Film Capacitors – Power Electronic Capacitors

General purpose applications

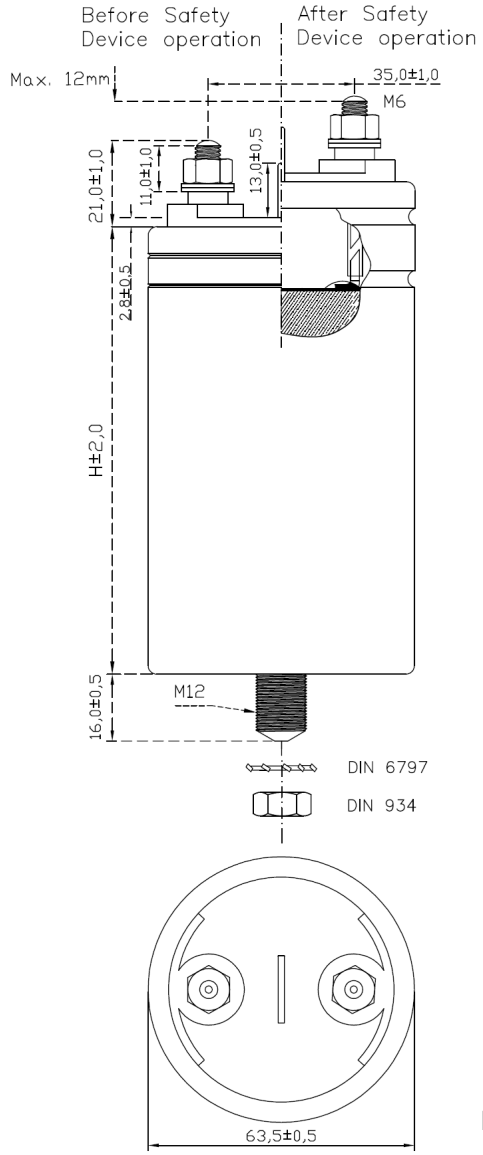
Series/Type:	**MKP AC**
Ordering code:	**B3236***
Date:	August 2013
Version:	5.0

EPCOS AG is a TDK Group Company.

Construction and general data

- Resin filling: Non PCB, soft polyurethane
- Safety device: Overpressure disconnector, 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
- Pollution degree: PD4
- Reference standards: IEC 1071
- UL approval file: E106388

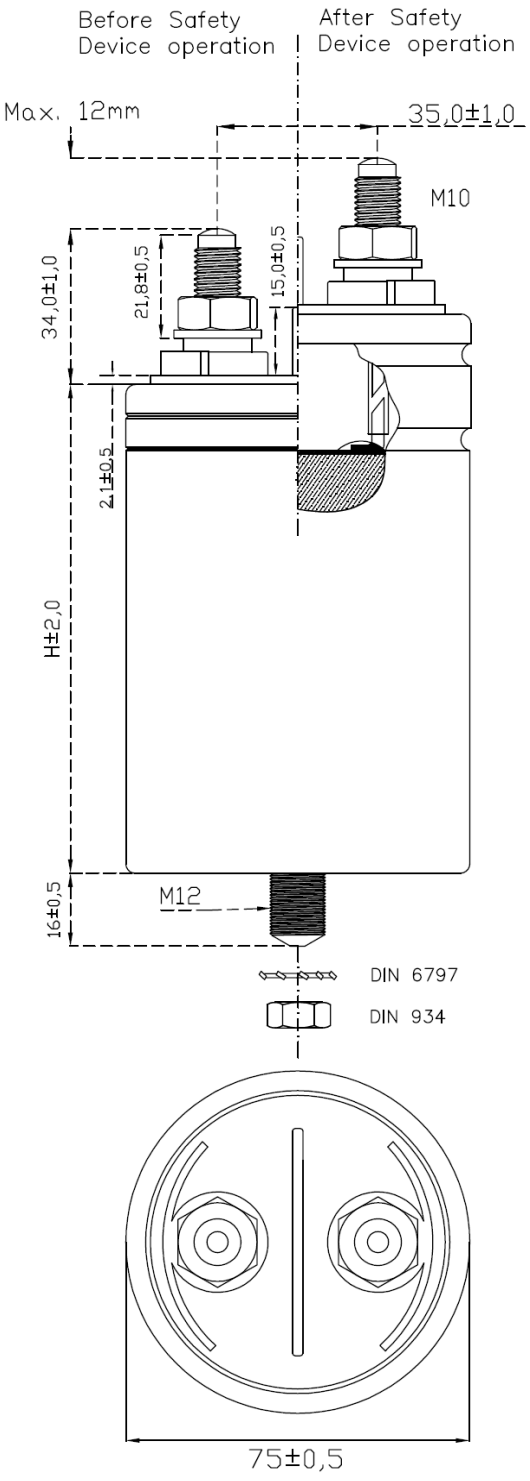
Metallized polypropylene film capacitors - aluminum case for general purpose applications



B32361: M6 screw terminals

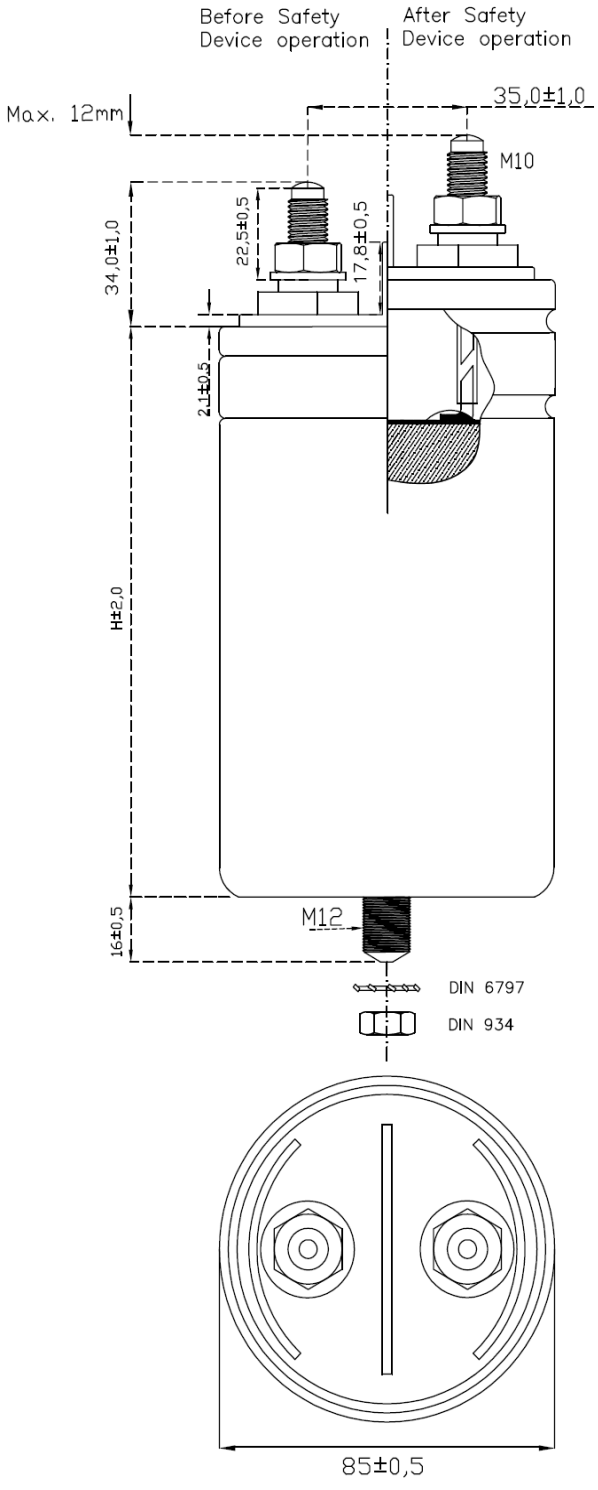
Picture 1

B32362: M10 screw terminals
D = 75 mm



Picture 2

B32362: M10 screw terminals
D = 85 mm

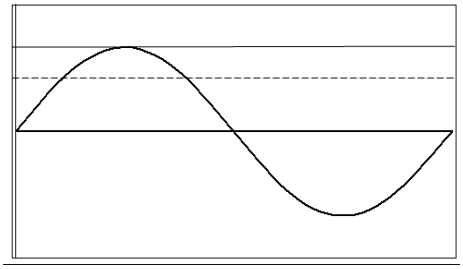


Picture 3

Specifications and characteristics

Rated capacitance C_R: 10 µF … 600 µF
Tolerance: ±5%

Rated AC voltage V_{RMS}	Rated AC voltage V_{RAC}	Rated DC voltage V_{RDC}	Repetitive peak voltage V_N	Non repetitive peak voltage V_S
250 V	350 V	750 V	450 V	1125 V
330 V	460 V	900 V	600 V	1350 V
480 V	680 V	1200 V	850 V	1800 V



Test data	
Voltage between terminals V_{TT}:	2.15 · V_{RMS}, 2 s
Voltage between terminals and aluminum can V_{TC}:	4000 V $_{RMS}$, 2 s
Dissipation factor tan δ at 100 Hz:	≤ 1.0 · 10^{-3}
Life test:	IEC 61071
Life expectancy:	100 000 hours for V_{RMS} $\lvert\Delta C/C\rvert \leq 3\%$
Climatic category: 40/70/21	
θ_{stg*}:	–40 °C ... +85 °C
θ_{min}:	–40 °C
θ_{max}**:	+70 °C C
θ_{hs***}:	+85 °
Max. permissible humidity:	95% (t_{test} = 21 days)
Max. permissible altitude:	2000 m above sea level
Mechanical characteristics	
Max. torque (case):	M12: 12 Nm
Max. torque (terminal):	M6: 4 Nm
	M10: 10 Nm

*: θ_{stg} – Storage temperature.

**: Considering mounting position with terminals to the top. For other mounting position, please request evaluation.

***: θ_{hs} – Maximimum temperature allowed at the capacitors hot spot.

Electrical characteristics: Clearance and creepage distances

Series	Diameter (mm)	Terminal to terminal		Terminal to case	
		Clearance (mm)	Creepage (mm)	Clearance (mm)	Creepage (mm)
B32361	63.5	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 î

The maximum current amplitude which occurs instantaneously during continuous operation.
The maximum peak current (Î) 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)

Series Resistance R_s

The series resistance of a capacitor is the result of the resistive losses that occur in the electrodes, in the contacting and in the inner wiring.
The series resistance Rs generates the ohmic losses (I^2.Rs) in a capacitor, and it is largely independent of frequency.

Self-Inductance L_{self}

The self-inductance is produced by the inductance of the terminals and the windings.
With Self-Inductance, it is possible to determine the Resonance Frequency.

$$F = \frac{1}{2\pi\sqrt{L_{self}C}}$$

B32361												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
350 V AC 250 V AC	50	B32361A2506J050	25	1250	3.8	3.7	195	63.5	70	M12	0.3	12
	60	B32361A2606J050	25	1500	4.5	3.6	195	63.5	70	M12	0.3	12
	70	B32361A2706J050	25	1300	3.8	4.2	220	63.5	82	M12	0.3	12
	80	B32361A2806J050	25	1500	4.4	4.1	220	63.5	82	M12	0.3	12
	100	B32361A2107J050	25	1200	3.6	5.5	225	63.5	107	M12	0.4	12
	150	B32361A2157J050	25	1300	4.0	6.3	265	63.5	132	M12	0.5	12
	200	B32361B2207J050	25	1600	4.8	6.3	275	63.5	142	M12	0.6	12
B32362												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
350 V AC 250 V AC	150	B32362A2157J050	35	1800	5.4	2.5	185	75	117	M12	0.7	6
	200	B32362B2207J050	50	2400	7.2	2.1	185	85	117	M12	0.8	4
	250	B32362A2257J050	40	2000	6.0	3.0	210	75	152	M12	0.9	6
	300	B32362A2307J050	50	3600	10.8	1.7	200	75	197	M12	1.1	6
	400	B32362A2407J050	50	4800	14.4	1.5	200	85	197	M12	1.3	4
	500	B32362B2507J050	50	4400	13.3	1.9	230	85	247	M12	1.7	4
	600	B32362B2607J050	50	5300	16.0	1.8	230	85	247	M12	1.7	4

B32361												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
460 V AC 330 V AC	50	B32361B3506J030	18	920	2.7	4.4	220	63.5	82	M12	0.3	12
	60	B32361A3606J030	18	720	2.1	6.2	225	63.5	107	M12	0.4	12
	70	B32361A3706J030	20	840	2.5	5.8	225	63.5	107	M12	0.4	12
	80	B32361A3806J030	25	960	2.8	5.5	225	63.5	107	M12	0.4	12
	100	B32361B3107J030	25	880	2.6	6.9	265	63.5	132	M12	0.5	12
B32362												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
460 V AC 330 V AC	100	B32362A3107J030	30	1450	4.3	2.8	185	75	117	M12	0.7	6
	150	B32362A3157J030	30	1450	4.3	3.7	210	75	152	M12	0.9	6
	200	B32362B3207J030	40	1900	5.8	3.1	210	85	152	M12	1.0	4
	250	B32362A3257J030	50	3600	10.8	1.7	200	85	197	M12	1.3	4
	300	B32362A3307J030	50	4300	12.9	1.6	200	85	197	M12	1.3	4
	400	B32362A3407J030	50	3850	11.6	2.1	240	85	267	M12	1.8	4

B32361												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
680 V AC 480 V AC	10	B32361A4106J080	10	400	1.2	4.8	195	63.5	70	M12	0.3	12
	15	B32361A4156J080	15	600	1.8	4.1	195	63.5	70	M12	0.3	12
	20	B32361A4206J080	20	800	2.4	4.3	195	63.5	70	M12	0.3	12
	25	B32361A4256J080	25	750	2.2	5.2	220	63.5	82	M12	0.3	12
	30	B32361A4306J080	25	800	2.6	4.8	220	63.5	82	M12	0.3	12
	40	B32361A4406J080	20	750	2.3	6.6	225	63.5	107	M12	0.4	12
	50	B32361A4506J080	25	950	2.9	6.0	225	63.5	107	M12	0.4	12
	60	B32361A4606J080	25	850	2.6	7.7	265	63.5	132	M12	0.5	12
	70	B32361A4706J080	25	900	2.7	8.0	275	63.5	142	M12	0.6	12
B32362												
V_{RAC} V_{RMS}	C_R	Ordering code	I_{max}	î	I_s	Rs	L_{self}	D	H	Stud	Weight	Packing units
	µF		A	A	kA	mΩ	nH	mm	mm		kg	pcs.
680 V AC 480 V AC	60	B32362A4606J080	30	1150	3.4	3.2	185	75	117	M12	0.7	6
	70	B32362A4706J080	50	2050	6.2	1.7	180	75	147	M12	0.9	6
	80	B32362A4806J080	50	1350	7.1	1.6	180	75	147	M12	0.9	6
	100	B32362A4107J080	50	1900	5.7	2.3	200	75	197	M12	1.1	6
	150	B32362A4157J080	50	2850	8.6	1.9	200	85	197	M12	1.3	4
	200	B32362A4207J080	50	2850	8.5	2.3	230	85	247	M12	1.7	4
	250	B32362A4257J080	50	3200	9.6	2.3	240	85	267	M12	1.8	4

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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 disconnector, 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.

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2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
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