 × 27.0	B32231D1225+000	1000
		3.3	8.0 × 15.0 × 27.0	B32231D1335+000	1000
		4.7	10.0 × 18.0 × 32.0	B32231D1475+000	500
		6.8	10.0 × 20.0 × 32.0	B32231D1685+000	500
		10	13.0 × 23.0 × 32.0	B32231D1106+000	250
250	160	0.10	5.5 × 8.5 × 14.0	B32231D3104+000	1500
		0.15	5.5 × 8.5 × 14.0	B32231D3154+000	1500
		0.22	5.5 × 9.0 × 19.0	B32231D3224+000	1500
		0.33	5.5 × 9.0 × 19.0	B32231D3334+000	1500
		0.47	6.0 × 12.0 × 19.0	B32231D3474+000	1000
		0.68	7.5 × 12.0 × 19.0	B32231D3684+000	1000
		1.0	7.5 × 12.0 × 27.0	B32231D3105+000	1000
		1.5	8.5 × 14.0 × 27.0	B32231D3155+000	1000
		2.2	8.5 × 16.0 × 27.0	B32231D3225+000	500
		3.3	10.0 × 18.0 × 32.0	B32231D3335+000	500
		4.7	13.0 × 20.0 × 32.0	B32231D3475+000	250

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:
M = ±20%
K = ±10%
J = ±5% (on request)

Ordering codes and packing units

V_R VDC	V_{rms} f ≤60 Hz VAC	C_R µF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Untaped pcs./unit
400	200	0.10	5.5 × 8.5 × 19.0	B32231D6104+000	1500
		0.15	5.5 × 9.0 × 19.0	B32231D6154+000	1500
		0.22	7.0 × 12.0 × 19.0	B32231D6224+000	1000
		0.33	7.0 × 12.0 × 19.0	B32231D6334+000	1000
		0.47	7.0 × 12.0 × 27.0	B32231D6474+000	1000
		0.68	8.0 × 14.0 × 27.0	B32231D6684+000	1000
		1.0	9.0 × 16.0 × 27.0	B32231D6105+000	500
		1.5	10.0 × 18.0 × 32.0	B32231D6155+000	250
		2.2	13.0 × 22.0 × 32.0	B32231D6225+000	250
630	200	0.10	6.0 × 11.0 × 19.0	B32231D8104+000	1000
		0.15	7.5 × 12.0 × 19.0	B32231D8154+000	1000
		0.22	8.0 × 13.0 × 19.0	B32231D8224+000	1000
		0.33	8.0 × 13.0 × 27.0	B32231D8334+000	1000
		0.47	8.0 × 14.0 × 27.0	B32231D8474+000	500
		0.68	10.0 × 16.0 × 32.0	B32231D8684+000	500
		1.0	13.0 × 18.0 × 32.0	B32231D8105+000	250

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:
M = ±20%
K = ±10%
J = ±5% (on request)

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 δ (in 10^{-3})	at	0.10 µF < C_R ≤ 1 µF	C_R > 1 µF
at 20 °C	1 kHz	10	10
(upper limit values)	10 kHz	25	−
Insulation resistance R_{ins}	V_R	C_R ≤ 0.33 µF	C_R > 0.33 µF
or time constant $\tau = C_R \cdot R_{ins}$	100 VDC	3750 MΩ	1250 s
at 20 °C, rel. humidity ≤ 65%	≥ 250 VDC	7500 MΩ	2500 s
(minimum as-delivered values)			
DC test voltage	1.4 · V_R, 2 s		
Category voltage V_C	T_A (°C)	DC voltage derating	AC voltage derating
(continuous operation with V_{DC}	$T_A \leq 85$	$V_C = V_R$	$V_{C,rms} = V_{rms}$
or V_{AC} at f ≤ 60 Hz)	85<T_A≤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	T_A (°C)	DC voltage (max. hours)	AC voltage (max. hours)
short operating periods	$T_A \leq 100$	$V_{op} = 1.25 \cdot V_C$ (2000 h)	$V_{op} = 1.0 \cdot V_{C,rms}$ (1000 h)
(V_{DC} or V_{AC} at f ≤ 60 Hz)			
Damp heat test	21 days/40 °C/93% relative humidity		
Limit values after damp	Capacitance change |ΔC/C|		≤ 5%
heat test	Dissipation factor change Δ tan δ		≤ 5 · 10^{-3} (at 1 kHz)
			≤ 7 · 10^{-3} (at 10 kHz)
	Insulation resistance R_{ins}		≥ 20% of minimum
	or time constant $\tau = C_R \cdot R_{ins}$		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.

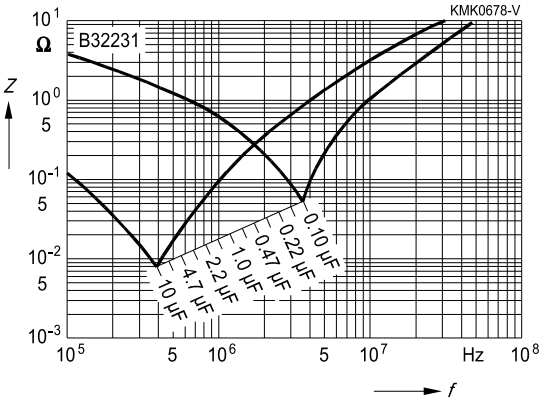
dV/dt values

Lenght of capacitor		14 mm	19 mm	27 mm	32 mm
V_R VDC	V_{rms} VAC	dV/dt in V/µs			
100	63	6	3	2	1.5
250	160	10	5	3	2.5
400	200	–	7	4	3
630	200	–	10	7	5

k_0 values

Lenght of capacitor		14 mm	19 mm	27 mm	32 mm
V_R VDC	V_{rms} VAC	k_0 in $V^2/\mu s$			
100	63	1 200	600	400	300
250	160	5 000	2 500	1 500	1 250
400	200	–	5 600	3 200	2 400
630	200	–	12 500	8 800	6 300

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.