Film Capacitors – AC Capacitors

General purpose MKP AC capacitor

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

EPCOS AG is a TDK Group Company.

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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 δ_0 at +20 ℃	≤ $2 \bullet 10^{-4}$ (1 kHz)
Life test	IEC 61071
Life expectancy	100 000 h for V_{RMS} | ΔC/C| ≤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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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 δ at +20 °C	≤ 1.0 • 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 < ±10% Dissipation factor variation Δ tan δ 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	RoHS compatible
Approvals	
US UL File E 238746	Approved component 10000 AFC. See table for approved ratings
CE	Compliance to LV directive 2014/35/EU

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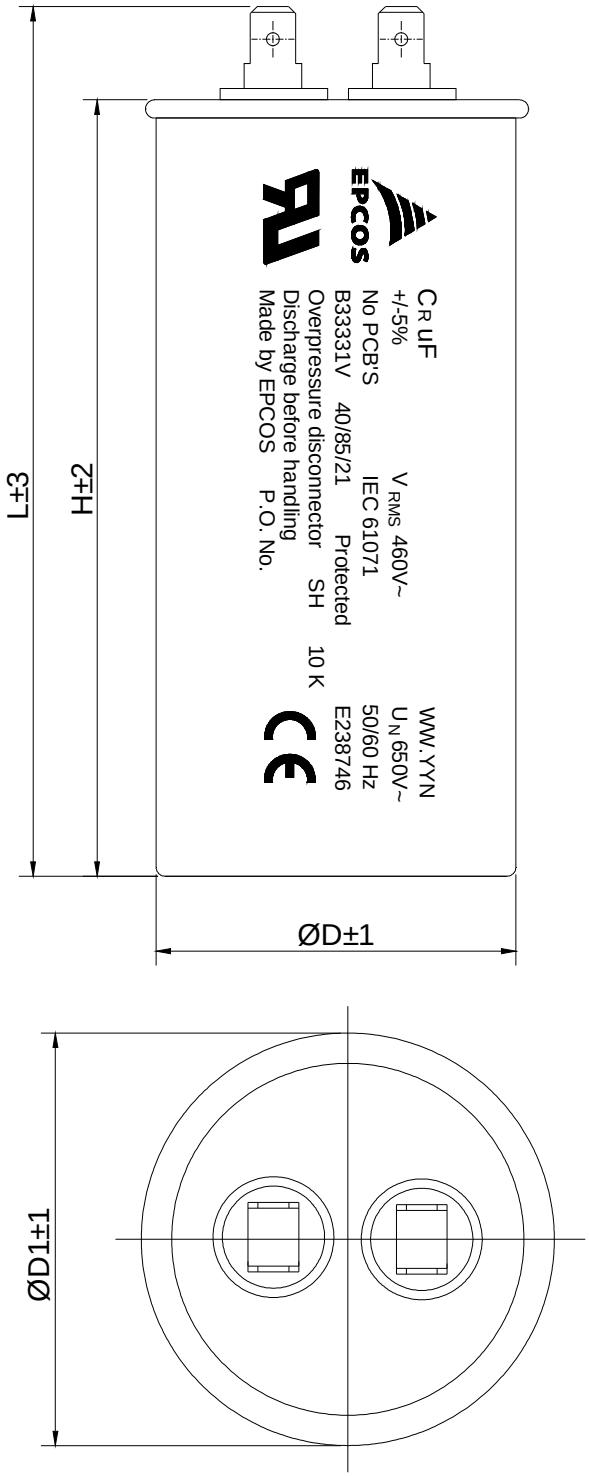
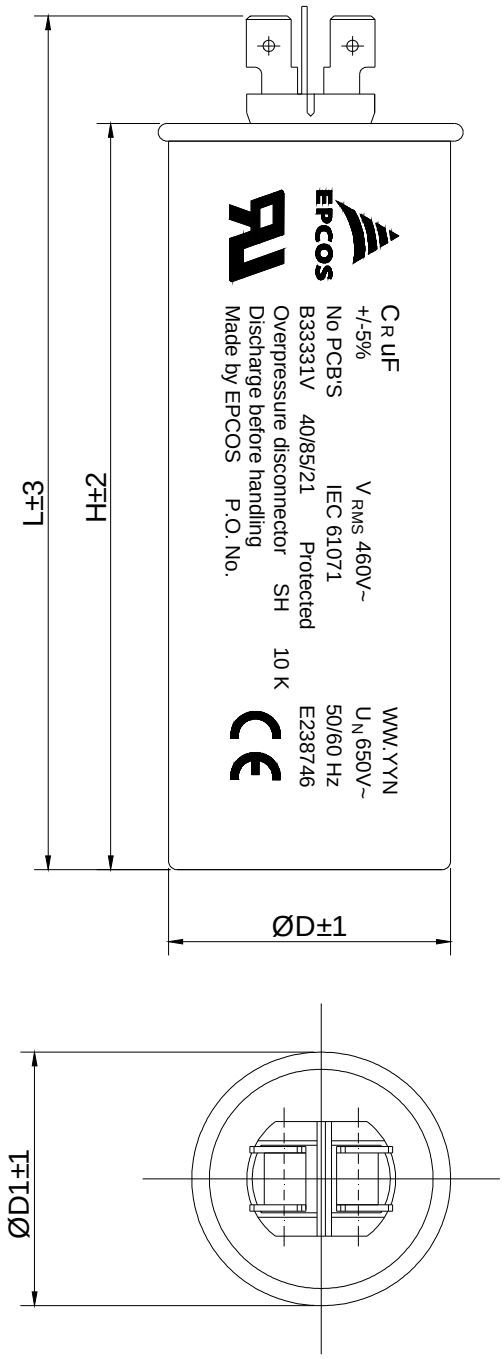
Dimensional drawings and marking

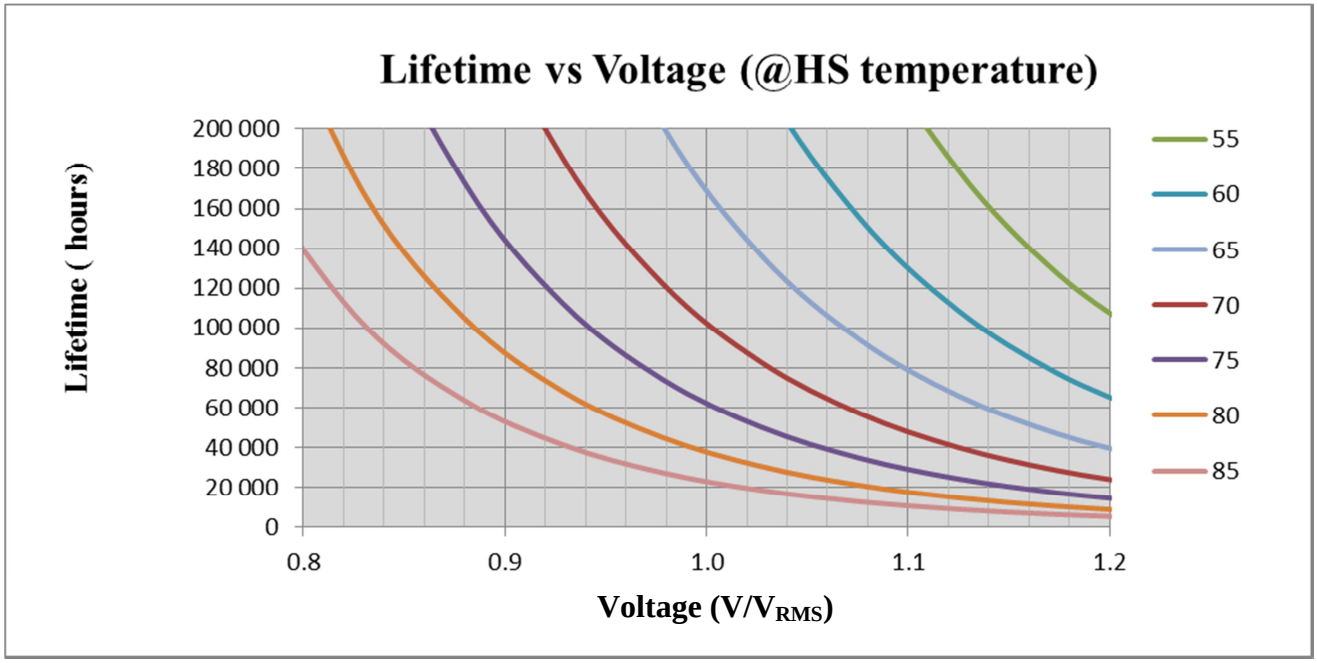


Drawing 1

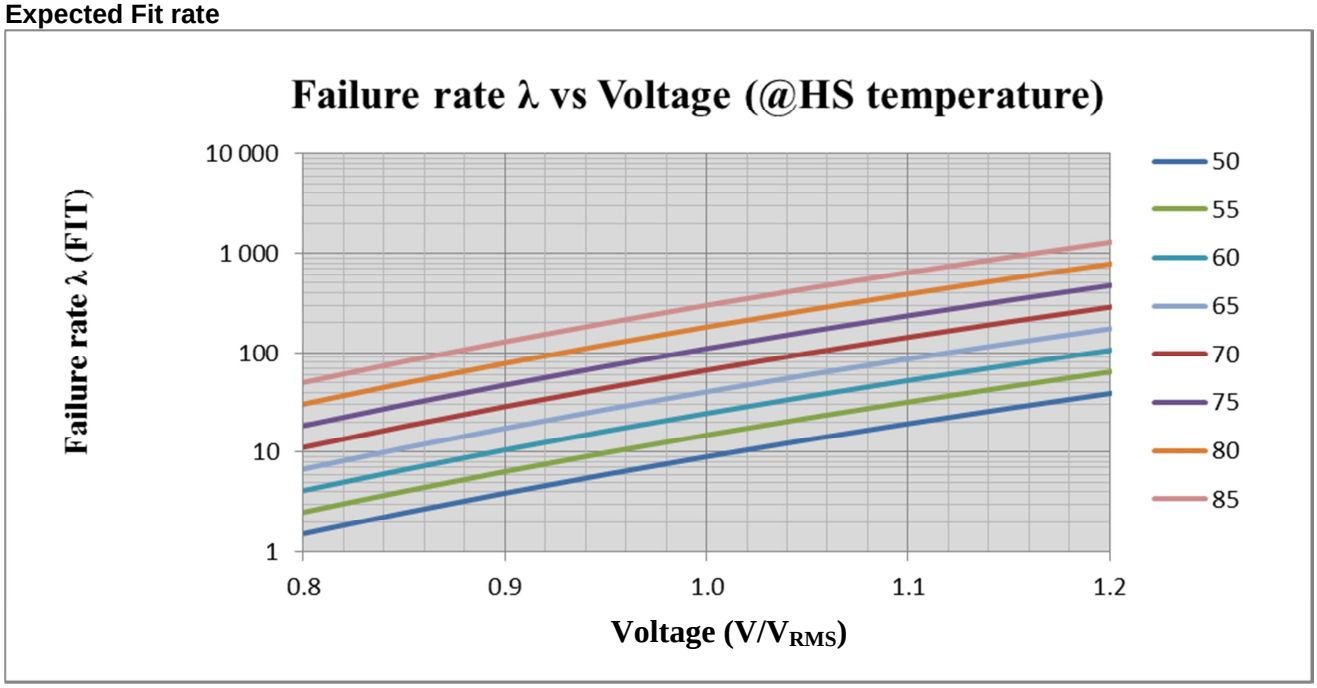


Drawing 2

Expected lifetime



Expected Fit rate



Ordering codes and packing unit

V_R / V_{RMS} V	C_R µF	I_{max} [1)] A	î A	ESR[2)] mΩ	Case (D × 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*)] Imax – Maximum RMS current for continuous operation defined for a hotspot of ≤ 85ºC, case temperature of ≤ 60ºC, including harmonics up to frequency of 20 kHz.

[2)] ESR – Equivalent Series resistance at 1KHz

Composition of ordering code

#:construction

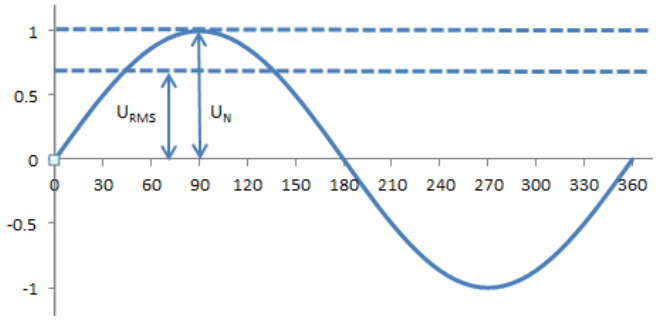
6 Aluminium can Flat type
8 Aluminium can with M8 bolt

X: 0 as per this dimension and properties
1-9 special dimension and properties

Display of ordering codes for EPCOS products

The ordering code for one and the same EPCOS product can be represented differently in data sheets, data books, other publications, on the EPCOS website, or in order-related documents such as shipping notes, order confirmations and product labels. **The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products**. Detailed information can be found on the Internet under www.epcos.com/orderingcodes

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 Î
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.

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

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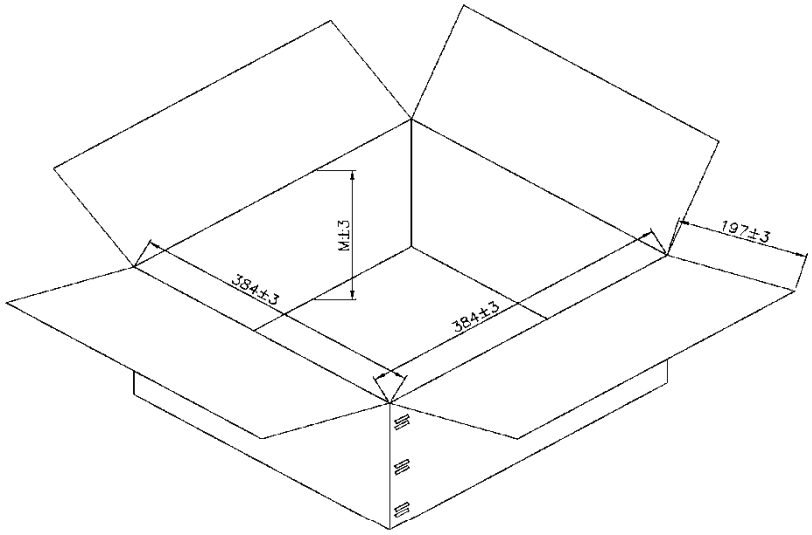
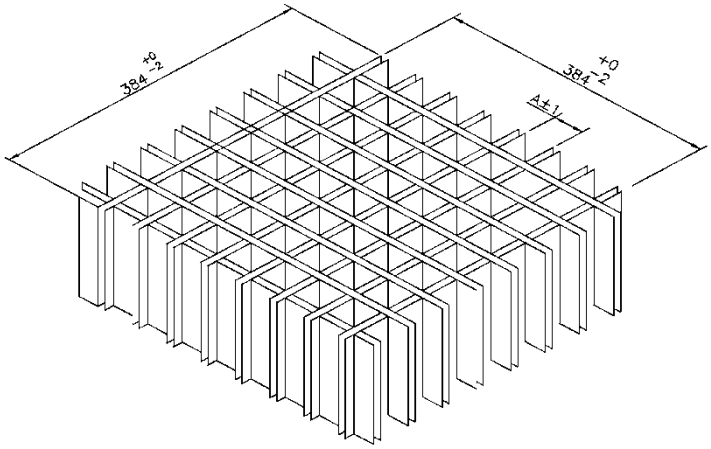
Packing box



M = H(Capacitor height) + Terminal height + 10mm 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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