

Metallized Polypropylene Film Capacitor MKP

Series/Type: CBB60B-500V-15µF- ±10%-P27.5mm

Part No.: C60B156K2HB00000A



CBB60B Type DC-Link Capacitor for (PCB)

 $< 60\% / 93\% RH / 1000h / U_{NDC} >$

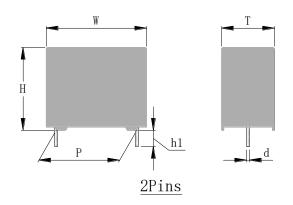
♦ Outline Drawing

Feature:

- Long lifetime.
- Self-healing.
- Low ESL.
- Low ESR.

Typical applications:

- UPS system.
- Renewable energy inverters.
- Frequency converters.



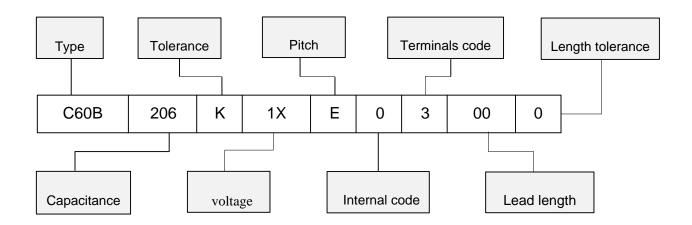
♦ Specifications:

Reference Standard	GB/T 17702、IEC 61071、AEC-Q200				
Climatic Category	40/85/56				
Rated Voltage	500Vdc				
	-40°C~105°C				
Operation Temperature Range (Hot Spot)	(+85°C∼+105°C: 1.35% /°C of U _{OP} derating compared to U _{NDC} at 85°C)				
Capacitance	15µF				
Capacitance Tolerance	±10%(K) (20±5℃,1KHz)				
Volta va Dra of	Between Terminals	U=1.5U _{NDC} (20°C, 10s)			
Voltage Proof	Between Terminals to Case	2000Vac (10s), 50Hz			
Maximum Peak Current(A)	$\hat{I} = C_R \times dv/dt$				
Insulation Resistance	IR×C≥10 000s (20°C, 100Vdc, 1min)				
Operation Life Time	Refer to Expected Lifeti	me Curves			
	Maximum Duration within Day	Observation			
	1.1 U _{NDC} (30% of on-load-dur.)				
Over Voltage	1.15 U _{NDC} (30min/day)				
	1.2 U _{NDC} (5min/day)	System Regulation			
	1.3 U _{NDC} (1min/day)				



◆ Part number code system

For example



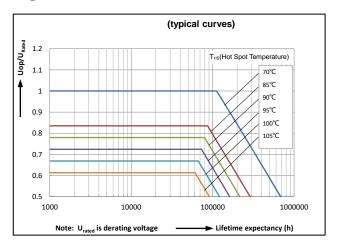
♦ Product Dimension and Characteristic Data:

	$U_{NDC}(85^{\circ}C)$: 600Vdc												
С	$W\pm 1$	H±1	T±1	P±1	P1±1	d±0.05	h1 ± 1	dv/dt	tgδ×	(10-4)	ESR	I _{RMS}	
(µF)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	$(V/\mu s)$	1KHz	10KHz	$(m\Omega)$	(A)	Part number
15	32	33	18	27.5	-	0.8	5.5	65	10	100	5.0	12	C60B156K2HB00000A

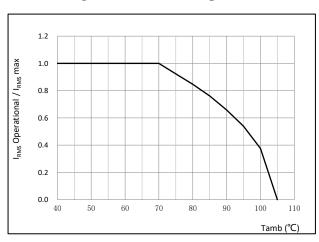
ESR typical values at 10KHz

I_{RMS} is the maximum R.M.S current at 10KHz $^{\circ}$ Tamb=70°C $^{\circ}$ C \(\triangle Tcase \le 20°C.\(Coefficient of heat dissipation: \ 10W/m²/°C\)

Expected Lifetime Curves:



I_{RMS}Derating vs Ambient Temperature:





Reliability:

Test description	Reference	Test conditions	Determine criteria
Voltage test between terminals	IEC 61071	1.5 x U _{NDC} at Tamb Duration: 60 s	No visible damage ΔC/C : ≤0.5% Tanδ: ≤1.2 initial tanδ+ 1×10 ⁻⁴ at10KHz R _{ins} : ≥ 50% of IR limit
Resistance to soldering heat	IEC 60068-2-20	Solder bath temperature at 260°C±5°C, Immersion time: 10s±1s	No visible damage $ \Delta C/C $: $\leq 0.5\%$ Increase of tan δ : $\leq 50 \times 10^{-4}$ at10KHz
Robustness of terminations	IEC 60068-2-21	Wire diameter & Tensile force 0.5 < d≤ 0.8mm 10N 0.8 < d≤1.25mm 20N	No visible damage
Surge discharge test	IEC 61071	1.1 x U _{NDC} Number of discharges: 5(within 10 minutes)	No visible damage ΔC/C : ≤1.0% Tanδ: ≤1.2 initial tanδ+ 1×10 ⁻⁴ at10KHz R _{ins} : ≥ 50% of IR limit
Change of temperature	IEC 60068-2-14	Tmax. =85 °C Tmin. = - 40 °C Transition time: 1 h, equivalent to 1°C/min 5 cycles	No visible damage $ \Delta C/C $: $\leq 2.0\%$ Increase of tan δ : $\leq 150 \times 10^{-4}$ at 10×10^{-4} at 10×10^{-4} in the sum of the
Damp heat steady	IEC 60068-2-78	Tmax. = 40 °C RH = 93 % Duration 56 days	No visible damage $ \Delta C/C $: $\leq 2.0\%$ Increase of tan δ : $\leq 150 \times 10^{-4}$ at 10×10^{-4} at 10
Biased humidity	AEC-Q200	T =40 °C RH = 93 % at U _{NDC} Duration: 1000h T =60 °C RH = 93 % at U _{NDC} Duration: 1000h	NO visible damage $ \Delta C/C : \le 5 \ \%$ $ \triangle \tan \delta / \tan \delta : \le 200 \% \ at \ 10 KHz$ Rins: $\ge 200 M\Omega$ NO visible damage $ \Delta C/C : \le 5 \ \%$ $ \triangle \tan \delta / \tan \delta : \le 200 \% \ at \ 10 KHz$ Rins: $\ge 200 M\Omega$
Endurance test between terminals	IEC 61071	1.3 xU _{NDC} at Tmax. = 85 °C, Duration 500 h 1000 x discharge at 1.4 x I (repetitive peak current in continuous operation) 1.3x U _{NDC} at Tmax. = 85 °C Duration 500 h	No visible damage $ \Delta C/C $: $\leq 3.0\%$ Increase of tan δ : $\leq 150 \times 10^{-4}$ at 10×10^{-4} at 10×10^{-4} Bins: 10×10^{-4} at
Self healing test	IEC 61071	1.5 ×UNDC Duration 10 sec, Number of Self healing ≤ 5, increase the voltage at 100 V/s till 5, with a max. of 2.5×UNDC for a duration of 10 sec	No visible damage $ \Delta C/C \colon \le 0.5~\%$ tan $\delta\colon \le 1.1~$ initial tan $\delta+1\times10^{-4}$ at10KHz
Vibration	IEC60068	f=10 Hz to 55 Hz a=±0.35mm Test duration per axis = 10 frequency cycles (3 axes offset from each other by 90°)。1 octave/min, the total times are 135 min for 3axes	No visible damage



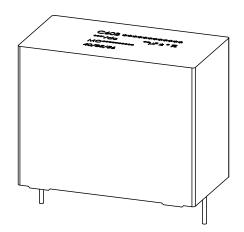
Marking

C60B156K2HB00000A

500Vdc $15\mu F \pm 10\%$

MO******

40/85/56

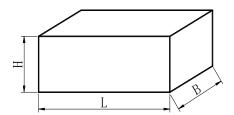


Next item shall be marked on each capacitor case by laser or link:

- > Manufacturer's logo.
- ➤ Part NO..
- > Rate voltage.
- > Rated capacitance and capacitance tolerance.
- > Batch number.
- > Climatic category.

♦ Packaging in bulk:

- The capacitor will be arranged by a plater, and put it into the packing box. Every4 boxes are packed in the outer box.
- Packing diagram, inner packing box and outer packing box dimensions are shown in the figure below.
- For the packing box with capacitors, all kinds of shipments are permitted, but the sprinkle of rain or snow and mechanical damage must be avoided.



L±5mm	330	470
B±5mm	230	340
H±5mm	100	220





Permissible conditions:

- > Do not exceed upper category temperature.
- > Avoid overload of capacitors.
- > Pulse current should be within the figures calculated by dv/dt.

Handling cautions:

- > Do not apply excessive force to the lead wire root area.
- > Be careful to lead cusp.

Recommend storage conditions:

- ➤ Temperature: ≤ 30°C.
- ➤ Humidity ≤70%RH, no dew allowed on the capacitor.