

## Thin Film Binary MOS Capacitors



Product may not be to scale

The CBB and CBC MOS capacitor chips each contain five different capacitors in binary increments allowing the user many choices in value selection.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated Thin Film equipment and manufacturing technology. The CBB and CBCs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032, class H or K.

### FEATURES

- Wire bondable
- User value selection
- Five capacitors on a 0.019" x 0.048" (CBB) or 0.044" x 0.044" (CBC) chip
- Case size: 0402, 0404
- Capacitance range: up to 93 pF in binary increments
- Dielectric: silicon dioxide
- Low dielectric loss
- Substrate: silicon with gold backing
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

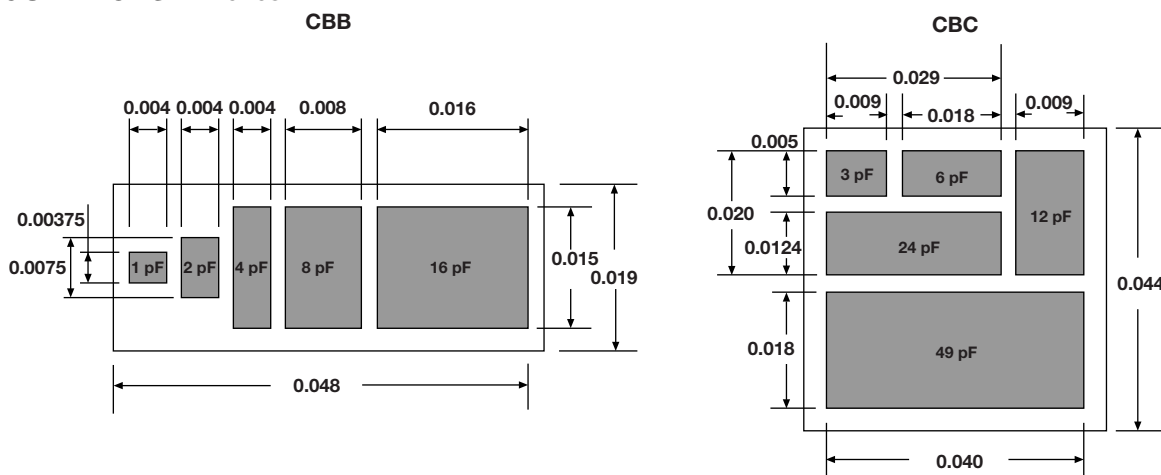
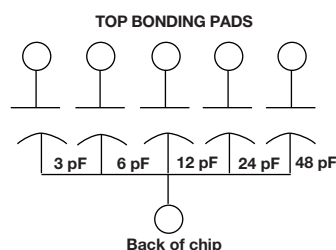
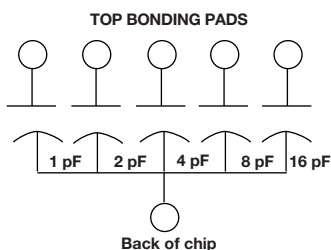
Vishay EFI CBB and CBC binary MOS multi-value capacitor chips are designed to be a useful device for trimming hybrid circuits by adding or subtracting capacitance, using normal wire-bonding techniques.

### WV (DC) VALUES AND TOLERANCES

CAPACITOR MODEL	CBB	CBC	UNIT
Case Size	0402	0404	
Total Capacitance	Up to 31	Up to 93	pF
Capacitance Values (31 pF / 93 pF)	1, 2, 4, 8, 16	3, 6, 12, 24, 48	pF
Tolerance	± 10	± 10	%
DC Working Voltage	75	75	V

### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	VALUE	UNIT
Capacitance Range, CBB	Up to 31	pF
Capacitance Range, CBC	Up to 93	pF
Maximum Working Voltage	75	V
Peak Voltage at +25 °C	1.5 x working voltage	
Dissipation Factor, 1 kHz, 1 V <sub>RMS</sub> , +25 °C	0.1 %	%
Q at 1 mHz, 50 mV <sub>RMS</sub> , +25 °C	1000 min.	
TCC, -55 °C to +150 °C	+ 15 ± 25	ppm/°C
Insulation Resistance at Working Voltage, +25 °C	10 <sup>9</sup> min.	Ω
Operating Temperature Range	-55 to +15	°C
Thermal Shock	± 0.25 + 0.25 pF max. ΔC/C	%
Moisture Resistance, MIL-STD-202, Method 106	± 1.0 + 0.25 pF max. ΔC/C	%
Short Time Overload, +25 °C, 5 s; 1.5 x Working Voltage	± 0.25 + 0.25 pF max. ΔC/C	%
High Temperature Exposure: 100 h at +150 °C Ambient	± 0.25 + 0.25 pF max.	%
Life, MIL-STD-202, Method 108, Condition D, +125 °C Ambient, 1000 h at Working Voltage	± 2.0 + 0.25 pF max. ΔC/C	%

**CONFIGURATIONS** in inches

**SCHEMATIC**


MECHANICAL SPECIFICATIONS	
PARAMETER	VALUE
Chip Size, CBB	0.019" x 0.048" $\pm$ 0.002" (0.48 mm x 1.2 mm $\pm$ 0.05 mm)
Chip Size, CBC	0.044" x 0.044" $\pm$ 0.002" (1.1 mm x 1.1 mm $\pm$ 0.05 mm)
Chip Thickness	0.010" $\pm$ 0.002" (0.254 mm $\pm$ 0.05 mm)
Chip Substrate Material	Semiconductor silicon
Dielectric	Silicon dioxide (MOS)
Bonding Pads	10 kÅ minimum aluminum (Au optional)
Backing	3 kÅ minimum gold

GLOBAL PART NUMBER INFORMATION	
Global Part Number: CBB3100BLGKWS	
Global Part Number Description: CBB 31 pF 25 % Au K WS	
<div style="display: flex; justify-content: space-around; font-weight: bold;"> <span>C</span><span>B</span><span>B</span><span>3</span><span>1</span><span>0</span><span>0</span><span>B</span><span>L</span><span>G</span><span>K</span><span>W</span><span>S</span> </div>	
MODEL	SIZE
CB Binary Capacitor	B = 19 x 48 C = 44 x 44
CAPACITANCE (pF)	CAPACITANCE MULTIPLIER CODE
First 4 digits are significant figures of capacitance	C = 0.001 B = 0.01
TOLERANCE CODE	TERMINATION
K = 10 % M = 20 % L = 25 %	G = Au A = Al
VISUAL CLASS	PACKAGING CODE
H = class H K = class K	WS = Waffle pack, 100 min., 1 mult.



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