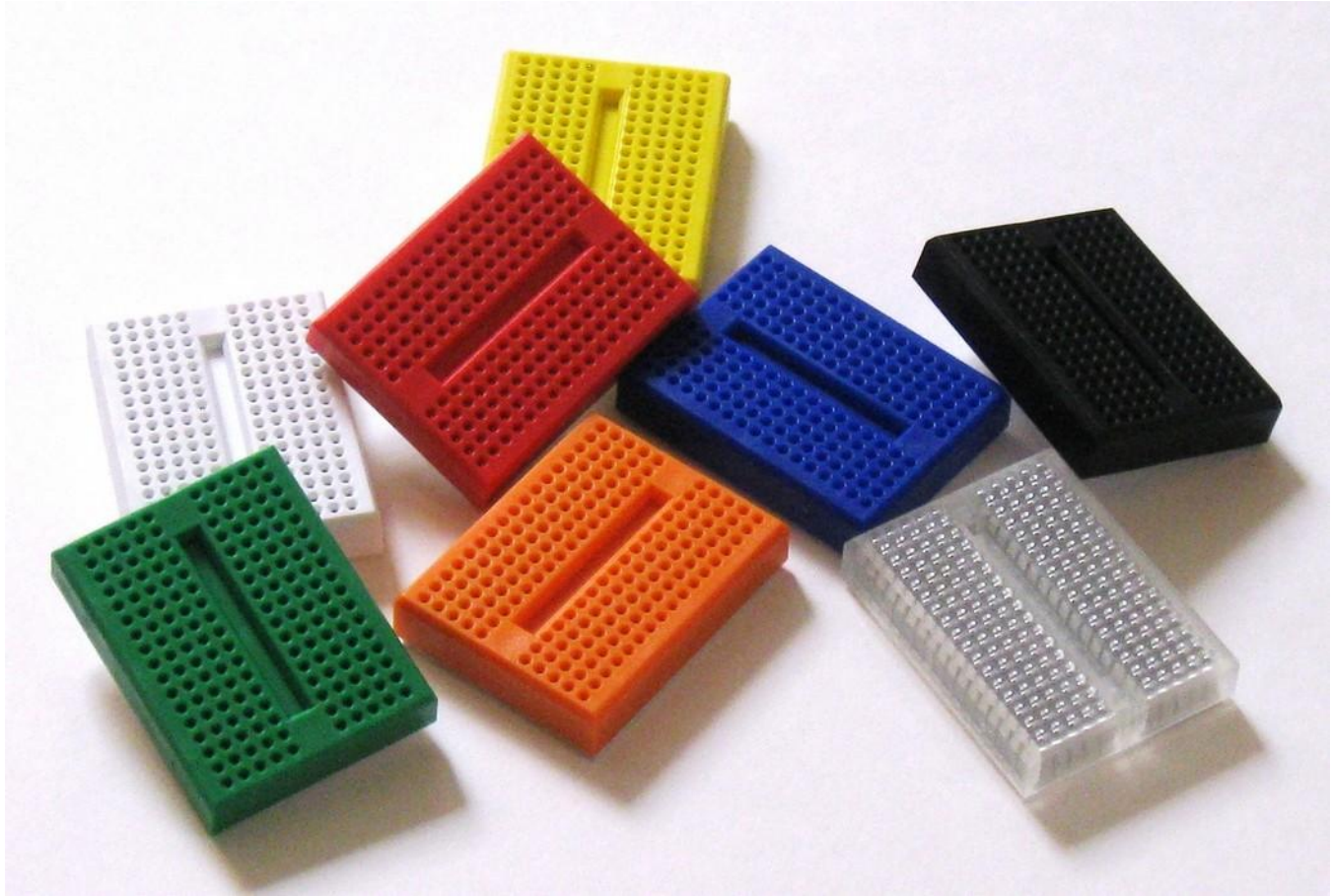


## **BB170 – Plug-in Solderless BreadBoards**



*170 tie point solderless “plug-in” breadboards provide a quick way to build and test circuits for experimentation or when learning electronics.*



### **Features**

- 170 tie-point breadboard, available in 8 colors
- Double sided tape and 2 mounting screws provided
- Small size allows it to be mounted in small spaces, such as on Arduino protoshields
- Good for quick projects or add-on circuits.
- POM plastic housing for color breadboards, ABS plastic for transparent model.
- Size: 1.8 x 1.4 x 0.4in (45.7 x 35.6 x 9.4mm)

## Solderless BreadBoard Specifications

|                             |   |
|-----------------------------|---|
| <b>BB170 Body Material:</b> | POM Plastic or ABS Plastic (transparent model)  |
| <b>Hole Pitch/Style:</b>    | 0.1" (2.54 mm), Round Wire Holes  |
| <b>Spring Clip Contact:</b> | Phosphor Bronze with Plated Nickel Finish   |
| <b>Contact Life:</b>        | 50,000 insertions   |
| <b>Rating:</b>              | 36 Volts, 2 Amps Max<br>(Multiple contacts should not be used at maximum current due to heating). |
| <b>Insertion Wire Size:</b> | 21 to 26 AWG, 0.016 to 0.028 inches diameter (0.4 to 0.7mm diameter)                              |
| <b>Backing:</b>             | Peelable adhesive tape for attaching to a surface.<br>Two mounting screws provided.               |
| <b>Size:</b>                | 1.8 x 1.4 x 0.4in (45.7 x 35.6 x 9.4mm)   |

All BPS BreadBoards are Lead-Free and *RoHS Compliant*.

|                         |          |              |
|-------------------------|----------|--------------|
| <b>Order BPS Part#:</b> | BB170-BK | Black        |
|                         | BB170-BL | Blue         |
|                         | BB170-GR | Green        |
|                         | BB170-OR | Orange       |
|                         | BB170-RD | Red          |
|                         | BB170-TP | Transparent  |
|                         | BB170-WH | White        |
|                         | BB170-YW | Yellow       |
|                         | BB170-C  | Random Color |

## Solderless BreadBoard FAQ

### **Q: What circuit frequencies can I use with a plug-in solderless breadboard?**

A: Due to large stray capacitance (from 2-25pF per contact point), the inductance of connections, and a relatively high and not very reproducible contact resistance, solderless breadboards are limited to operate at relatively low frequencies, usually less than 10 MHz, depending on the nature of the circuit. The relatively high contact resistance can also be a problem for some DC and very low frequency circuits.

Source <http://en.wikipedia.org/wiki/Breadboard>

Higher frequency operation may be possible in some cases, depending upon the circuit requirements.

Note: Solderable PC BreadBoards, such as the BPS BR1, SB300, and SB400 will provide lower stray capacitance and lower connection resistance which may allow higher frequency operation for some circuits.

For circuits sensitive to small changes in values, component adjustments may be needed when the circuit is moved from a plug-in breadboard to a Solderable PC BreadBoard, due to these small differences.

### **Q: Can I plug DIL or SIL connector headers into the breadboard?**

A: Yes. The square pin of a standard 0.1" spacing header is typically 0.025 inches wide. This is within the 0.016 to 0.028 inch wire insertion size range recommended for the breadboard.

## **Solderless BreadBoard NSFAQ**

**Q: Who invented the solderless breadboard?**

A: US Patent #203938 was awarded to Ronald J. Portugal of EI Instruments Inc. in 1971.

**Q: Why is phosphorus added to the bronze used in the contacts?**

A: Phosphor bronze is an alloy of copper with 3.5 to 10% of tin and a significant phosphorus content of up to 1%. The phosphorus is added as deoxidizing agent during melting.

These alloys are notable for their toughness, strength, low coefficient of friction, and fine grain. The phosphorus also improves the fluidity of the molten metal and thereby improves the castability, and improves mechanical properties by cleaning up the grain boundaries.

Source [http://en.wikipedia.org/wiki/Phosphor\\_bronze](http://en.wikipedia.org/wiki/Phosphor_bronze)

## **BULK BREADBOARDS AVAILABLE IN CASES OF 500**

**BB170 White Part #: BB170-WHx500**

**BB170 Transparent Part #: BB170-TPx500**

**BB170 Black Part #: BB170-BKx500**

**BB170 Blue Part #: BB170-BLx500**

**BB170 Green Part #: BB170-GRx500**

**BB170 Orange Part #: BB170-ORx500**

**BB170 Red Part #: BB170-RDx500**

**BB170 Yellow Part #: BB170-YWx500**