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## Film Capacitors – AC Capacitors

General purpose MKP AC capacitor

<b>Series/Type:</b>	<b>CBB65A-1</b>
<b>Ordering code:</b>	<b>B33331V series</b>
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 $V_{RMS} \mid \Delta C/C \mid \leq 3\%$
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

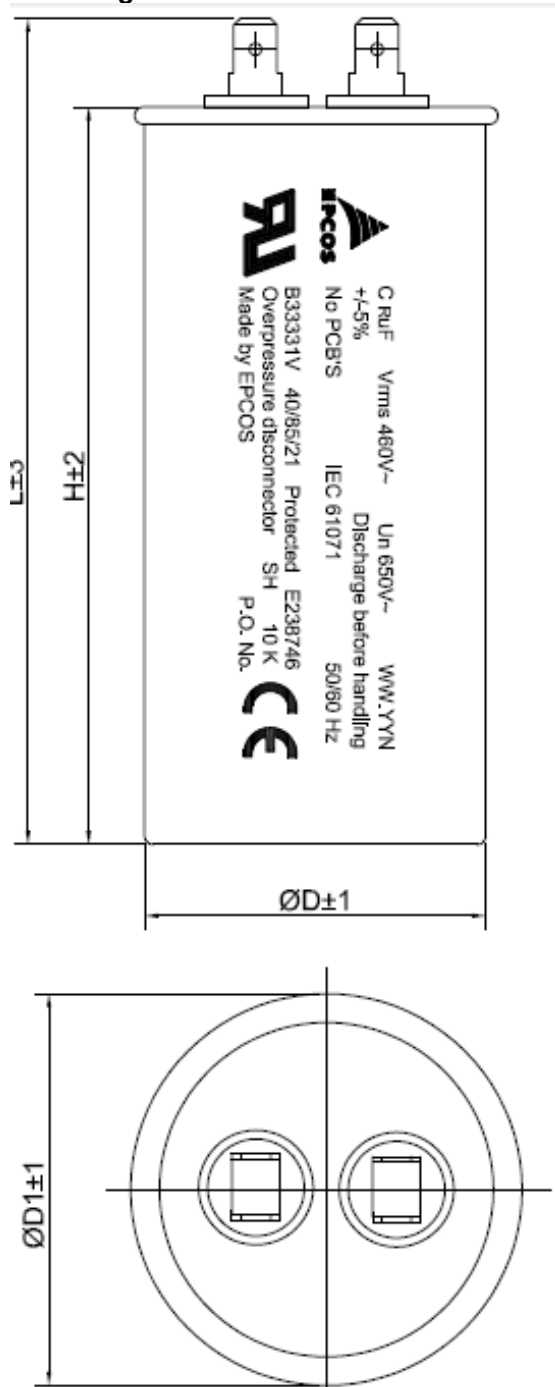
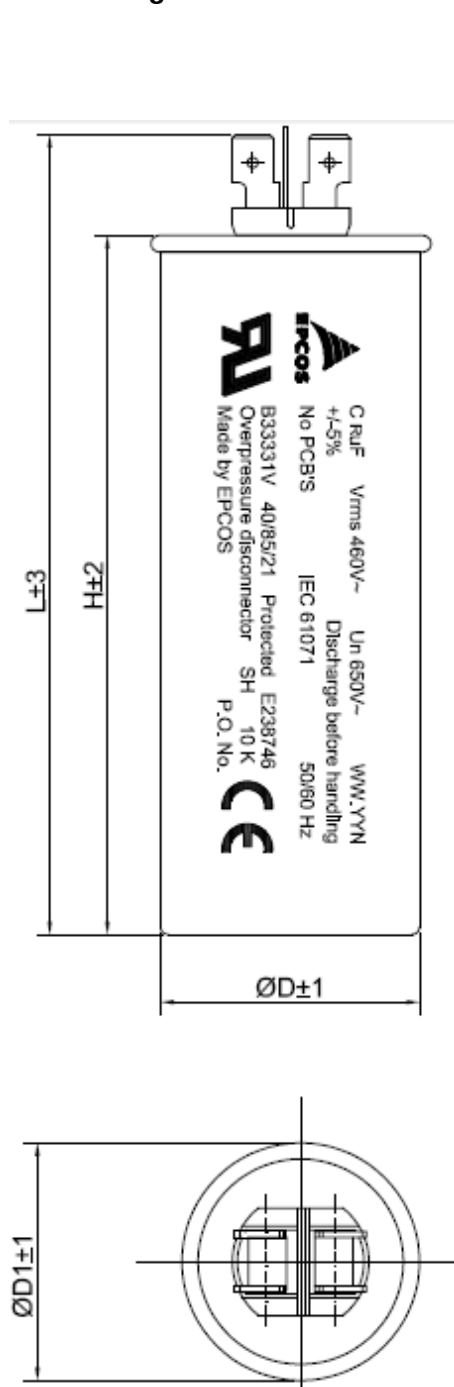
<b>Test data</b>	
AC test voltage terminal to terminal $V_{TT}$	975 V, 2 s
AC test voltage terminal to case $V_{TC}$	2200 V, 2 s
Dissipation factor $\tan \delta$ at +20 °C	$\leq 1.0 \cdot 10^{-3}$ (120 Hz)
<b>Climatic data</b>	
Climatic category	40/085/21 to IEC 60068-1
Lower category $\theta_{min}$	-40° C
Upper category $\theta_{max}$	+85° C
Maximum hot spot temperature $\theta_{HS}$	+85° C
Damp heat test $t_{test}$	21 days
<b>Enforced humidity protection</b>	
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
<b>Mechanical and thermal properties of terminal insulator material</b>	
Terminal material ■ UL 94 V0 compatible	Self-extinguishing within 2 seconds of withdrawing glow wire without igniting wrapping tissue of GWT
<b>Compatibility to RoHS</b>	
Compliance to directive 2011/65/EU	
<b>Approvals</b>	
 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**

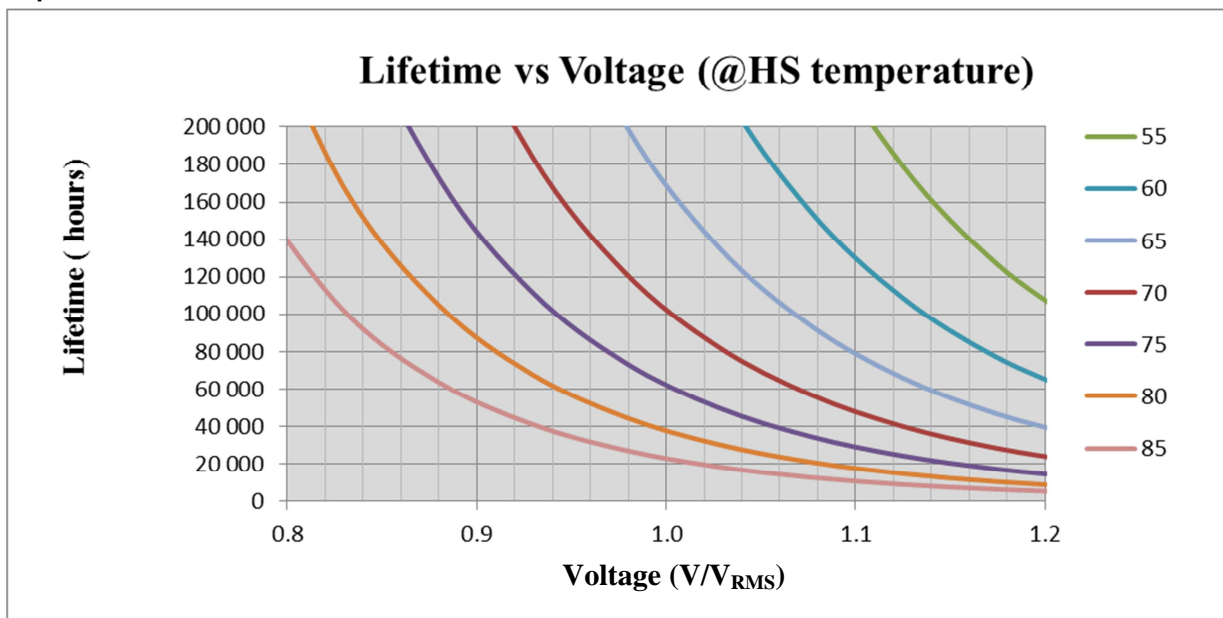
Note- Check the table before marking UL .

UL to be marked only for rating between 25uF to 50uF.

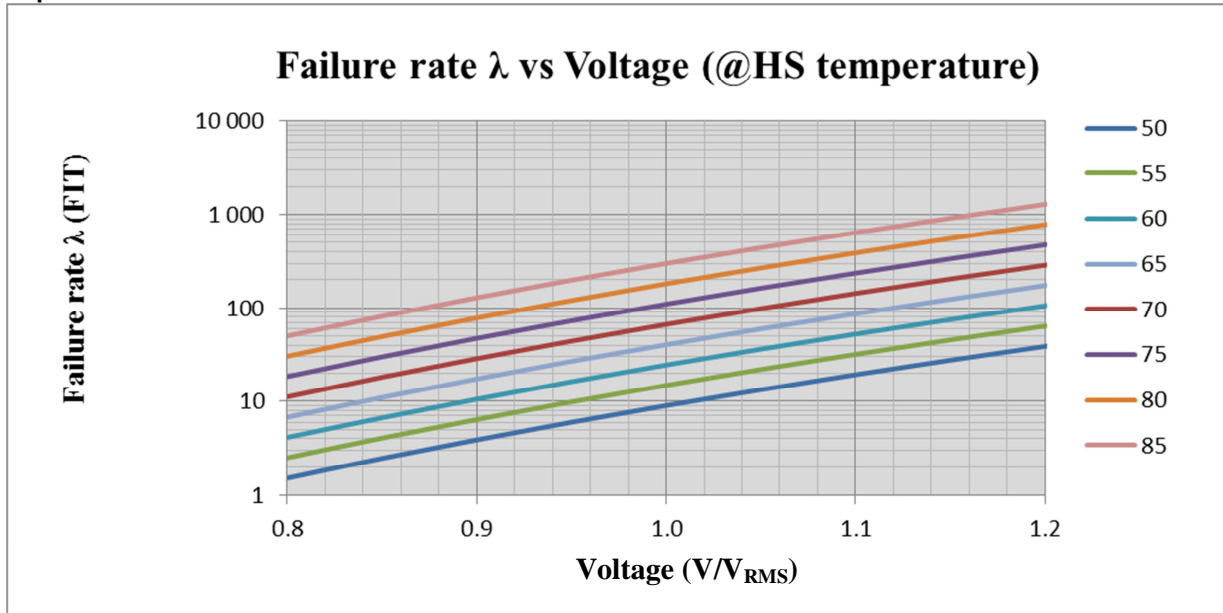
Don't mark UL for rating between 2uF to 20uF. In the blank space the marking can be shifted left

**Drawing 1**

**Drawing 2**


Expected lifetime



Expected Fit rate



**Ordering codes and packing unit**

V <sub>R</sub>	C <sub>R</sub>	I <sub>max</sub> <sup>1)</sup>	$\hat{i}$	ESR <sup>2)</sup>	Case (D × H)	D <sub>1</sub>	L	Drawing	Ordering code	Packing unit	Approval
V <sub>RMS</sub> V	μF	A	A	mΩ	mm	mm	mm				
650 V <sub>R</sub>	2	6	55	35	30 x 55	33	73	2	B33331V7205-J0#X	100	
	4	7	75	23	30 x 65	33	83	2	B33331V7405-J0#X	100	
	6	8	100	21	30 x 65	33	83	2	B33331V7605-J0#X	100	
	8	9	140	17	30 x 65	33	83	2	B33331V7805-J0#X	100	
	10	10	130	19	30 x 75	33	93	2	B33331V7106-J0#X	100	
460 V <sub>RMS</sub>	12	12	210	13	40.5 x 65	43.5	78	1	B33331V7126-J0#X	49	
	14	12	200	11	40.5 x 65	43.5	78	1	B33331V7146-J0#X	49	
	16	12	210	12	40.5 x 75	43.5	88	1	B33331V7166-J0#X	49	
	20	15	260	11	40.5 x 85	43.5	98	1	B33331V7206-J0#X	49	
	25	16	260	12	45 x 85	48	98	1	B33331V7256-J0#X	49	UL
	30	16	340	10	50 x 85	53	98	1	B33331V7306-J0#X	36	UL
	40	16	350	11	50 x 100	53	113	1	B33331V7406-J0#X	36	UL
	50	16	410	14	50 x 100	53	113	1	B33331V7506-J0#X	36	UL

<sup>1)</sup> I<sub>max</sub> – Maximum RMS current for continuous operation defined for a hotspot of ≤ 85°C, case temperature of ≤ 60°C, including harmonics up to frequency of 20 kHz.

<sup>2)</sup> 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

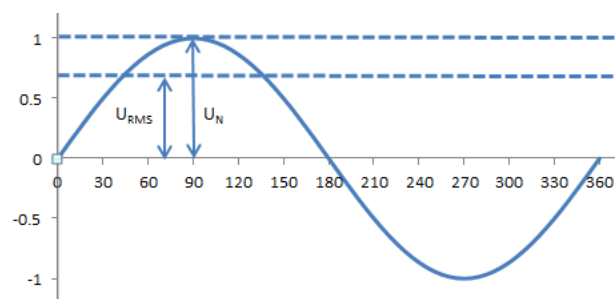
1-9 special dimension and properties

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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**

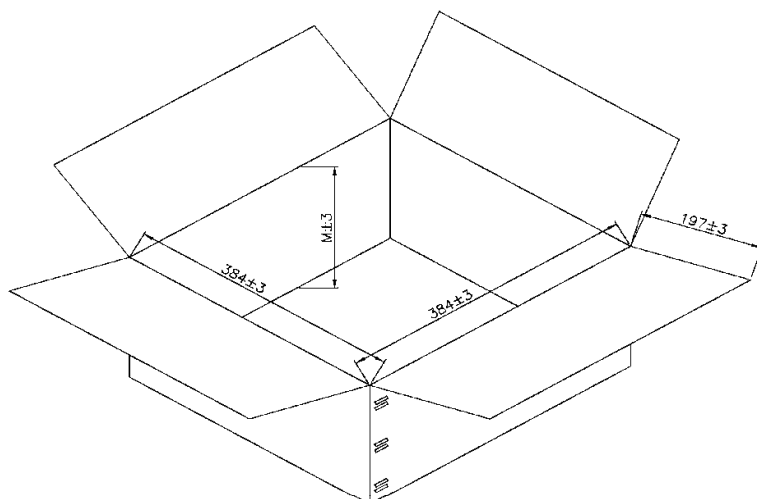
Effective resistance of the capacitor, it represents the resistance due to contacts and resistance of dielectric

**Self-inductance  $L_{self}$** 

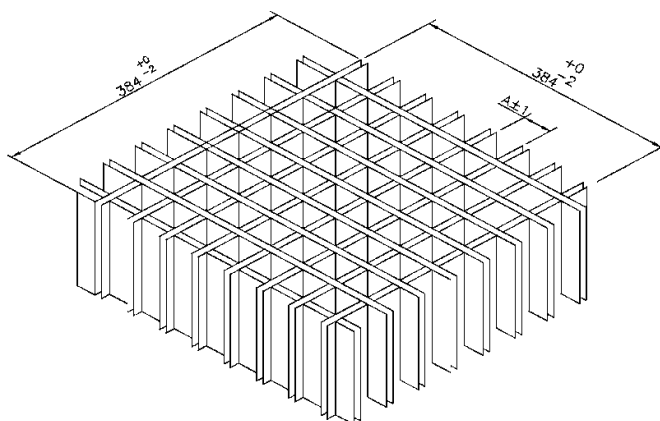
The series inductance of the terminals and the winding.

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](http://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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