



Film Capacitors – AC Capacitors

General purpose MKP AC capacitor

Series/Type:	CBB65A-1
Ordering code:	B33331V series
Date:	October 2017
Version:	1

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Construction

- Metallized polypropylene film
- Aluminum can and top
- Filling material: soft polyurethane resin

Features

- Self-healing properties
- Low dissipation factor
- Overpressure disconnection safety device
- Indoor mounting
- UL approved for diameter > 40 mm
- Humidity protected: 85°C 85% rel. Humidity (RH) at 460 V for 1000 h
- CE compatible



Typical applications

- For general AC filtering application

Terminals




- 2+2 fast-on terminal 6.3 x 0.8mm #250 style, others on request

Mounting Parts (Optional)

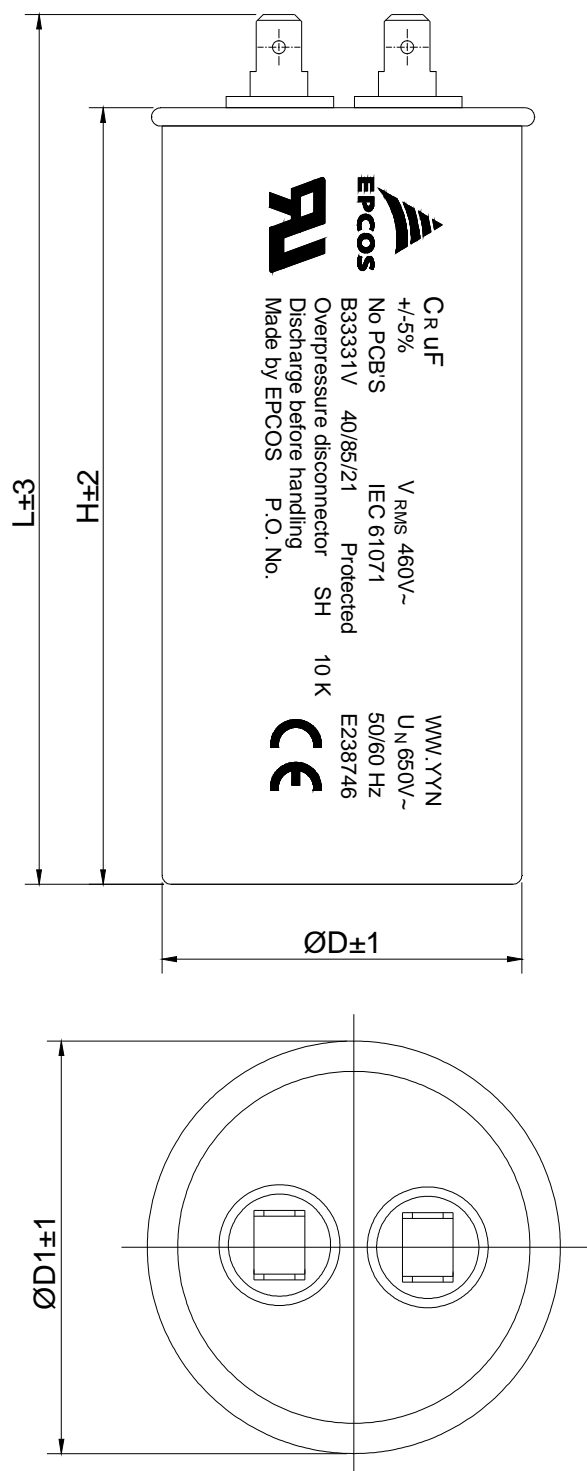
- Threaded stud at bottom of can (M8, Max torque= 5 Nm for 50 mm diameter)

Technical data and specifications	
Reference standards	IEC 61071, UL 810
Rated voltage V_R	650 V
RMS voltage V_{RMS}	460 V
Rated capacitance C_R	See table
Tolerance	± 5%
Dielectric Dissipation factor $\tan \delta_0$ at +20 °C	$\leq 2 \cdot 10^{-4}$ (1 kHz)
Life test	IEC 61071
Life expectancy	100 000 h for V_{RMS} $\Delta C/C$ $\leq 3\%$
Maximum ratings	
I_{max}	See table
V_{max}	1.1 • V_{RMS} : 8 h/day 1.2 • V_{RMS} : 5 min/day 1.3 • V_{RMS} : 1 min/day

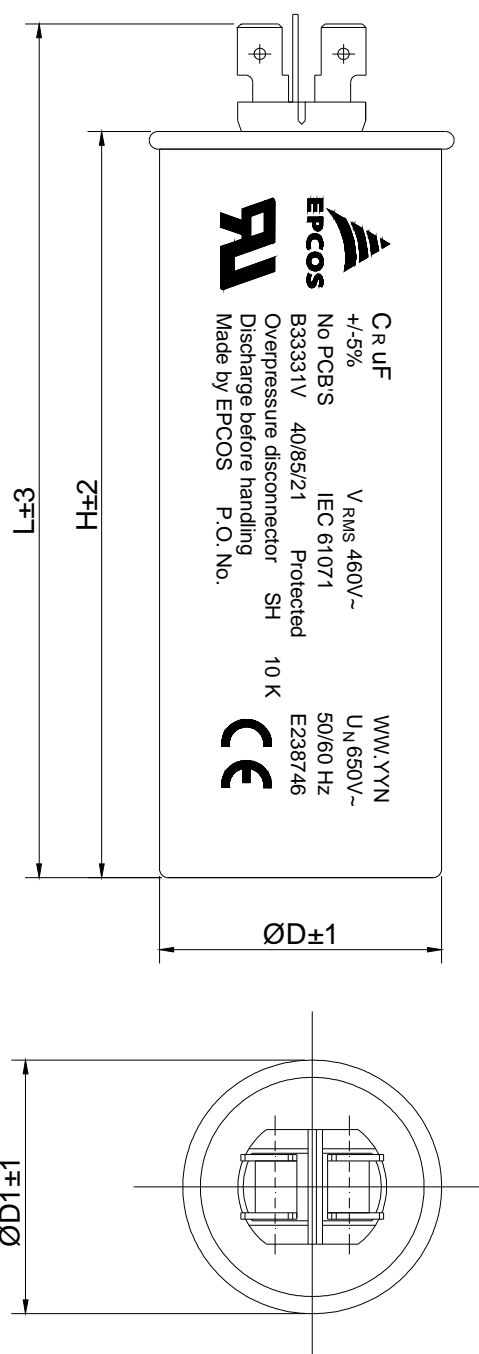
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B33331V series
General purpose MKP AC capacitor
CBB65A-1

Test data	
AC test voltage terminal to terminal V_{TT}	975 V, 2 s
AC test voltage terminal to case V_{TC}	2200 V, 2 s
Dissipation factor $\tan \delta$ at +20 °C	$\leq 1.0 \cdot 10^{-3}$ (120 Hz)
Climatic data	
Climatic category	40/085/21 to IEC 60068-1
Lower category θ_{min}	-40° C
Upper category θ_{max}	+85° C
Maximum hot spot temperature θ_{HS}	+85° C
Damp heat test t_{test}	21 days
Enforced humidity protection	
Temperature	+85° C
Relative humidity	85%
Duration	1000 h
Applied voltage	RMS voltage V_{RMS}
Criteria	Capacitance deviation < $\pm 10\%$ Dissipation factor variation $\Delta \tan \delta$ at +20 °C: <+0.005
Mechanical and thermal properties of terminal insulator material	
Terminal material ■ UL 94 V0 compatible	Self-extinguishing within 2 seconds of withdrawing glow wire without igniting wrapping tissue of GWT
Compatibility to RoHS	
Compliance to directive 2011/65/EU	
Approvals	
 US UL File E 238746	Approved component 10000 AFC. See table for approved ratings
	Compliance to LV directive 2014/35/EU

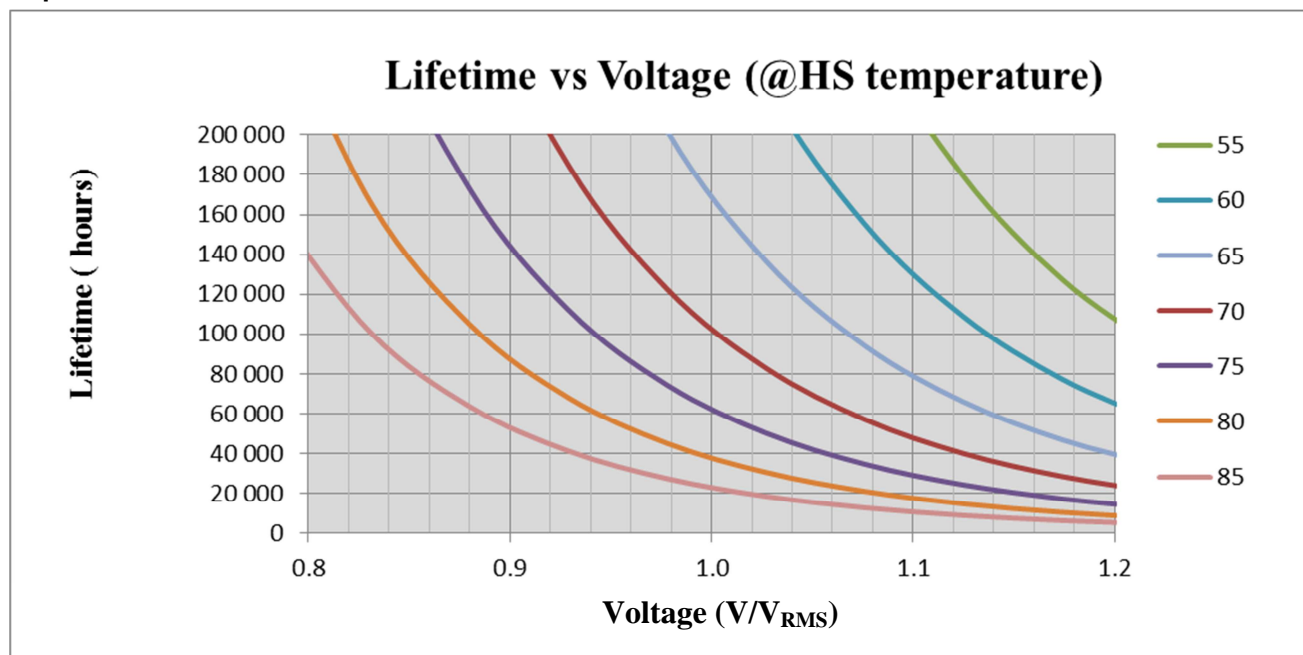
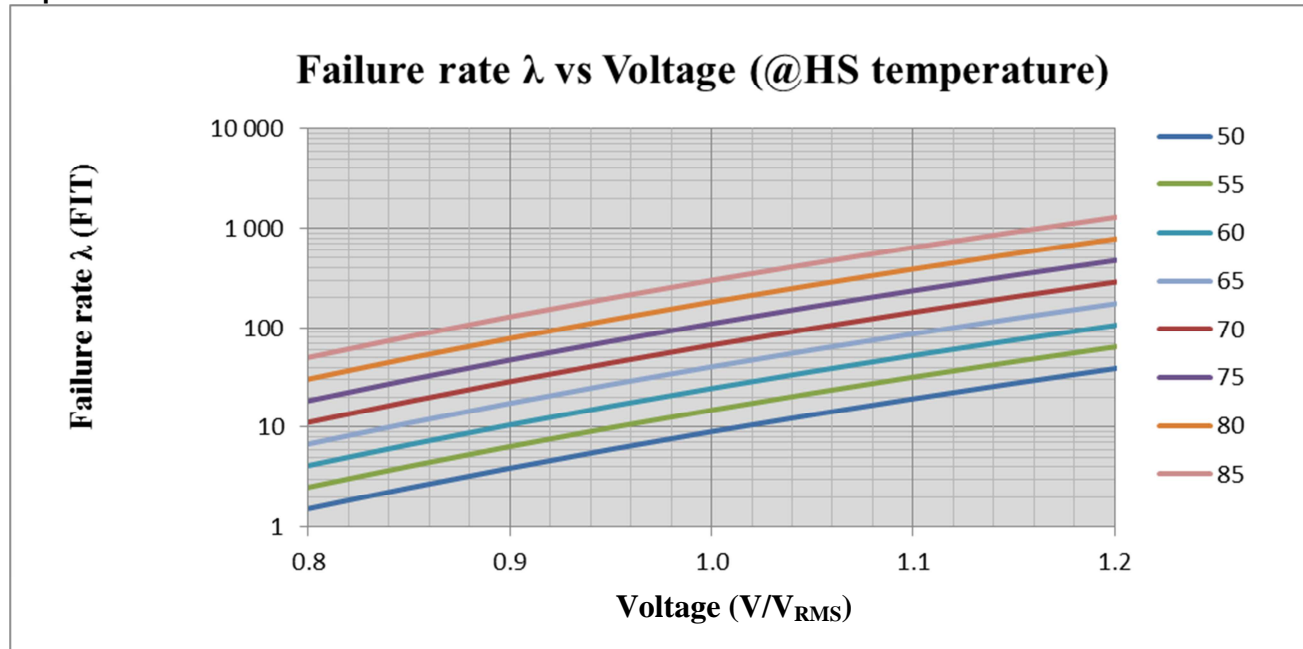
Dimensional drawings and marking



Drawing 1



Drawing 2

Expected lifetime

Expected Fit rate


Ordering codes and packing unit

V_R V_{RMS} V	C_R μF	$I_{max}^{1)}$ A	\hat{i} A	ESR ²⁾ mΩ	Case (D x H) mm	D_1 mm	L mm	Drawing	Ordering code	Packing unit	Approval
650 V_R 460 V_{RMS}	2	6	55	35	30 x 55	33	73	2	B33331V7205J0#X	100	
	4	7	75	23	30 x 65	38	68	2	B33331V7405J0#X	100	
	6	8	100	21	30 x 65	33	83	2	B33331V7605J0#X	100	
	8	9	140	17	30 x 65	33	83	2	B33331V7805J0#X	64	
	10	10	130	19	30 x 75	33	93	2	B33331V7106J0#X	100	
	12	12	210	13	40.5 x 65	43.5	78	1	B33331V7126J0#X	49	
	14	12	200	11	40.5 x 65	43.5	78	1	B33331V7146J0#X	49	
	16	12	210	12	40.5 x 75	43.5	88	1	B33331V7166J0#X	49	
	20	15	260	11	40.5 x 85	43.5	98	1	B33331V7206J0#X	49	
	25	16	260	12	45 x 85	48	98	1	B33331V7256J0#X	49	UL
	30	16	340	10	50 x 85	53	98	1	B33331V7306J0#X	36	UL
	40	16	350	11	50 x 100	53	113	1	B33331V7406J0#X	36	UL
	50	16	410	14	50 x 100	53	113	1	B33331V7506J0#X	36	UL

¹⁾ I_{max} – Maximum RMS current for continuous operation defined for a hotspot of $\leq 85^\circ\text{C}$, case temperature of $\leq 60^\circ\text{C}$, including harmonics up to frequency of 20 kHz.

²⁾ ESR – Equivalent Series resistance at 1KHz

Composition of ordering code

#:construction

6 Aluminium can Flat type

8 Aluminium can with M8 bolt

X: 0 as per this dimension and properties

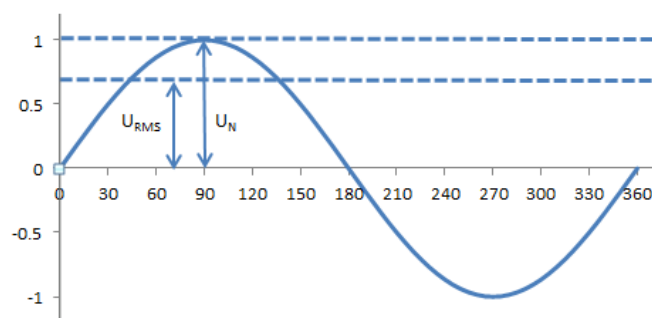
1-9 special dimension and properties

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Rated AC voltage V_R

Maximum operating peak voltage of either polarity of reversing type waveform for which the capacitor is designed


RMS voltage V_{RMS}

Root mean square of the maximum permissible value of sinusoidal AC voltage in continuous operation

Rated capacitance C_R

Designed capacitance of the capacitor at 20 °C at 1 kHz

Maximum continuous current I_{max}

Maximum RMS current for continuous operation, including harmonics

Maximum peak current \hat{I}

Maximum repetitive peak current that can occur in continuous operation

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.

$$I_s = C (dv/dt)_s$$

Maximum duration: 50 ms/pulse

Maximum number of occurrences: 1000 (during load)

Equivalent Series resistance ESR

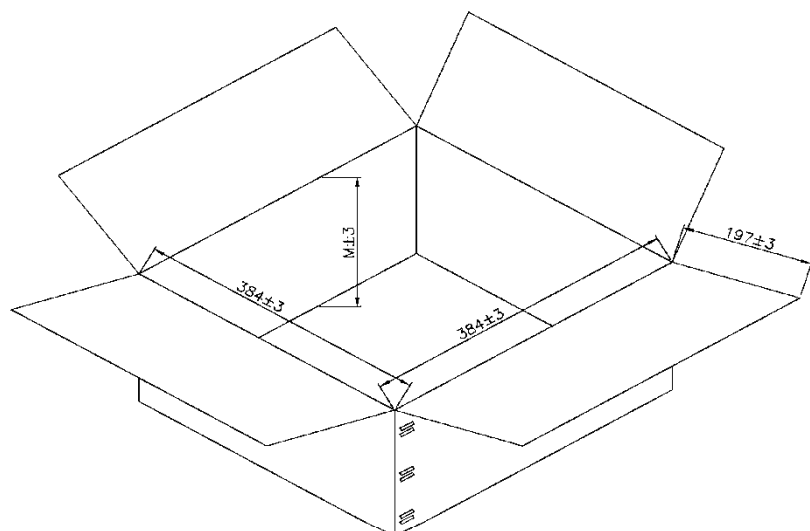
Effective resistance of the capacitor, it represents the resistance due to contacts and resistance of dielectric

Self-inductance L_{self}

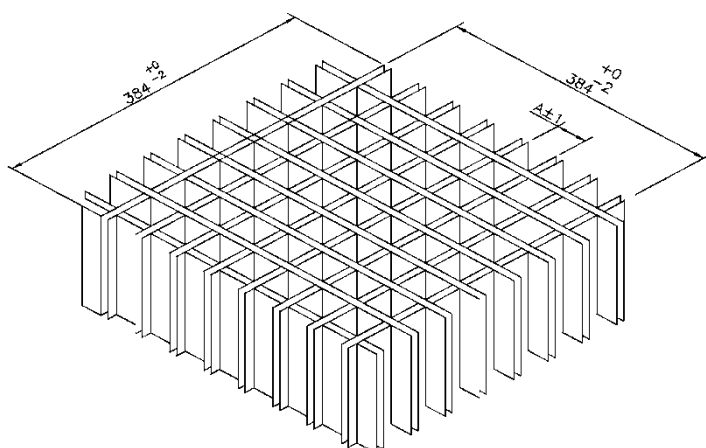
The series inductance of the terminals and the winding.


With self-inductance, it is possible to determine the resonance frequency.

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

Packing box


$$M = H(\text{Capacitor height}) + \text{Terminal height} + 10\text{mm min.}$$



 Please read “Applications warning, installation and maintenance instructions” and the “ZVEI - General safety recommendations for power capacitors”, which are available on the Internet at **www.epcos.com/ac_capacitors**, to ensure optimum performance and to prevent products from failing, and in worst case, bursting and fire. Information given in the data sheet reflects typical specifications.

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