



Film capacitors – Power electronic capacitors

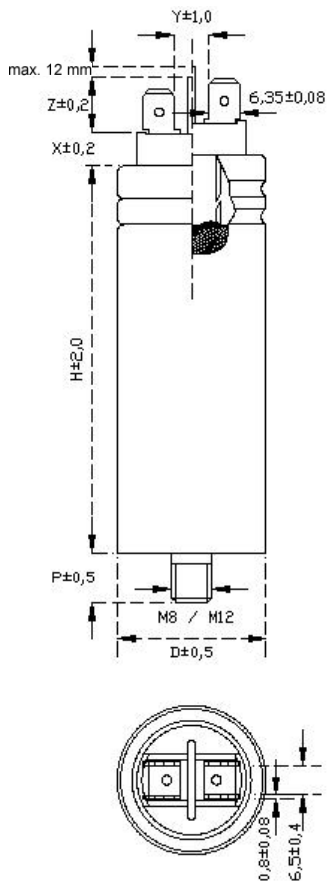
General purpose applications

Series/Type: B3236*
Date: June 2007
Version: 3

Preliminary data

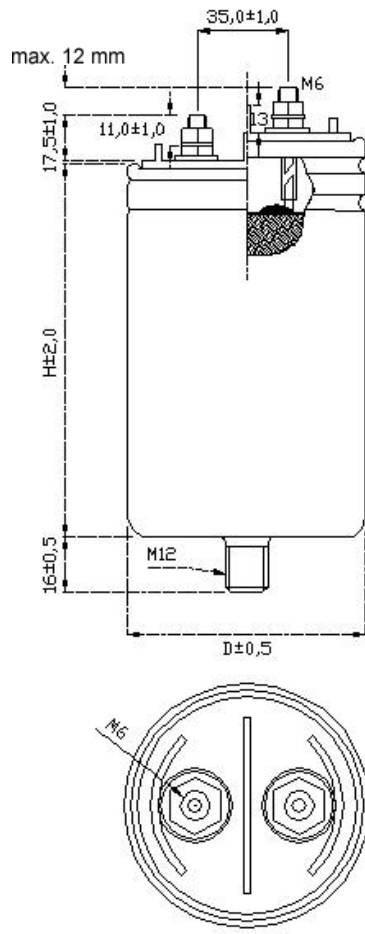
Metallized polypropylene film capacitors - aluminum case for general purpose applications

B32360
Fast-on terminals



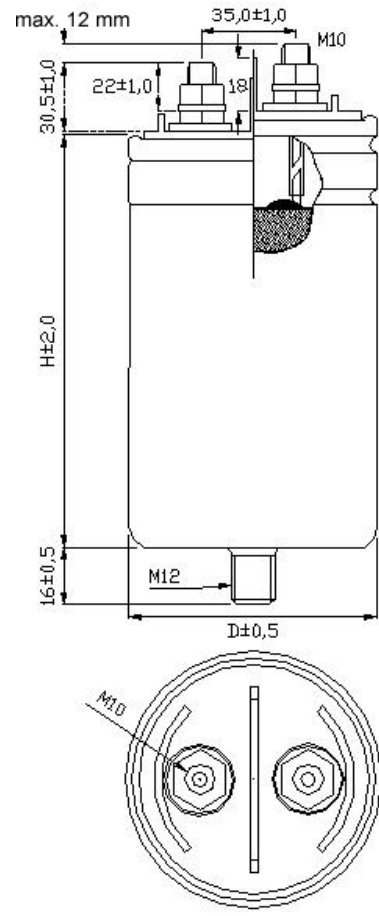
Picture 1

B32361
M6 screw terminals



Picture 2

B32362
M10 screw terminals



Picture 3

- X = 5 mm (D < 53 mm)
0 mm (D ≥ 53 mm)
- Y = 8.30 mm (D ≥ 40 mm)
6.30 mm (D < 40 mm)
- Z = 13.5 mm (D < 53 mm)
13 mm (D ≥ 53 mm)
- P = 10 mm (M8)
16 mm (M12)

Preliminary data
Specifications and characteristics

Rated capacitance C_R : 3 μ F ... 600 μ F
 Tolerance: $\pm 5\%$

Rated AC voltage V_{RMS}	Rated AC voltage V_R	Repetitive peak voltage V_{max}	Non repetitive peak voltage
250 V	350 V	450 V	550 V
330 V	460 V	600 V	700 V
480 V	680 V	850 V	1000 V

Test data

Voltage between terminals V_{TT} : $2.15 \cdot V_{RMS}$, 2 s
 Voltage between terminals and aluminum can V_{TC} : 3000 V AC, 10 s
 Dissipation factor $\tan \delta$ at 50 Hz: $\leq 1.0 \cdot 10^{-3}$
 Life test: IEC 1071-1/2
 Life expectancy: 100000 hours for $V_{RMS} |\Delta C/C| \leq 3\%$

Climatic category: 40/70/21

θ_{stg} : $-40\text{ }^\circ\text{C} \dots +85\text{ }^\circ\text{C}$
 θ_{min} : $-40\text{ }^\circ\text{C}$
 θ_{max} : $+70\text{ }^\circ\text{C}$
 θ_{hs} : $+85\text{ }^\circ\text{C}$
 Max. permissible humidity: 95% ($t_{test} = 21$ days)
 Max. permissible altitude: 2000 m above sea level

Mechanical characteristics

Max. torque (case): M8: 4 Nm
 M12: 10 Nm
 Max. torque (terminal): M6: 2 Nm
 M10: 7 Nm

Construction and general data

Resin filling: Non PCB, soft polyurethane
 Safety device: Overpressure disconnecter, self-healing technology
 Mounting and grounding: Stud on bottom of aluminum can
 Cooling: Naturally air-cooled (or forced air cooling)
 Degree of protection: Indoor mounting
 Reference standards: IEC 1071
 UL approval file: E106388

Preliminary data
Electrical characteristics

Clearance and creepage distances:

Series	Diameter (mm)	Terminal to terminal		Terminal to case	
		Clearance (mm)	Creepage (mm)	Clearance (mm)	Creepage (mm)
B32360	40	10	14	14	15
	53	10	13	12	12
	63	10	13	19	19
B32361	63	23	30	13	12
B32362	75	25	55	14	16
	85	25	63	17	19

Maximum current I_{\max}

The maximum RMS current for continuous operation

Maximum peak current \hat{i}

The maximum current amplitude which occurs instantaneously during continuous operation.

The maximum peak current (\hat{i}) and the maximum rate of voltage rise $(dV/dt)_{\max}$ on a capacitor are related as follows:

$$\hat{i} = C \cdot (dV/dt)_{\max}$$

Maximum surge current I_s

The admissible peak current induced by a switching or any other disturbance of the system which is allowed for a limited number of times.

$$I_s = C \cdot (dV/dt)_s$$

Maximum duration: 50 ms/pulse

Maximum number of occurrences: 1000 (during load)

Preliminary data
Technical data and ordering codes
B32360

V_R V_{RMS}	C_R	Ordering code	I_{max}	\hat{i}	I_s	D	H	Stud	Weight	Packing units
	μF									
350 V AC 250 V AC	10	B32360A2106J050	6	300	0.9	40	68	M8	0.1	45
	15	B32360A2156J050	10	450	1.3	40	68	M8	0.1	45
	20	B32360A2206J050	10	500	1.5	40	68	M8	0.1	45
	25	B32360B2256J050	12	600	1.9	40	78	M8	0.2	45
	30	B32360A2306J050	15	750	2.2	53	70	M8	0.2	12
	40	B32360A2406J050	16	1000	3.0	53	70	M8	0.2	12
	50	B32360A2506J050	16	900	2.8	53	82	M8	0.2	12
	60	B32360A2606J050	16	1100	3.3	53	82	M8	0.2	12
	70	B32360A2706J050	16	1300	3.8	63.5	82	M12	0.3	12
	80	B32360A2806J050	16	1500	4.4	63.5	82	M12	0.3	12
	100	B32360A2107J050	16	1200	3.6	63.5	107	M12	0.4	12
	150	B32360B2157J050	16	1300	4.0	63.5	132	M12	0.5	12

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V_R V_{RMS}	C_R	Ordering code	I_{max}	\hat{i}	I_s	D	H	Stud	Weight	Packing units
	μF									
350 V AC 250 V AC	50	B32361A2506J050	25	1250	3.8	63.5	70	M12	0.3	12
	60	B32361A2606J050	25	1500	4.5	63.5	70	M12	0.3	12
	70	B32361A2706J050	25	1300	3.8	63.5	82	M12	0.3	12
	80	B32361A2806J050	25	1500	4.4	63.5	82	M12	0.3	12
	100	B32361A2107J050	25	1200	3.6	63.5	107	M12	0.4	12
	150	B32361A2157J050	25	1300	4.0	63.5	132	M12	0.5	12
	200	B32361B2207J050	25	1600	4.8	63.5	142	M12	0.6	12

B32362

V_R V_{RMS}	C_R	Ordering code	I_{max}	\hat{i}	I_s	D	H	Stud	Weight	Packing units
	μF									
350 V AC 250 V AC	150	B32362A2157J050	35	1800	5.4	75	117	M12	0.7	6
	200	B32362B2207J050	50	2400	7.2	85	117	M12	0.8	4
	250	B32362A2257J050	40	2000	6.0	75	152	M12	0.9	6
	300	B32362A2307J050	50	3600	10.8	75	197	M12	1.1	6
	400	B32362A2407J050	50	4800	14.4	85	197	M12	1.3	4
	500	B32362B2507J050	50	4400	13.3	85	247	M12	1.7	4
	600	B32362B2607J050	50	5300	16.0	85	247	M12	1.7	4

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.
460 V AC 330 V AC	10	B32360A3106J030	6	300	0.9	53	70	M8	0.2	12
	15	B32360A3156J030	10	450	1.3	53	70	M8	0.2	12
	20	B32360A3206J030	12	600	1.8	53	70	M8	0.2	12
	25	B32360A3256J030	15	750	2.3	53	70	M8	0.2	12
	30	B32360A3306J030	15	650	2.0	53	82	M8	0.2	12
	40	B32360B3406J030	12	850	2.7	53	82	M8	0.2	12
	50	B32360A3506J030	15	700	2.2	53	107	M8	0.3	12
	60	B32360B3606J030	16	850	2.6	53	107	M8	0.3	12
	70	B32360A3706J030	16	1000	3.0	63.5	107	M12	0.4	12
	80	B32360A3806J030	16	1150	3.5	63.5	107	M12	0.4	12
	100	B32360B3107J030	16	1050	3.2	63.5	132	M12	0.5	12

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.	
460 V AC 330 V AC	50	B32361B3506J030	15	920	2.7	63.5	82	M12	0.3	12	
	60	B32361A3606J030	18	720	2.1	63.5	107	M12	0.4	12	
	70	B32361A3706J030	20	840	2.5	63.5	107	M12	0.4	12	
	80	B32361A3806J030	25	960	2.8	63.5	107	M12	0.4	12	
		100	B32361B3107J030	25	880	2.6	63.5	132	M12	0.5	12

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.
460 V AC 330 V AC	100	B32362A3107J030	30	1450	4.3	75	117	M12	0.7	6
	150	B32362A3157J030	30	1450	4.3	75	152	M12	0.9	6
	200	B32362B3207J030	40	1900	5.8	85	152	M12	1.0	4
	250	B32362A3257J030	50	3600	10.8	85	197	M12	1.3	4
	300	B32362A3307J030	50	4300	12.9	85	197	M12	1.3	4
	400	B32362A3407J030	50	3850	11.6	85	267	M12	1.8	4

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.
680 V AC 480 V AC	3	B32360A4305J080	3	120	0.4	40	68	M8	0.1	45
	5	B32360A4505J080	5	200	0.6	40	68	M8	0.1	45
	10	B32360A4106J080	10	400	1.2	53	70	M8	0.2	12
	15	B32360A4156J080	15	600	1.8	53	70	M8	0.2	12
	20	B32360A4206J080	15	600	1.7	53	82	M8	0.2	12
	25	B32360A4256J080	12	500	1.4	53	107	M8	0.3	12
	30	B32360A4306J080	15	600	1.7	53	107	M8	0.3	12
	40	B32360A4406J080	16	750	2.3	63.5	107	M12	0.4	12
	50	B32360A4506J080	16	950	2.9	63.5	107	M12	0.4	12
	60	B32360A4606J080	16	850	2.6	63.5	132	M12	0.5	12
	70	B32360A4706J080	16	900	2.7	63.5	142	M12	0.6	12

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.
680 V AC 480 V AC	20	B32361A4206J080	20	800	2.4	63.5	70	M12	0.3	12
	25	B32361A4256J080	25	750	2.2	63.5	82	M12	0.3	12
	30	B32361A4306J080	25	800	2.6	63.5	82	M12	0.3	12
	40	B32361A4406J080	20	750	2.3	63.5	107	M12	0.4	12
	50	B32361A4506J080	25	950	2.9	63.5	107	M12	0.4	12
	60	B32361A4606J080	25	850	2.6	63.5	132	M12	0.5	12
	70	B32361A4706J080	25	900	2.7	63.5	142	M12	0.6	12

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V_R V_{RMS}	C_R μF	Ordering code	I_{max} A	\hat{i} A	I_s kA	D mm	H mm	Stud	Weight kg	Packing units pcs.
680 V AC 480 V AC	60	B32362A4606J080	30	1150	3.4	75	117	M12	0.7	6
	70	B32362A4706J080	50	2050	6.2	75	147	M12	0.9	6
	80	B32362A4806J080	50	1350	7.1	75	147	M12	0.9	6
	100	B32362A4107J080	50	1900	5.7	75	197	M12	1.1	6
	150	B32362A4157J080	50	2850	8.6	85	197	M12	1.3	4
	200	B32362A4207J080	50	2850	8.5	85	247	M12	1.7	4
	250	B32362A4257J080	50	3200	9.6	85	267	M12	1.8	4

Preliminary data

Cautions and warnings

- In case of dents of more than 1 mm depth or any other mechanical damage, capacitors must not be used at all. This applies also in cases of leakage.
- To ensure the full functionality of the overpressure disconnecter, elastic elements must not be hindered and a minimum space of 12 mm has to be kept above each capacitor.
- Check tightness of the connections/terminals periodically.
- The energy stored in capacitors may be lethal. To prevent any chance of shock, discharge and short-circuit the capacitor before handling.
- Failure to follow cautions may result, worst case, in premature failures, bursting and fire.
- EPCOS AG is not responsible for any kind of possible damages to persons or things due to improper installation and application of capacitors for power electronics.

Safety

- Electrical or mechanical misapplication of capacitors may be hazardous. Personal injury or property damage may result from bursting of the capacitor or from expulsion of oil or melted material due to mechanical disruption of the capacitor.
- Ensure good, effective grounding for capacitor enclosures.
- Observe appropriate safety precautions during operation (self-recharging phenomena and the high energy contained in capacitors).
- Handle capacitors carefully, because they may still be charged even after disconnection.
- The terminals of capacitors, connected bus bars and cables as well as other devices may also be energized.
- Follow good engineering practice.

Thermal load

After installation of the capacitor it is necessary to verify that maximum hot-spot temperature is not exceeded at extreme service conditions.

Mechanical protection

The capacitor has to be installed in a way that mechanical damages and dents in the aluminum can are avoided.

Storage and operating conditions

Do not use or store capacitors in corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. In dusty environments regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phases and/or phases and ground.

The maximum storage temperature is 85 °C.

Preliminary data

Overpressure disconnecter

To ensure full functionality of an overpressure disconnecter, the following must be observed:

1. The elastic elements must not be hindered, i.e.
 - connecting lines must be flexible leads (cables).
 - there must be sufficient space for expansion above the connections.
 - folding crimps must not be retained by clamps.
2. Stress parameters of the capacitor must be within the IEC61071 specification.

Service life expectancy

Electrical components do not have an unlimited service life expectancy; this applies to self-healing capacitors, too. The maximum service life expectancy may vary depending on the application the capacitor is used in.

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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