



# MotorCap

AC Film Capacitors for  
Motor Run Applications

EPCOS MotorCaps™ are metalized polypropylene film capacitors specially designed for use in motor run applications, although they are equally suitable for AC power supplies and general purpose applications.

## Applications

- Asynchronous motors
- Refrigerators/freezers
- Dishwashers
- Washing machines/dryers
- Air conditioners
- Compressors, pumps
- Awning drives, electric lawn mowers etc.

## Features

- Voltages: 250 V up to 480 V
- Capacitance range: 1 ... 60  $\mu$ F
- Temperature rating up to 85 °C
- RoHS compatible
- Versions compatible to EN 60335 optional

## Customer benefits – economy

- Ultra compact and economic design
- Various terminal options
- Various mounting options
- Maintenance-free

## Customer benefits – technology

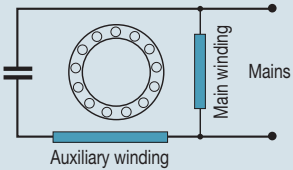
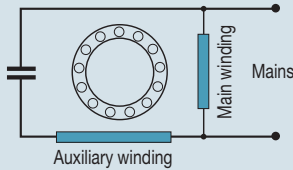
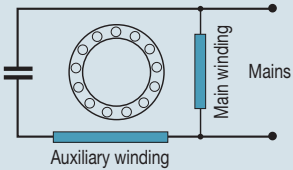
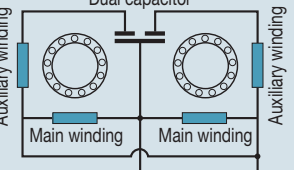
- Self-healing properties
- Highest safety level P2 to IEC 60252 available
- Very low losses thanks to innovative film technology
- High insulation resistance
- Self-extinguishing plastic material
- UL810, VDE, CQC and TÜV approvals
- Fault-current-proof versions available up to 10,000 A
- Fully IEC 60252 compliant

# AC Capacitors for Motor Run Applications: MotorCap

EPCOS MotorCap™ capacitors can be used in various applications.

MotorCap™ are specially designed AC capacitors for the operation of induction motors. They are permanently

connected to auxiliary windings, allowing the motor to start and helping to keep it running constantly and smoothly with highest efficiency (increasing the torque during operation, improved power factor, low noise...)

MotorCap Plastic can Single capacitance B3232* series	MotorCap Aluminum can Single capacitance, B32330/B32332 series	MotorCap P2 Compact – Plastic can Single capacitance, B3235* series	Dual MotorCap Aluminum can Dual capacitance, B32335 series
<p><b>Terminals</b></p> <ul style="list-style-type: none"> <li>■ Single / double fast-on</li> <li>■ Insulated wires</li> <li>■ Twin core cable</li> </ul> <p><b>Safety class</b></p> <ul style="list-style-type: none"> <li>■ P0 (IEC 60252)</li> </ul> <p><b>Features / Advantages</b></p> <ul style="list-style-type: none"> <li>■ Voltages <math>V_R</math>: 250, 400 and 480 V AC</li> <li>■ Capacitance range: 1.5 ... 60 <math>\mu\text{F}</math></li> <li>■ Life expectancy: up to 10,000 h</li> <li>■ Dry type / no leakage risk</li> <li>■ Small size and limited weight</li> <li>■ Compliant to IEC 60335-1 on request</li> </ul> <p><b>Applications</b></p> <p>Dishwashers, motors, electric tools, washers, tumble dryers and fans, garage door openers</p> 	<p><b>Terminals</b></p> <ul style="list-style-type: none"> <li>■ Single fast-on</li> <li>■ Double fast-on</li> </ul> <p><b>Safety class</b></p> <ul style="list-style-type: none"> <li>■ P2 (IEC 60252)</li> </ul> <p><b>Features / Advantages</b></p> <ul style="list-style-type: none"> <li>■ Voltages <math>V_R</math>: 250, 400/420 and 420/450 V AC</li> <li>■ Capacitance range: 1 ... 60 <math>\mu\text{F}</math></li> <li>■ Life expectancy: up to 10,000 h</li> <li>■ Overpressure disconnection device</li> <li>■ Compliant to IEC 60335-1 on request</li> </ul> <p><b>Applications</b></p> <p>Washing machines, refrigerators, air conditioners and general AC applications</p> 	<p><b>Terminals</b></p> <ul style="list-style-type: none"> <li>■ Single / double fast-on</li> <li>■ Insulated wires</li> <li>■ Twin core cable</li> </ul> <p><b>Safety class</b></p> <ul style="list-style-type: none"> <li>■ P2 (IEC 60252)</li> </ul> <p><b>Features / Advantages</b></p> <ul style="list-style-type: none"> <li>■ Voltages <math>V_R</math>: 400, 450 V AC</li> <li>■ Capacitance range: 2 ... 20 <math>\mu\text{F}</math></li> <li>■ Life expectancy: up to 30,000 h</li> <li>■ Fused film safety device</li> <li>■ Dry type / no leakage risk</li> <li>■ Small size and limited weight</li> <li>■ Compliant to IEC 60335-1</li> </ul> <p><b>Applications</b></p> <p>Refrigerators, freezers, compressors, lawn mowers and pump motors</p> 	<p><b>Terminals</b></p> <ul style="list-style-type: none"> <li>■ Single fast-on</li> <li>■ Double fast-on</li> <li>■ Quadruple fast-on (4 lugs)</li> </ul> <p><b>Safety class</b></p> <ul style="list-style-type: none"> <li>■ P2 (IEC 60252)</li> </ul> <p><b>Features / Advantages</b></p> <ul style="list-style-type: none"> <li>■ Voltages <math>V_R</math>: 250, 400 and 420/450 V AC</li> <li>■ Capacitance range: 15 + 2 ... 50 + 8 <math>\mu\text{F}</math></li> <li>■ Life expectancy: up to 10,000 h</li> <li>■ Overpressure disconnection device</li> </ul> <p><b>Applications</b></p> <p>Air conditioning units and general sine-wave AC applications</p> 


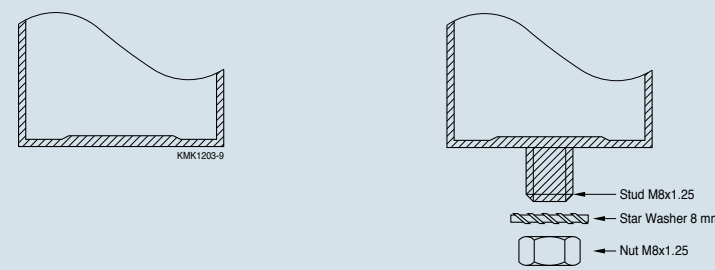
# MotorCap: B3232\* Series, Single Capacitance, Plastic Can

B3232\*

Technical data				
<b>Type / series</b>	B32320 / B32322 B32321 / B32323 UL type		B32327 B32329 UL type	B32328
<b>Terminals</b>	– Single fast-on – Double fast-on		Insulated wire	Twin core cable
<b>Electrical ratings</b>				
Rated voltage	$V_R$	250, 400, 480		V AC
Rated capacitance	$C_R$	1.5 ... 60		$\mu\text{F}$
Rated frequency	$f_R$	50 / 60		Hz
Capacitance tolerance		$\pm 5\%$		
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$		V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$		A
Dissipation factor (20 °C, 120 Hz)	$\tan \delta$	$\leq 1.0 \cdot 10^{-3}$		
<b>Safety</b>				
Class of safety		P0 to IEC 60252-1		
Life expectancy to IEC 60252		250 V: 10,000 h (class B); 400 V: 10,000 h (class B); 480 V: 3000 h (class C)		
<b>Climatic parameters to IEC 60068-1</b>				
Temperature limits	$T_{\text{min}} / T_{\text{max}}$	–25 / +85		°C
Test duration (damp heat test)	$t_{\text{test}}$	21		days
<b>Construction</b>				
Reference standards		IEC 60252-1 2001-02 UL810: B32321/23	IEC 60252-1 2001-02 UL810: B32329	IEC 60252-1 2001-02
Plastic can		Plastic can top material UL 94 V2: tested to IEC 60695-2 / IEC 60309-1		
Dimensions		$\varnothing 25 \dots 40 \text{ mm}$ , H: 58 ... 120 mm		
<b>Approvals</b>				
		VDE (400, 480 V) UL810: B32321/23 construction only	VDE (400, 480 V) UL810: B32329 construction only	VDE (400, 480 V)
<b>Mounting options</b>				

# MotorCap Aluminum Can: B3233\* Series, Single Capacitance, Aluminum Can


B3233\*

Technical data					
					
<b>Type / series</b>	B32330 / B32332		B32330 / B32332		B32330 / B32332 Super MotorCap™
<b>Terminals</b>	– Single fast-on – Double fast-on				
<b>Electrical ratings</b>					
Rated voltage	$V_R$	250	400, 420	420, 450	V AC
Rated capacitance	$C_R$	4 ... 60	1 ... 60	1 ... 60	$\mu\text{F}$
Rated frequency	$f_R$	50 / 60			Hz
Capacitance tolerance		±5%			
Max. permissible voltage	$V_{\text{max}}$	1.1 · $V_R$			V
Max. permissible current	$I_{\text{max}}$	1.3 · $I_R$			A
Dissipation factor (20 °C, 120 Hz)	$\tan \delta$	≤ 1.0 · 10 <sup>-3</sup>			
<b>Safety</b>					
Class of safety	P2 to IEC 60252-1				
Life expectancy to IEC 60252		250 V: 10,000 h (class B)	400 V: 10,000 h (class B) 420 V: 3000 h (class C)	420 V: 10,000 h (class B) 450 V: 3000 h (class C)	
<b>Climatic parameters to IEC 60068-1</b>					
Temperature limits	$T_{\text{min}} / T_{\text{max}}$	-25 / +85	-25 / +85	-25 / +70	°C
Test duration (damp heat test)	$t_{\text{test}}$	21			days
<b>Construction</b>					
Reference standards	IEC 60252-1 2001-02, EN 60252 2001, UL810				
Can	Aluminum can with overpressure disconnection device				
Terminal top	UL 94 V2/V0 compatible; glow wire test to IEC 60695-2-11; compatible to IEC 60335-1 as an option				
Dimensions		Ø 30 ... 40 mm H: 52 ... 103 mm	Ø 30 ... 53 mm H: 52 ... 132 mm	Ø 30 ... 53 mm H: 52 ... 103 mm	
<b>Approvals</b>					
	UL 810 component		VDE UL 810 component CQC	VDE / TÜV UL 810 component CQC	
<b>Mounting options</b>					
					

# MotorCap P2 Compact: B3235\* Series, Single Capacitance, Plastic Can

B3235\*

## Technical data

			
<b>Type / series</b>	B32350 / B32352	B32355	B32356
<b>Terminals</b>	– Single fast-on – Double fast-on	Insulated wire	Twin core cable

## Electrical ratings

Rated voltage	$V_R$	400, 450	V AC
Rated capacitance	$C_R$	2 ... 20	$\mu\text{F}$
Rated frequency	$f_R$	50 / 60	Hz
Capacitance tolerance		$\pm 5\%$	
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$	V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$	A
Dissipation factor (20 °C, 120 Hz)	$\tan \delta$	$\leq 1.0 \cdot 10^{-3}$	

## Safety

Class of safety	P2 to IEC 60252-1
Life expectancy to IEC 60252	400 V: 30,000 h (class A) 450 V: 10,000 h (class B)

## Climatic parameters to IEC 60068-1

Temperature limits	$T_{\text{min}} / T_{\text{max}}$	-25 / +85	°C
Test duration (damp heat test)	$t_{\text{test}}$	21	days

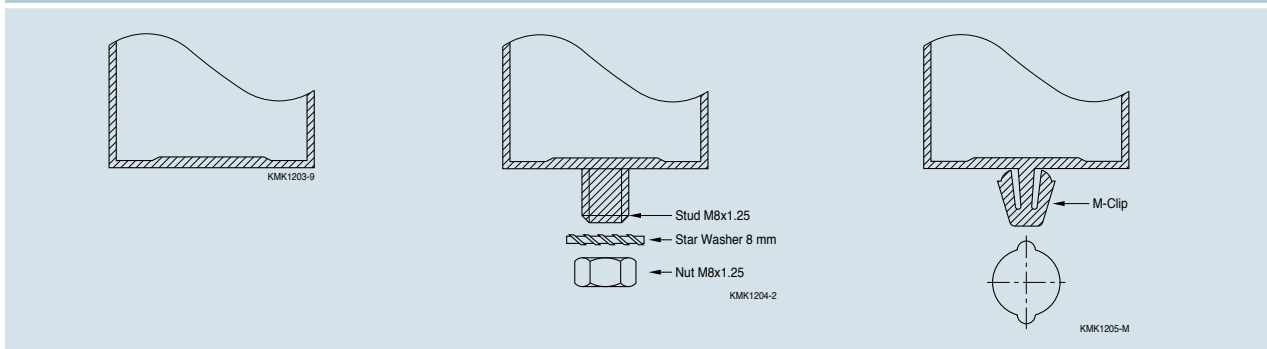
## Construction

Reference standards	IEC 60250-1 2001-02, EN 60252 2001
Plastic Can	Plastic can top material UL 94 V2: tested to IEC 60695-2 & IEC 60309-1
Dimensions	$\varnothing 25 \dots 40 \text{ mm}$ , H: 58 ... 120 mm

## Approvals

	VDE CQC
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## Mounting options



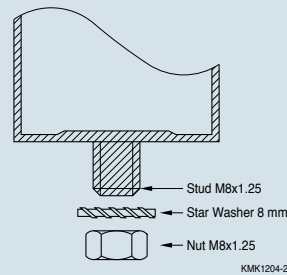
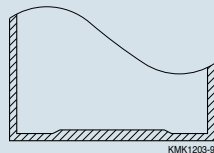
# Dual MotorCap: B32335 Series, Dual Capacitance, Aluminum Can

B32335\*

## Technical data



<b>Type / series</b>	B32335	B32335	B32335		
<b>Terminals</b>	Single fast-on, Double fast-on, Quadruple fast-on (4 lugs)				
<b>Electrical ratings</b>					
Rated voltage	$V_R$	250	420, 450	400, 450	V AC
Rated capacitance	$C_R$	15+2 ... 50+8	15+2 ... 60+8	15+2 ... 60+8	$\mu\text{F}$
Rated frequency	$f_R$	50 / 60			Hz
Capacitance tolerance		$\pm 5\%$			
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$			V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$			A
Dissipation factor (20 °C, 120 Hz)	$\tan \delta$	$\leq 1.0 \cdot 10^{-3}$			
<b>Safety</b>					
Class of safety		P2 to IEC 60252-1			
Life expectancy to IEC 60252		250 V: 10,000 h (class B)	420 V: 10,000 h (class B) 450 V: 3000 h (class C)	400 V: 10,000 h (class B) 450 V: 3000 h (class C)	
<b>Climatic parameters to IEC 60068-1</b>					
Temperature limits	$T_{\text{min}} / T_{\text{max}}$	-25 / +85	-25 / +70	-25 / +85	°C
Test duration (damp heat test)	$t_{\text{test}}$	21			days
<b>Construction</b>					
Reference standards		IEC 60252-1 2001-02, EN 60252 2001, UL810			
Can		Aluminum can with overpressure disconnection device			
Terminal top		UL 94 V2/V0 compatible; Glow wire test to IEC 60695-2-11; compatible to IEC 60335-1			
Dimensions		$\varnothing 45 \dots 63.5 \text{ mm}$ ; H: 70 ... 107 mm			
<b>Approvals</b>					
		UL 810 file E 106388, approved component 10000 AFC			
<b>Mounting options</b>					



**Important information:** 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. We expressly point out that these statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. It is incumbent on the customer to check and decide whether a product is suitable for use in a particular application. This publication is only a brief product survey which may be changed from time to time. Our products are described in detail in our data sheets. The Important Notes ([www.epcos.com/ImportantNotes](http://www.epcos.com/ImportantNotes)) and the product-specific warnings and cautions must be observed. All relevant information is available through our sales offices.