



# AC Film Capacitors

E P C O S F e i d a

The new joint venture EPCOS Feida supplies specially designed AC film capacitors for general purpose applications (e.g. AC filters with harmonic frequencies exceeding 60 Hz), as well as for lighting and motor run applications.

For the latter, AC capacitors are used in conjunction with asynchronous motors on single-phase mains supplies. They are designed for 50 or 60 Hz systems. For higher frequencies – as well as in applications where higher frequencies are present – consult EPCOS Feida to assure selection of the correct capacitor.

## Applications

- Asynchronous motors
- Air conditioning
- Domestic appliances
- Compressors/pumps/garage door openers
- Awning drives
- Heat pumps

## Features

- Voltages: 250 V ... 630 V
- Capacitance range: 1  $\mu$ F ... 120  $\mu$ F
- Ambient temperature: up to 85 °C
- RoHS compatible versions
- EN 60335-1 compatible versions
- Customized versions





## Customer benefits – economic

- Compact and economical design
- Low losses thanks to innovative film technology
- Various mounting options
- Maintenance-free

## Customer benefits – safety


- Self-healing properties
- P2 safety to IEC 60252-1 versions
- Low dissipation factor
- UL810, VDE, CQC and TÜV approved versions
- 10,000 A fault-current-proof versions

# Capacitors with Safety Function

Technical data						
						
<b>Capacitor type</b>		<b>Single capacitor</b>	<b>Dual capacitor</b>	<b>Single capacitor (oval shape)</b>	<b>Dual capacitor (oval shape)</b>	
<b>Series EPCOS Feida</b>		CBB65A-1	CBB65A-1	CBB66	CBB66	
<b>Type / series (EPCOS)</b>		B3333x	B3333x	B3333x	B3333x	
<b>Features</b>						
Standards		GB/T3667.1, IEC 60252-1 2001, UL 810	GB/T3667.1, IEC 60252-1 2001, UL 810	GB/T3667.1, UL 810	GB/T3667.1, UL 810	
Rated voltage	$V_R$	200 ... 500	200 ... 500	200 ... 560	200 ... 560	V AC
Capacitance range	$C_R$	1 ... 80	Cap. 1: 1 ... 15 Cap. 2: 1 ... 80	1 ... 80	Cap. 1: 1 ... 15 Cap. 2: 1 ... 50	$\mu\text{F}$
Rated frequency	$f_R$	50/60	50/60	50/60	50/60	Hz
Capacitance tolerance		$\pm 5\%$ , other on request	$\pm 5\%$ , other on request	$\pm 5\%$ , other on request	$\pm 5\%$ , other on request	
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$	$1.1 \cdot V_R$	$1.1 \cdot V_R$	$1.1 \cdot V_R$	V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$	$1.3 \cdot I_R$	$1.3 \cdot I_R$	$1.3 \cdot I_R$	A
Dissipation factor (100 Hz)	$\tan \delta$	$< 2.0 \cdot 10^{-3}$	$< 2.0 \cdot 10^{-3}$	$< 2.0 \cdot 10^{-3}$	$< 2.0 \cdot 10^{-3}$	
<b>Safety</b>						
Class of safety		P2 to IEC 60252-1	P2 to IEC 60252-1	P2 to IEC 60252-1	P2 to IEC 60252-1	
<b>Climatic parameters to IEC 60068-1</b>						
Temperature limits	$T_{\text{min}}/T_{\text{max}}$	-40/+85	-40/+85	-40/+85	-40/+85	$^{\circ}\text{C}$
Test duration (damp heat test)	$t_{\text{test}}$	21	21	21	21	days
<b>Construction</b>						
Material		Aluminum can, metal top	Aluminum can, metal top	Aluminum can, metal top, oval shape	Aluminum can, metal top, oval shape	
Dimensions		$\varnothing$ 35 ... 60 mm, H: 55 ... 125 mm	$\varnothing$ 50 ... 63 mm, H: 55 ... 150 mm	L: 31 ... 48 mm H: 55 ... 90 mm W: 55 ... 130 mm	L: 31 ... 48 mm H: 55 ... 90 mm W: 55 ... 130 mm	
<b>Approvals</b>						
		CQC				
		UL E241095 Approved Component				
		TÜV 50049603 200 V ... 450 V, class C, 85 $^{\circ}\text{C}$	TÜV 50049604 200 V ... 450 V class C, 85 $^{\circ}\text{C}$	–	–	
		VDE 370/400/420 V, class A, 85 $^{\circ}\text{C}$ 450/470 V, class B, 85 $^{\circ}\text{C}$ 500 V, class C, 85 $^{\circ}\text{C}$	VDE 370/400/420 V, class A, 85 $^{\circ}\text{C}$ 450/470 V, class B, 85 $^{\circ}\text{C}$ 500 V, class C, 85 $^{\circ}\text{C}$	–	–	
<b>Terminal options</b>						
		1, 4, 5	3, 4, 5	1	3	
<b>Mounting options</b>						
		A, B	A, B	A	A	


For details of terminal and mounting options, see page 5

# Capacitors with Safety Function

Technical data				
				
<b>Capacitor type</b>		<b>Single capacitor</b>	<b>Box type</b>	
<b>Series EPCOS Feida</b>		CBB65A-2	CBB61-P	
<b>Type / series (EPCOS)</b>		B3335x	B3335x	
<b>Features</b>				
Standards		GB/T3667.1-2005, IEC 60252-1 2001, UL 810	GB/T3667.1-2005; IEC 60252-1 2001, UL 810	
Rated voltage	$V_R$	200 ... 450	200 ... 450	V AC
Capacitance range	$C_R$	1 ... 30	1 ... 20	$\mu\text{F}$
Rated frequency	$f_R$	50/60	50/60	Hz
Capacitance tolerance		$\pm 5\%$ , other on request	$\pm 5\%$ , other on request	
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$	$1.1 \cdot V_R$	V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$	$1.3 \cdot I_R$	A
Dissipation factor (100 Hz)	$\tan \delta$	$< 2.0 \cdot 10^{-3}$	$< 2.0 \cdot 10^{-3}$	
<b>Safety</b>				
Class of safety		P2 to IEC 60252-1	P2 to IEC 60252-1	
<b>Climatic parameters to IEC 60068-1</b>				
Temperature limits	$T_{\text{min}} / T_{\text{max}}$	-40/+85	-40/+85	$^{\circ}\text{C}$
Test duration (damp heat test)	$t_{\text{test}}$	21	21	days
<b>Construction</b>				
Material		PBT or polycarbonate	PBT	
Dimensions		$\varnothing$ 30 ... 55 mm, H: 50 ... 125 mm	L: 31 ... 58 mm H: 27 ... 58 mm W: 17 ... 38 mm	
<b>Approvals</b>				
		CQC		
		UL E241095 Approved Component		
		TÜV 50026023, 450 V, class C, 85 $^{\circ}\text{C}$	TÜV 50132899, 200 V ... 450 V, class B, 85 $^{\circ}\text{C}$	
		VDE 400 V, class B, 85 $^{\circ}\text{C}$ 450 V, class C, 85 $^{\circ}\text{C}$		
<b>Terminal options</b>				
		2, 4, 5, 8 (VDE: 4, 5, 8)	7	
<b>Mounting options</b>				
		A, B, C, D	A, E	

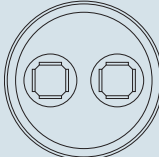
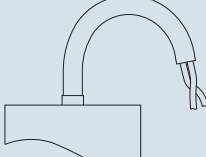
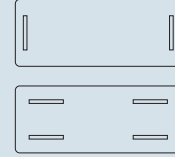
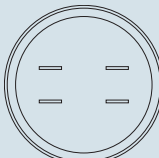
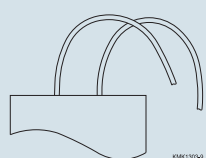
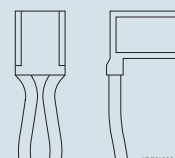
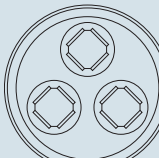
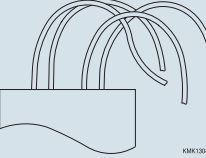
For details of terminal and mounting options, see page 5

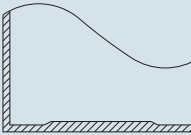
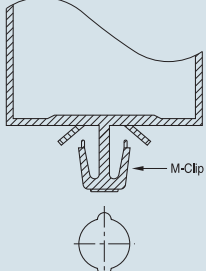
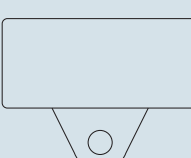
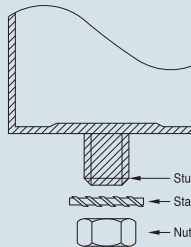
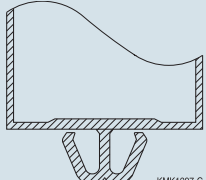
# Capacitors

Technical data						
						
Capacitor type	Single capacitor		Dual capacitor		Box type	
Series EPCOS Feida	CBB60		CBB60		CBB61	
Type / series (EPCOS)	B3332x		B3332x		B3335x	
Features						
Standards	IEC 60252-1 2001		IEC 60252-1 2001		UL 810, IEC 60252-1 2001	
Rated voltage	$V_R$	250 ... 500	200 ... 630		200 ... 450	V AC
Capacitance range	$C_R$	1 ... 50	Capacitance 1: 1 ... 30 Capacitance 2: 1 ... 120		0.5 ... 20	$\mu\text{F}$
Rated frequency	$f_R$	50/60	50/60		50/60	Hz
Capacitance tolerance		$\pm 5\%$ , other on request	$\pm 5\%$ , other on request		$\pm 5\%$ , other on request	
Max. permissible voltage	$V_{\text{max}}$	$1.1 \cdot V_R$	$1.1 \cdot V_R$		$1.1 \cdot V_R$	V
Max. permissible current	$I_{\text{max}}$	$1.3 \cdot I_R$	$1.3 \cdot I_R$		$1.3 \cdot I_R$	A
Dissipation factor (100 Hz)	$\tan \delta$	$< 2.0 \cdot 10^{-3}$	$< 2.0 \cdot 10^{-3}$		$< 2.0 \cdot 10^{-3}$	
Safety						
Class of safety		P0 to IEC 60252-1	P0 to IEC 60252-1		P0 to IEC 60252-1	
Climatic parameters to IEC 60068-1						
Temperature limits	$T_{\text{min}} / T_{\text{max}}$	-40/+85	-40/+85		-40/+85	$^{\circ}\text{C}$
Test duration (damp heat test)	$t_{\text{test}}$	21	21		21	days
Construction						
Material		PBT or polycarbonate	PBT or polycarbonate		PBT or polycarbonate	
Dimensions		$\varnothing 25 \dots 45 \text{ mm}$ , H: 51 ... 100 mm	$\varnothing 25 \dots 45 \text{ mm}$ , H: 51 ... 100 mm		L: 37 ... 58 mm H: 27 ... 58 mm W: 14 ... 38 mm	
Approvals						
		CQC			UL 810 E219014 Construction only	
					TÜV 50049410 200 V ... 450 V, class C, 85 $^{\circ}\text{C}$	
		VDE 40015351: 400/420 V, class A, 85 $^{\circ}\text{C}$ 450/470 V, class B, 85 $^{\circ}\text{C}$ 500 V, class C, 85 $^{\circ}\text{C}$			VDE 40012579: 450 V, class C, 85 $^{\circ}\text{C}$	
Terminal options						
		2, 4, 5, 8 (VDE: 4, 5, 8)	6		7	
Mounting options						
		A, B, C, D	A, B, C, D		A, E	

For details of terminal and mounting options, see page 5

# Terminal and Mounting Options

Standard terminal options		
<p>1 (# 250 type: 1+1, 2+2, 4+4, tab)</p>  <p>KMK1209-0</p>	<p>4 (cable)</p>  <p>KMK1302-0</p>	<p>7 (# 187 type: 1+1, 2+2)</p>  <p>KMK1305-0</p>
<p>2 (# 250 type: 1+1, 2+2, tab)</p>  <p>KMK1302-0</p>	<p>5 (wires 2)</p>  <p>KMK1305-0</p>	<p>8 (connectors on request)</p>  <p>KMK1306-0</p>
<p>3 (# 250 type: 1+2+3, 1+2+4, 2+3+4, 4+4+4)</p>  <p>KMK1307-0</p>	<p>6 (wires 4)</p>  <p>KMK1304-2</p>	

Standard mounting options		
<p>A (flat: round alu can and plastic box type)</p>  <p>KMK1203-9</p>	<p>C (fast-on clip: round plastic can)</p>  <p>M-Clip KMK1296-9</p>	<p>E (latch: box type)</p>  <p>KMK1298-Z</p>
<p>B (M8 bolt: round alu and plastic can)</p>  <p>Stud M8x1,25 Star Washer 8 mm Nut M8x1,25 KMK1204-2</p>	<p>D (MC clip: round plastic can)</p>  <p>KMK1297-C</p>	<p>Others on request</p>

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