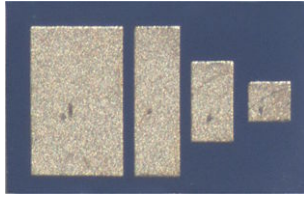


## Thin Film Binary MOS Capacitors



Product may not be to scale

The CBA MOS capacitor chips each contain four different capacitors in binary increments allowing the user many choices in value selection. Two versions of CBA capacitors are available: one with a total capacitance of 3.75 pF and one with a total capacitance of 15 pF.

These chips are manufactured using Vishay Electro-Films (EFI) sophisticated Thin Film equipment and manufacturing technology. The CBAs are 100 % electrically tested and visually inspected to MIL-STD-883.

### FEATURES

- Wire bondable
- User value selection
- Four capacitors with common connection
- Capacitance range: 0.25 pF to 15 pF in binary increments
- Dielectric: Silicon dioxide
- Chip size: 0.019" x 0.030"
- 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

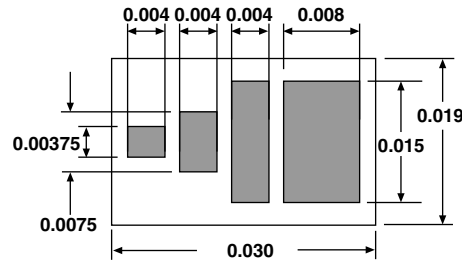
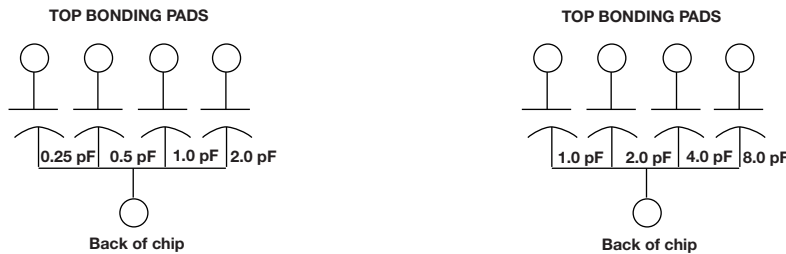
Vishay EFI CBA binary MOS multi-value capacitor chips are designed for hybrid packages in which microwave circuits are to be trimmed. This is done on the CBA chips by selecting the bonding pad for the required capacitance and wire-bonding by conventional techniques.

### WV (DC) VALUES AND TOLERANCES

| CAPACITOR MODEL    | CBA 3.75 pF          | CBA 15 pF          | UNIT |
|--------------------|----------------------|--------------------|------|
| Case Size          | 0203                 | 0203               |      |
| Total Capacitance  | 3.75                 | 15                 | pF   |
| Capacitance Values | 0.25, 0.50, 1.0, 2.0 | 1.0, 2.0, 4.0, 8.0 | pF   |
| Tolerance          | ± 25                 | ± 10               | %    |
| DC Working Voltage | 100                  | 30                 | V    |

### STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER   | VALUE                      | UNIT   |
|---|----------------------------|--------|
| Capacitance Range   | 0.25 to 15                 | pF     |
| Maximum Working Voltage   | 100                        | V      |
| Peak Voltage at + 25 °C   | 1.5 x working voltage      |        |
| Dissipation Factor, 1 kHz, 1 V <sub>RMS</sub> , + 25 °C                                 | 0.1 max. MOS               | %      |
| 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 + 150              | °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                 | 0.019" x 0.030" ± 0.002" (0.48 mm x 0.75 mm ± 0.05 mm) |
| Chip Thickness            | 0.010" ± 0.003" (0.25 mm ± 0.08 mm)                    |
| Chip Substrate Material   | Semiconductor silicon                                  |
| Dielectric                | Silicon dioxide (MOS)                                  |
| Bonding Pads              | 10 kÅ minimum aluminum                                 |
| Backing                   | 3 kÅ minimum gold                                      |

| GLOBAL PART NUMBER INFORMATION                                  |   |          |                                     |          |   |          |                                |          |  |          |   |          |          |
|---|---|----------|-------------------------------------|----------|---|----------|--------------------------------|----------|--|----------|---|----------|----------|
| Global Part Number: <b>CBA3750CMAHWS</b>                        |   |          |                                     |          |   |          |                                |          |  |          |   |          |          |
| Global Part Number Description: <b>CBA 3.75 pF 20 % Al H WS</b> |   |          |                                     |          |   |          |                                |          |  |          |   |          |          |
|   | <b>C</b>  | <b>B</b> | <b>A</b>                            | <b>3</b> | <b>7</b>  | <b>5</b> | <b>0</b>                       | <b>C</b> | <b>M</b>                                 | <b>A</b> | <b>H</b>                                    | <b>W</b> | <b>S</b> |
| MODEL   | CAPACITANCE (pF)                                      |          | CAPACITANCE MULTIPLIER CODE         |          | TOLERANCE CODE  |          | TERMINATION                    |          | VISUAL CLASS                             |          | PACKAGING CODE                              |          |          |
| <b>CBA</b>  | First 4 digits are significant figures of capacitance |          | <b>C</b> = 0.001<br><b>B</b> = 0.01 |          | <b>K</b> = 10 %<br><b>M</b> = 20 %<br><b>L</b> = 25 % |          | <b>G</b> = Au<br><b>A</b> = Al |          | <b>H</b> = Class H<br><b>K</b> = Class K |          | <b>WS</b> = Waffle pack<br>100 min., 1 mult |          |          |



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