

Accessory Pack for Electricity and Magnetism

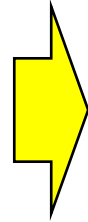
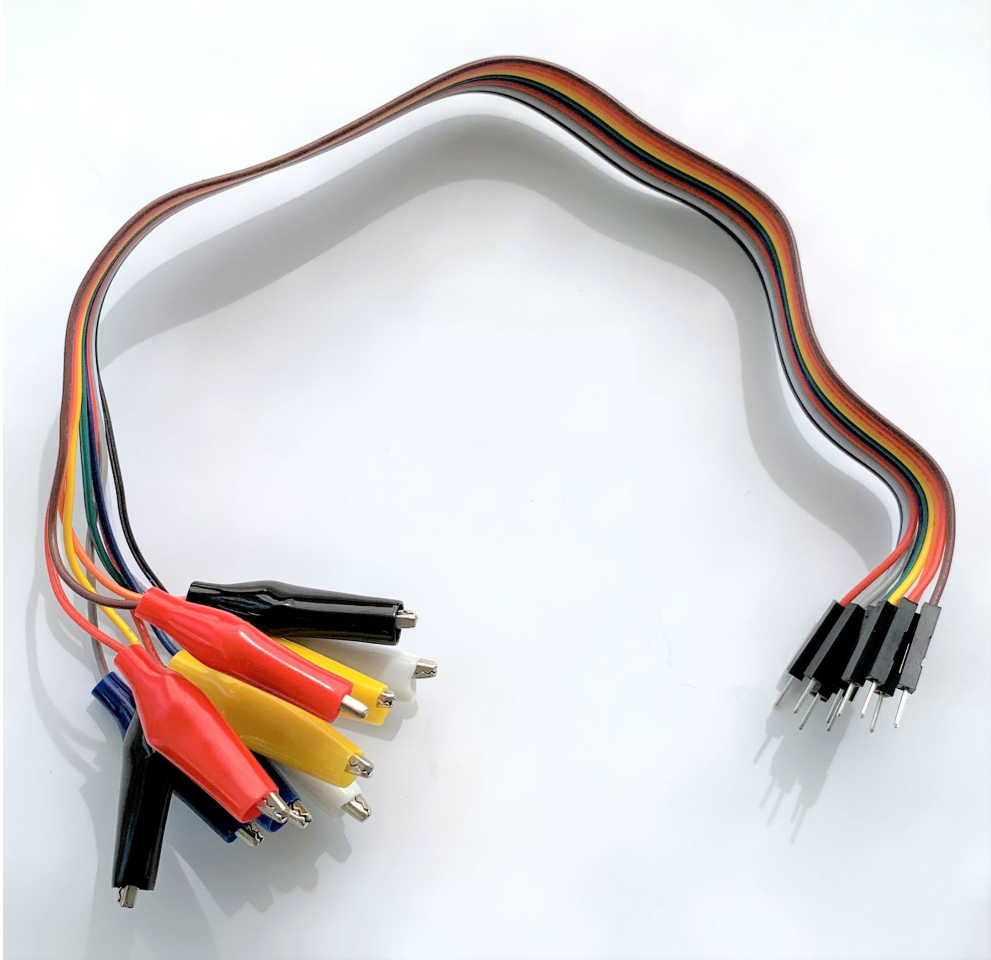


Unboxing videos are linked below:

(running time in parentheses)

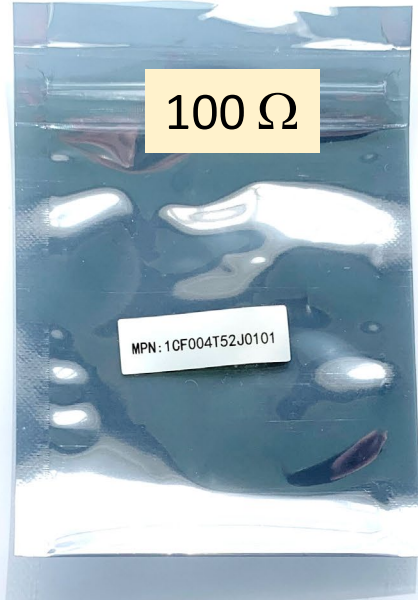
- [A First Look](#) (1:03)
- [The Wires](#) (0:52)
- [The Resistors](#) (2:07)
- [The Capacitors](#) (1:01)
- [The LED's and diodes](#) (0:59)
- [The Inductor](#) (0:19)
- [The Breadboard](#) (1:10)
- [The Magnet-Wire](#) (1:08)
- [The Magnet and Hook](#) (0:18)
- [The Polarizing Sheets](#) (0:40)

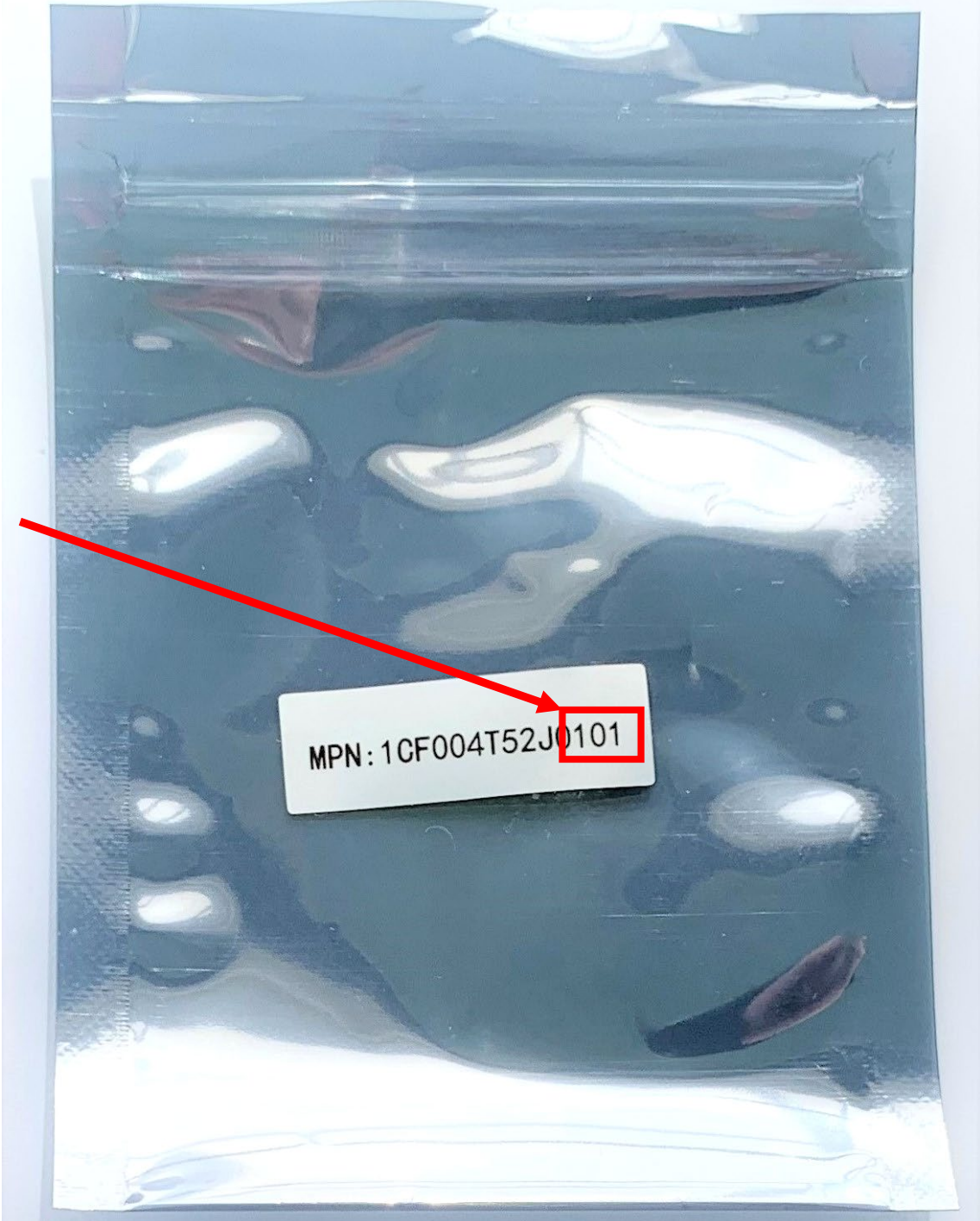
Wires



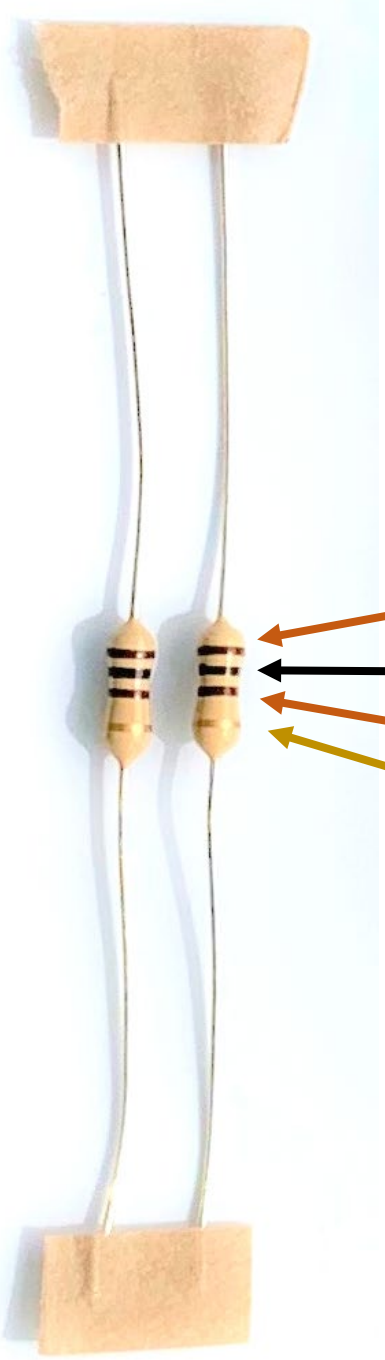
Peel apart to use individual wires

Resistors





MPN: 1CF004T52J0101



100 Ω

Brown
Black
Brown
Gold

| Color | 1st, 2nd Band Significant Figures | Multiplier | Tolerance |
|--------|-----------------------------------|------------|------------|
| Black | 0 | × 1 | |
| Brown | 1 | × 10 | ±1% (F) |
| Red | 2 | × 100 | ±2% (G) |
| Orange | 3 | × 1K | ±0.05% (W) |
| Yellow | 4 | × 10K | ±0.02% (P) |
| Green | 5 | × 100K | ±0.5% (D) |
| Blue | 6 | × 1M | ±0.25% (C) |
| Violet | 7 | × 10M | ±0.1% (B) |
| Grey | 8 | × 100M | ±0.01% (L) |
| White | 9 | × 1G | |
| Gold | | × 0.1 | ±5% (J) |
| Silver | | × 0.01 | ±10% (K) |

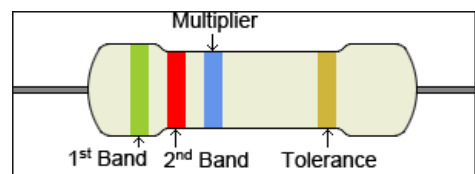


MPN: 1CF004T52J0102



1000 Ω

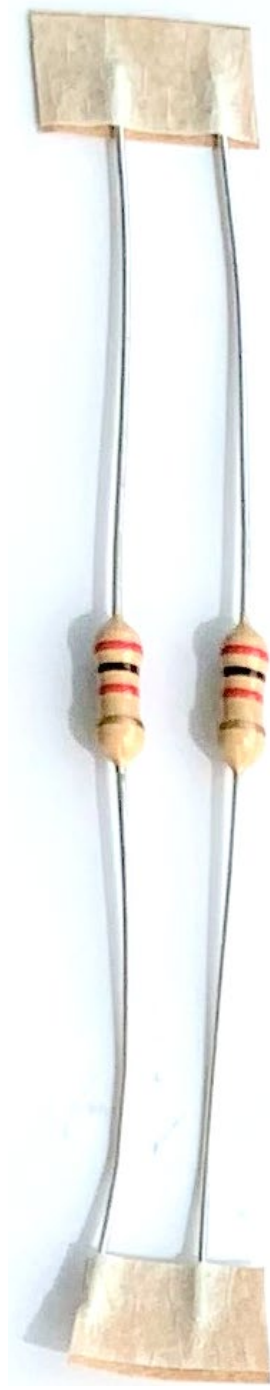
- ← Brown
- ← Black
- ← Red
- ← Gold



| Color | 1 st , 2 nd Band Significant Figures | Multiplier | Tolerance |
|--------|--|------------|------------|
| Black | 0 | × 1 | |
| Brown | 1 | × 10 | ±1% (F) |
| Red | 2 | × 100 | ±2% (G) |
| Orange | 3 | × 1K | ±0.05% (W) |
| Yellow | 4 | × 10K | ±0.02% (P) |
| Green | 5 | × 100K | ±0.5% (D) |
| Blue | 6 | × 1M | ±0.25% (C) |
| Violet | 7 | × 10M | ±0.1% (B) |
| Grey | 8 | × 100M | ±0.01% (L) |
| White | 9 | × 1G | |
| Gold | | × 0.1 | ±5% (J) |
| Silver | | × 0.01 | ±10% (K) |

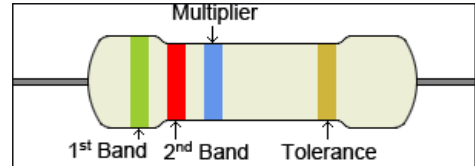


MPN: 1CF004T52J0202

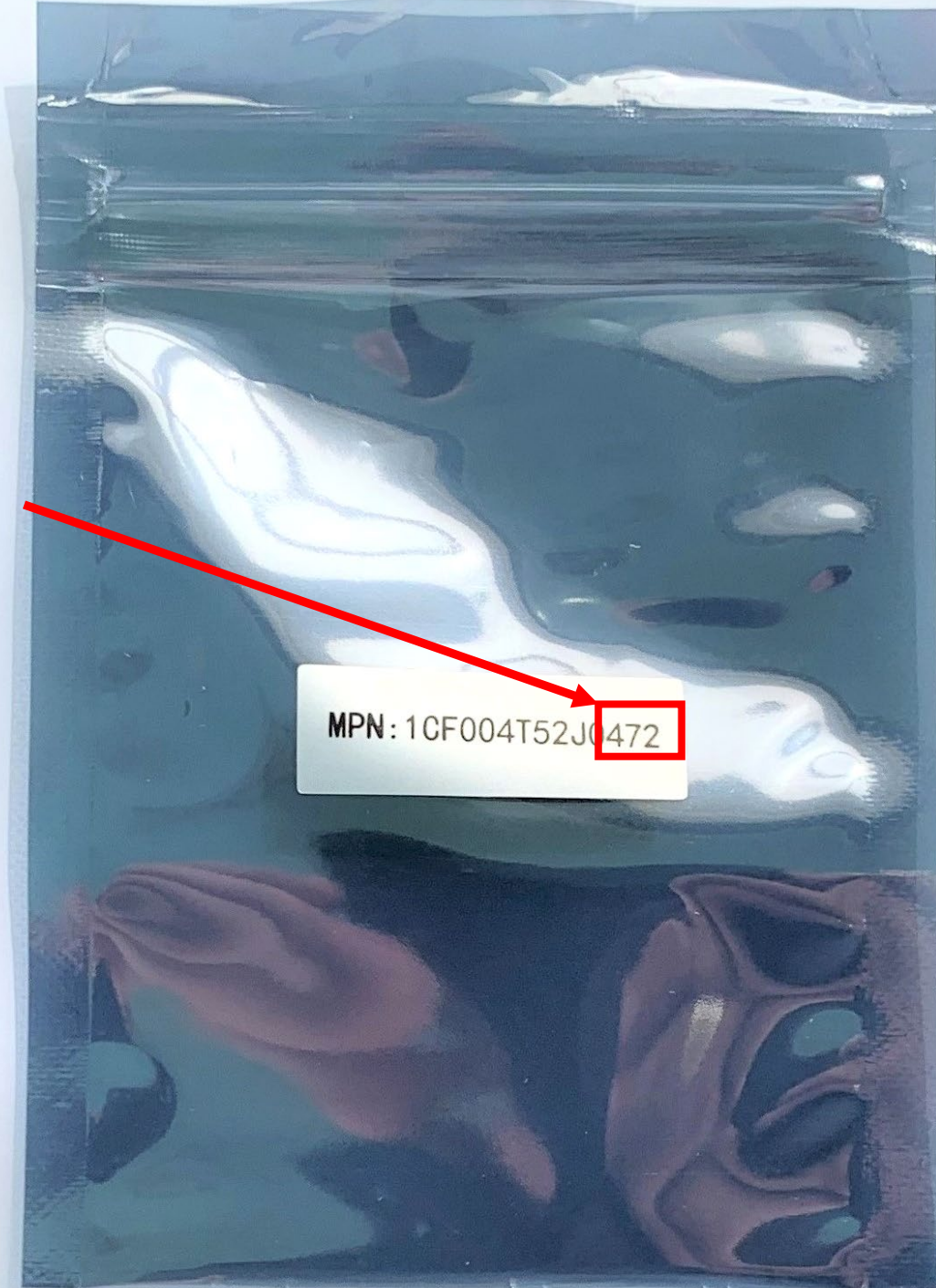


2000 Ω

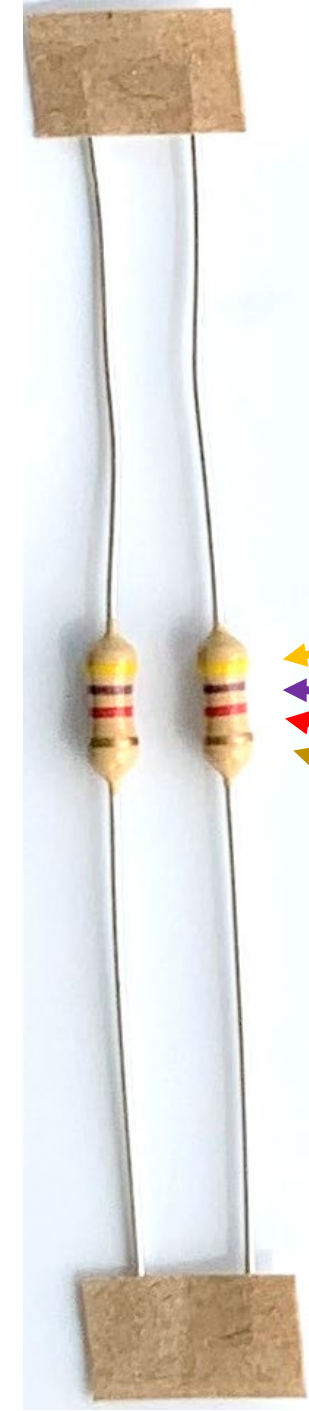
Red
Black
Red
Gold



| Color | 1 st , 2 nd Band Significant Figures | Multiplier | Tolerance |
|--------|--|---------------|------------------|
| Black | 0 | $\times 1$ | |
| Brown | 1 | $\times 10$ | $\pm 1\%$ (F) |
| Red | 2 | $\times 100$ | $\pm 2\%$ (G) |
| Orange | 3 | $\times 1K$ | $\pm 0.05\%$ (W) |
| Yellow | 4 | $\times 10K$ | $\pm 0.02\%$ (P) |
| Green | 5 | $\times 100K$ | $\pm 0.5\%$ (D) |
| Blue | 6 | $\times 1M$ | $\pm 0.25\%$ (C) |
| Violet | 7 | $\times 10M$ | $\pm 0.1\%$ (B) |
| Grey | 8 | $\times 100M$ | $\pm 0.01\%$ (L) |
| White | 9 | $\times 1G$ | |
| Gold | | $\times 0.1$ | $\pm 5\%$ (J) |
| Silver | | $\times 0.01$ | $\pm 10\%$ (K) |

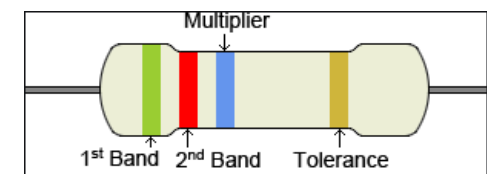


MPN: 1CF004T52J0472

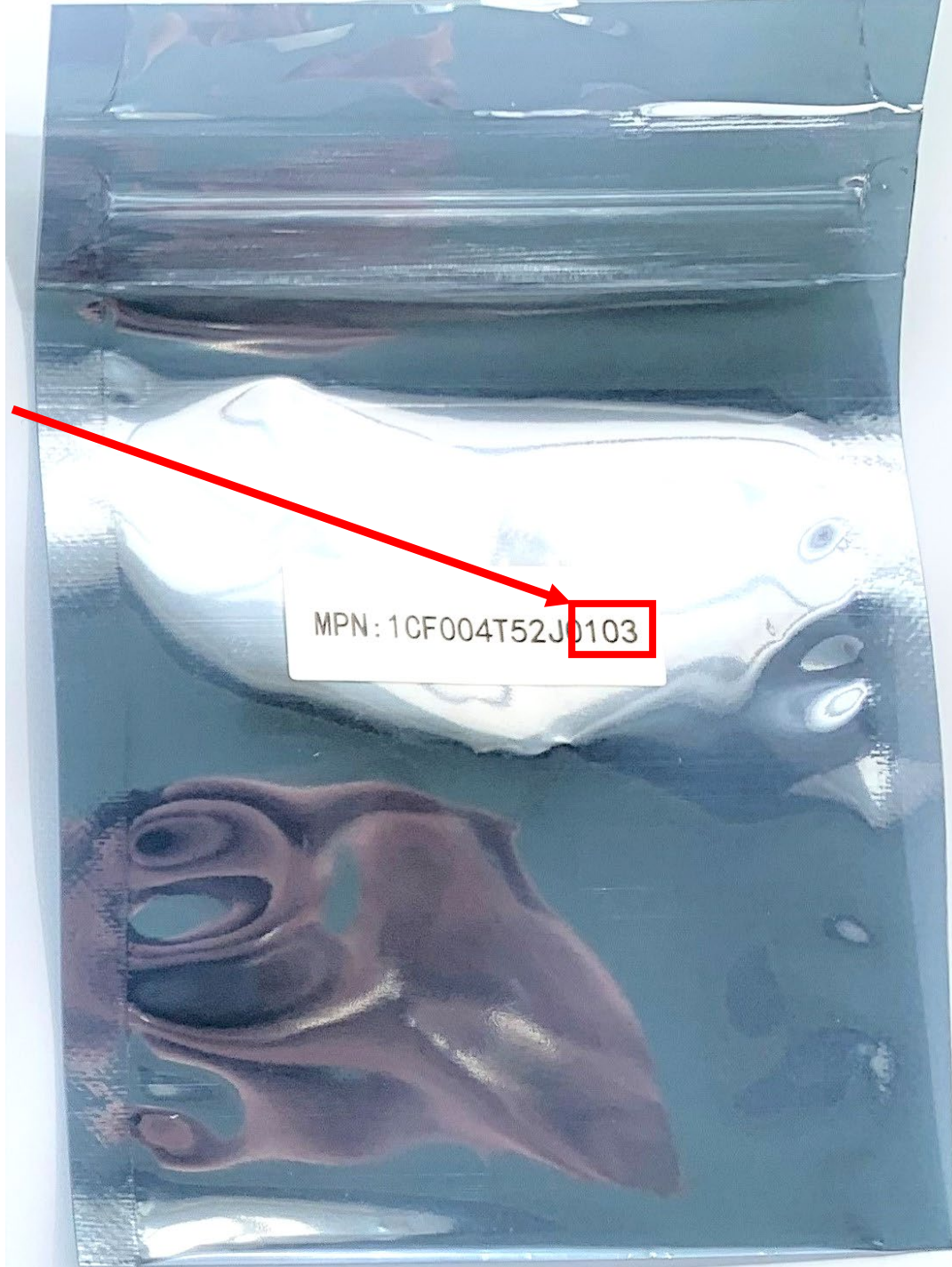


4700 Ω

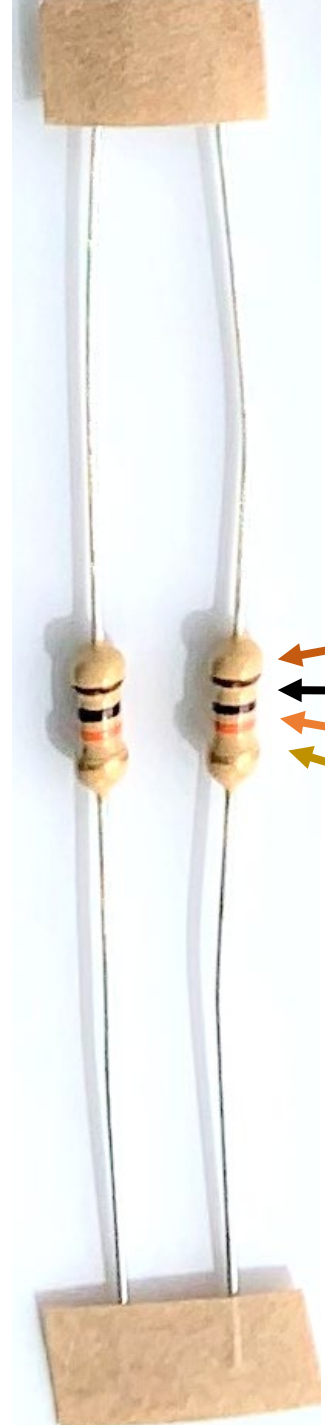
- Yellow
- Purple
- Red
- Gold



| Color | 1 st , 2 nd Band Significant Figures | Multiplier | Tolerance |
|--------|--|------------|------------|
| Black | 0 | × 1 | |
| Brown | 1 | × 10 | ±1% (F) |
| Red | 2 | × 100 | ±2% (G) |
| Orange | 3 | × 1K | ±0.05% (W) |
| Yellow | 4 | × 10K | ±0.02% (P) |
| Green | 5 | × 100K | ±0.5% (D) |
| Blue | 6 | × 1M | ±0.25% (C) |
| Violet | 7 | × 10M | ±0.1% (B) |
| Grey | 8 | × 100M | ±0.01% (L) |
| White | 9 | × 1G | |
| Gold | | × 0.1 | ±5% (J) |
| Silver | | × 0.01 | ±10% (K) |

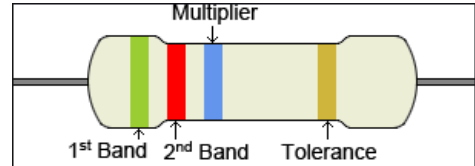


MPN: 1CF004T52J0103



10000 Ω

- ← Brown
- ← Black
- ← Orange
- ← Gold

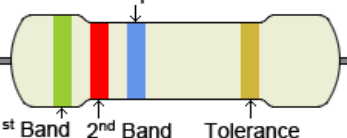


| Color | 1 st , 2 nd Band Significant Figures | Multiplier | Tolerance |
|--------|--|------------|------------|
| Black | 0 | × 1 | |
| Brown | 1 | × 10 | ±1% (F) |
| Red | 2 | × 100 | ±2% (G) |
| Orange | 3 | × 1K | ±0.05% (W) |
| Yellow | 4 | × 10K | ±0.02% (P) |
| Green | 5 | × 100K | ±0.5% (D) |
| Blue | 6 | × 1M | ±0.25% (C) |
| Violet | 7 | × 10M | ±0.1% (B) |
| Grey | 8 | × 100M | ±0.01% (L) |
| White | 9 | × 1G | |
| Gold | | × 0.1 | ±5% (J) |
| Silver | | × 0.01 | ±10% (K) |

MPN: 1CF004T52J0109

1 Ω

Brown
Black
Gold
Gold



| Color | 1 st , 2 nd Band Significant Figures | Multiplier | Tolerance |
|--------|--|------------|------------|
| Black | 0 | × 1 | |
| Brown | 1 | × 10 | ±1% (F) |
| Red | 2 | × 100 | ±2% (G) |
| Orange | 3 | × 1K | ±0.05% (W) |
| Yellow | 4 | × 10K | ±0.02% (P) |
| Green | 5 | × 100K | ±0.5% (D) |
| Blue | 6 | × 1M | ±0.25% (C) |
| Violet | 7 | × 10M | ±0.1% (B) |
| Grey | 8 | × 100M | ±0.01% (L) |
| White | 9 | × 1G | |
| Gold | | × 0.1 | ±5% (J) |
| Silver | | × 0.01 | ±10% (K) |

Capacitors

22 μf

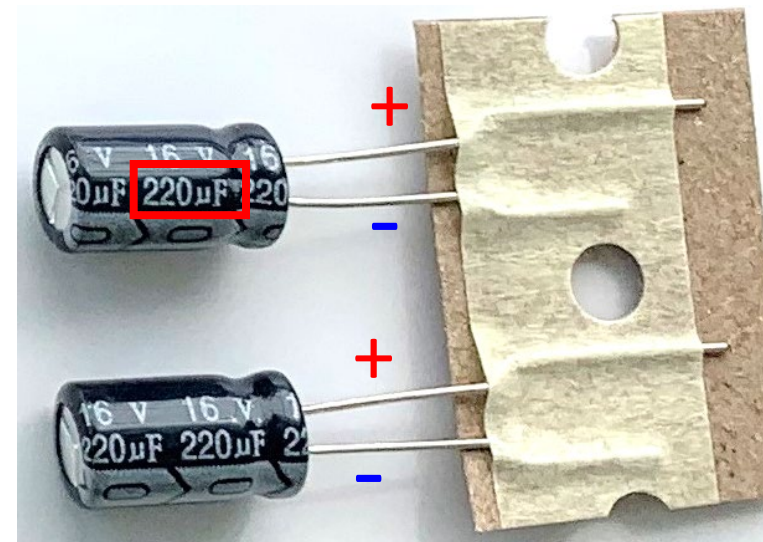
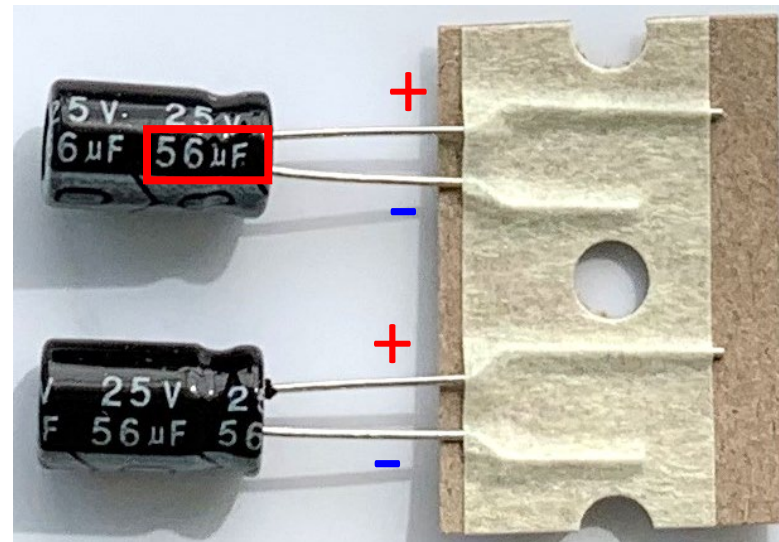
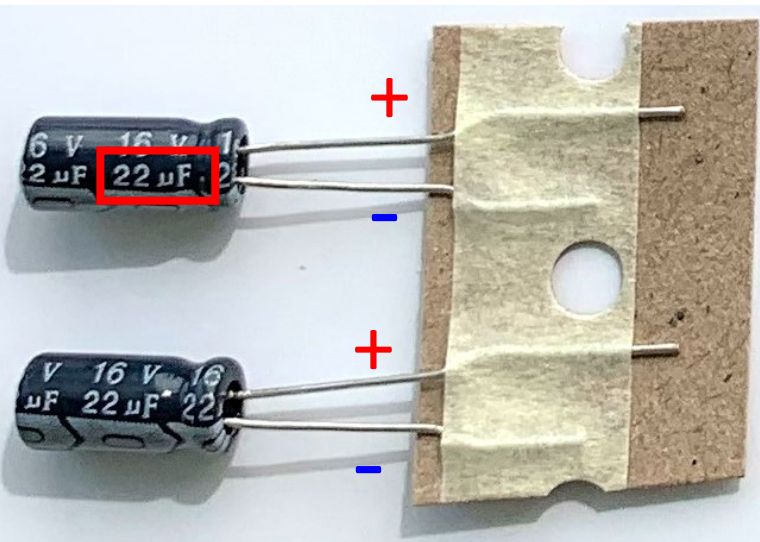
MPN: RA10220-TSD11WP00

56 μf

MPN: RK1560-TSE11WP00

220 μf

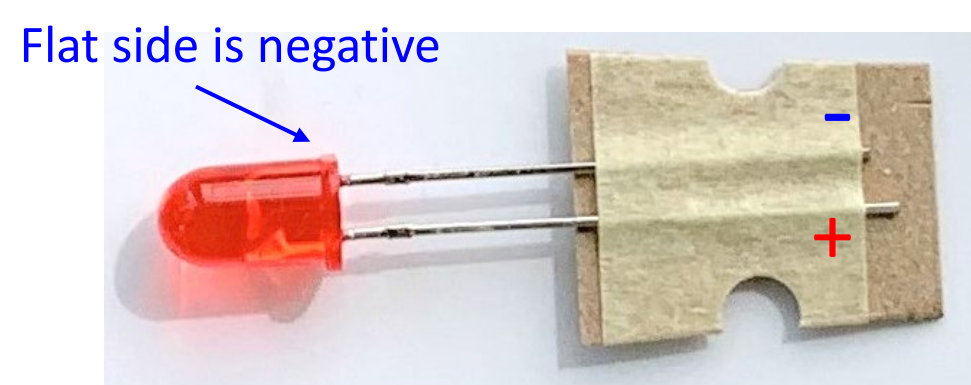
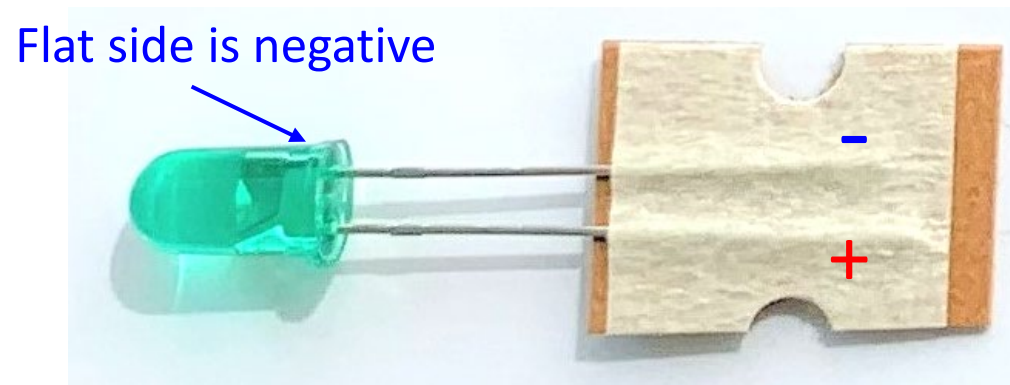
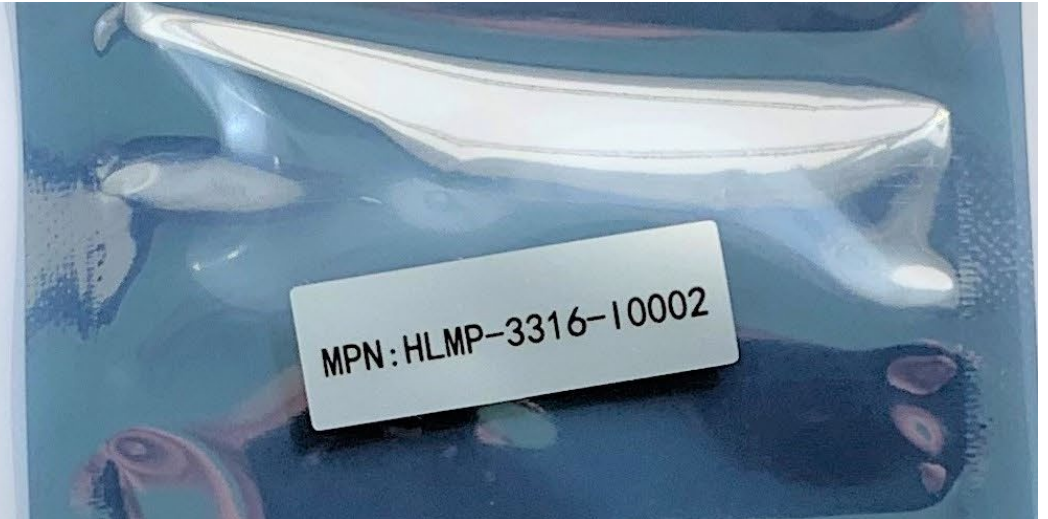
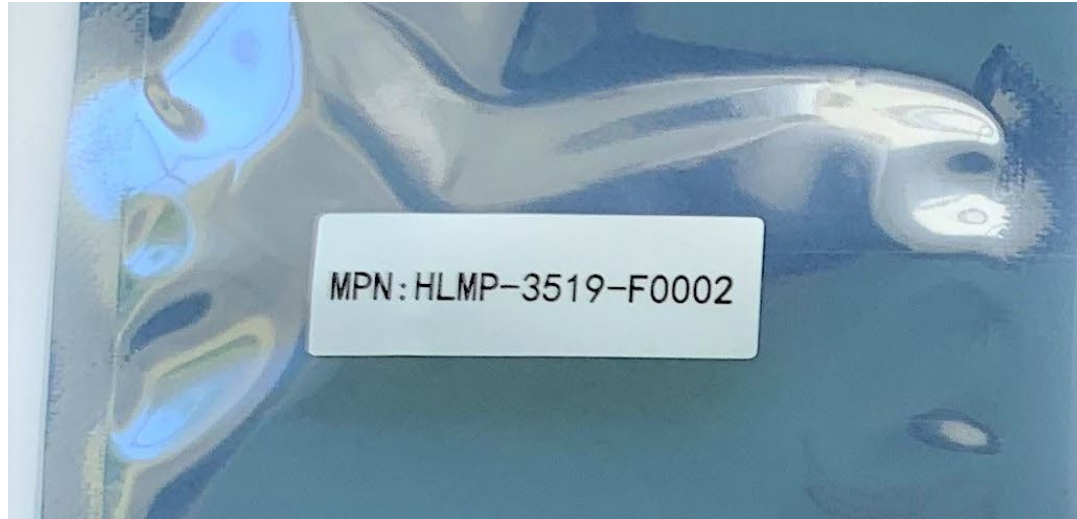
MPN: RA10221-TSE11WP00



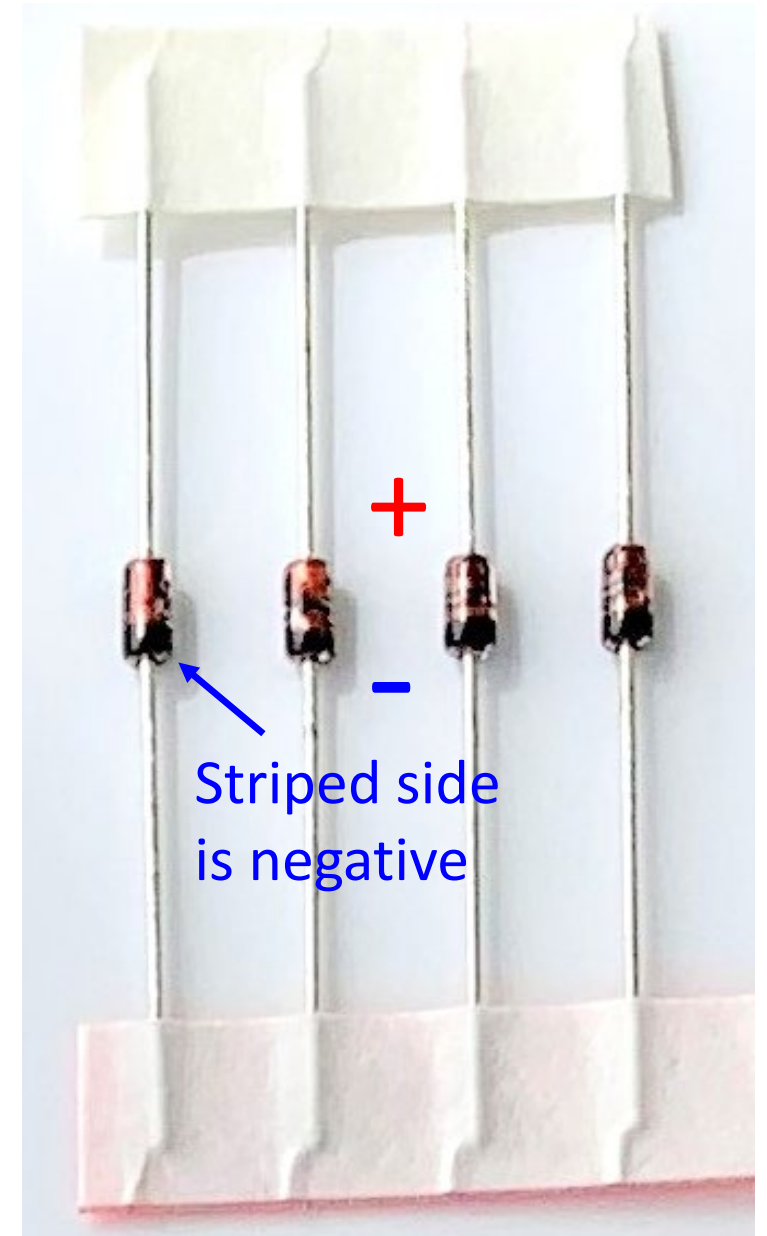
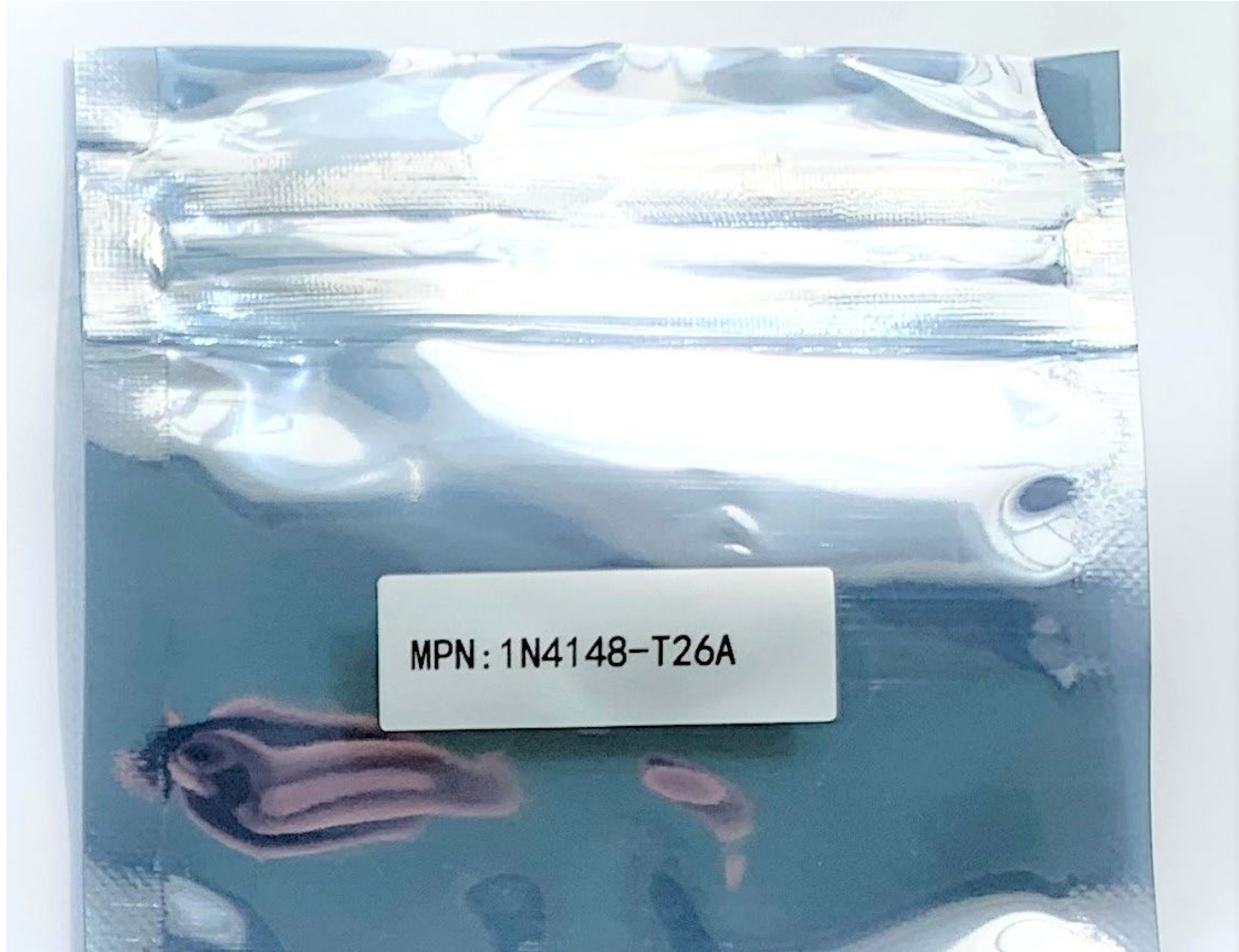
Light Emitting Diodes (LED's)

Green

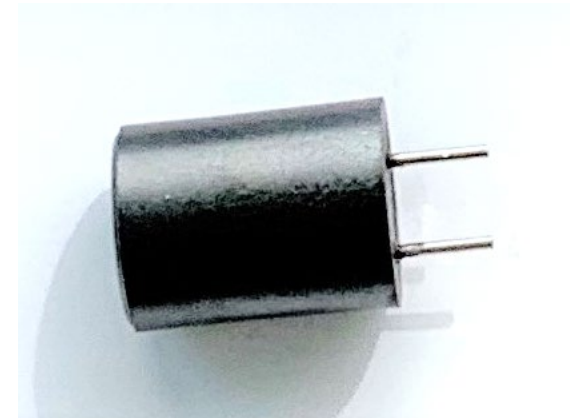
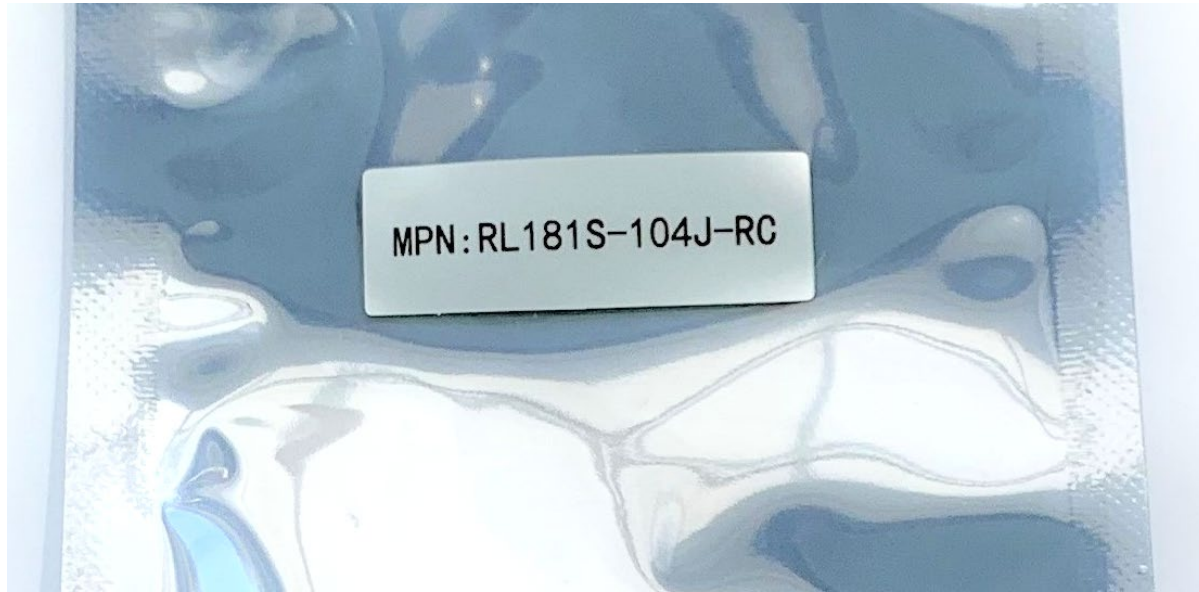
Red



Silicon Diodes



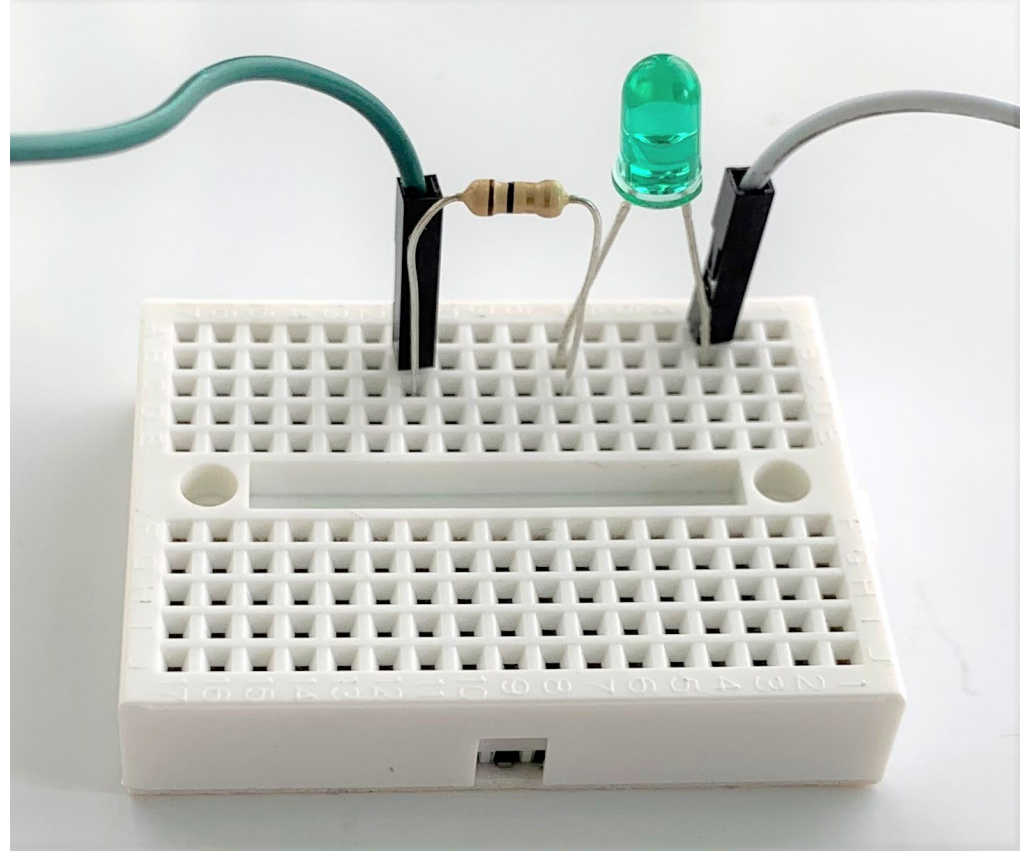
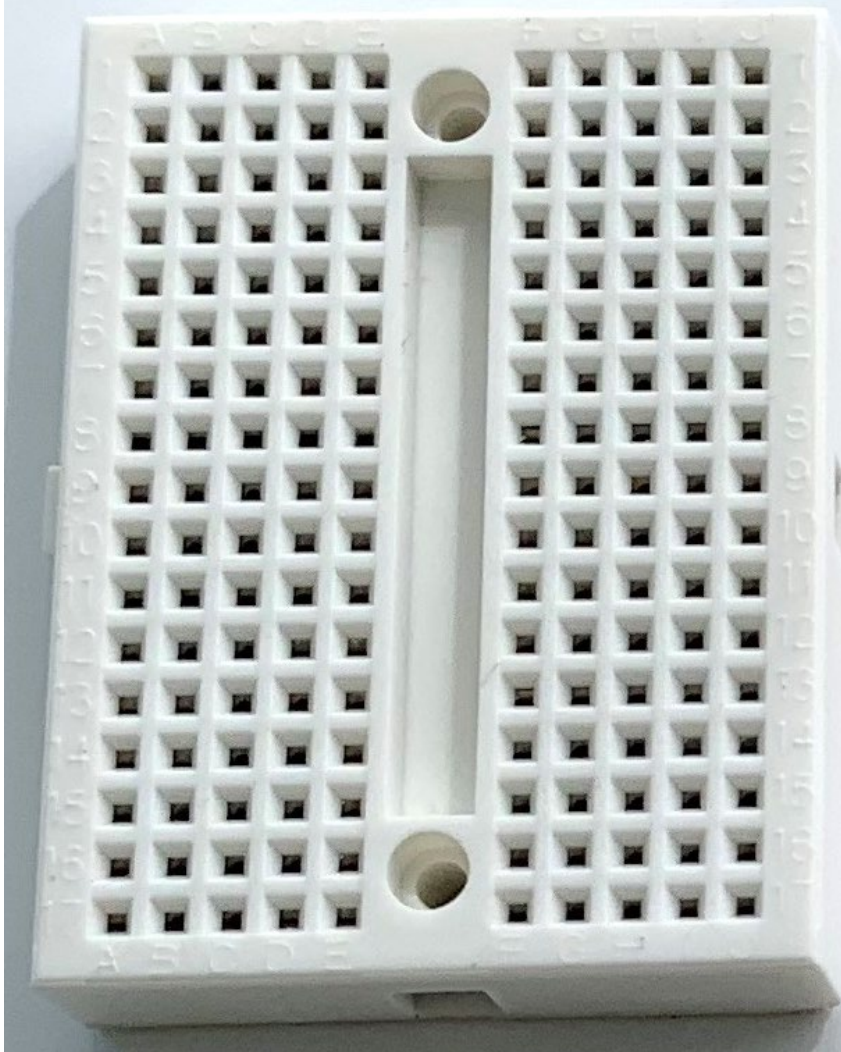
Inductor



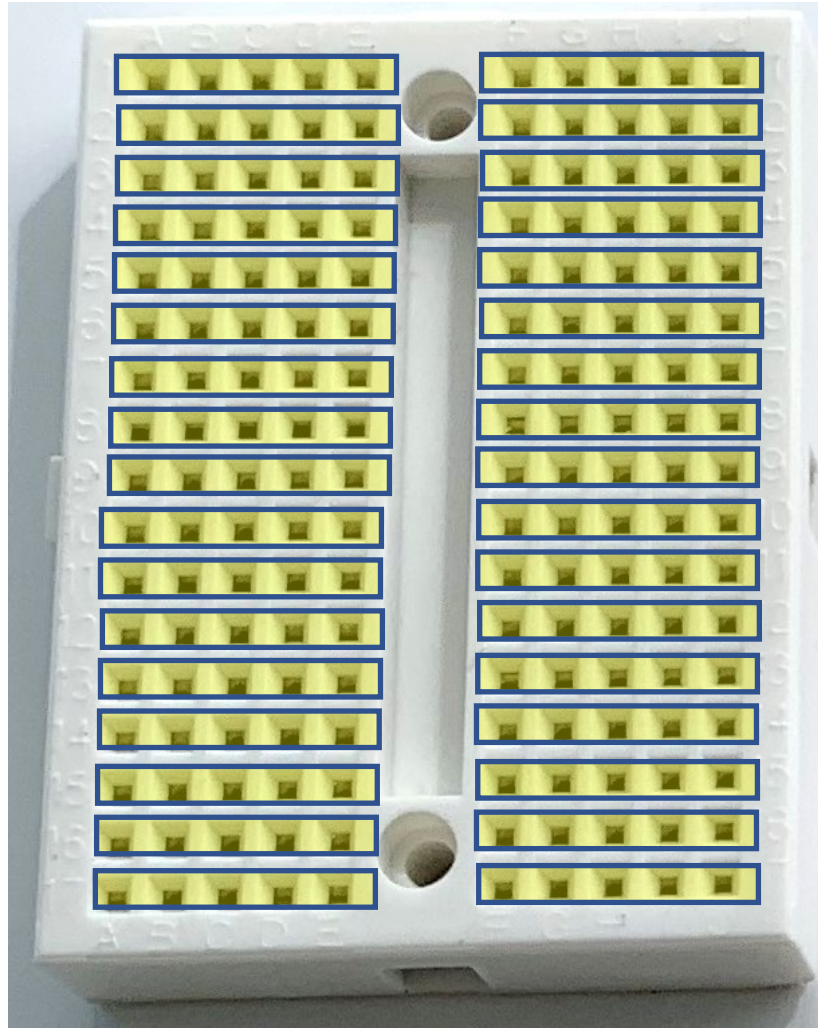
100 mH

82 Ω

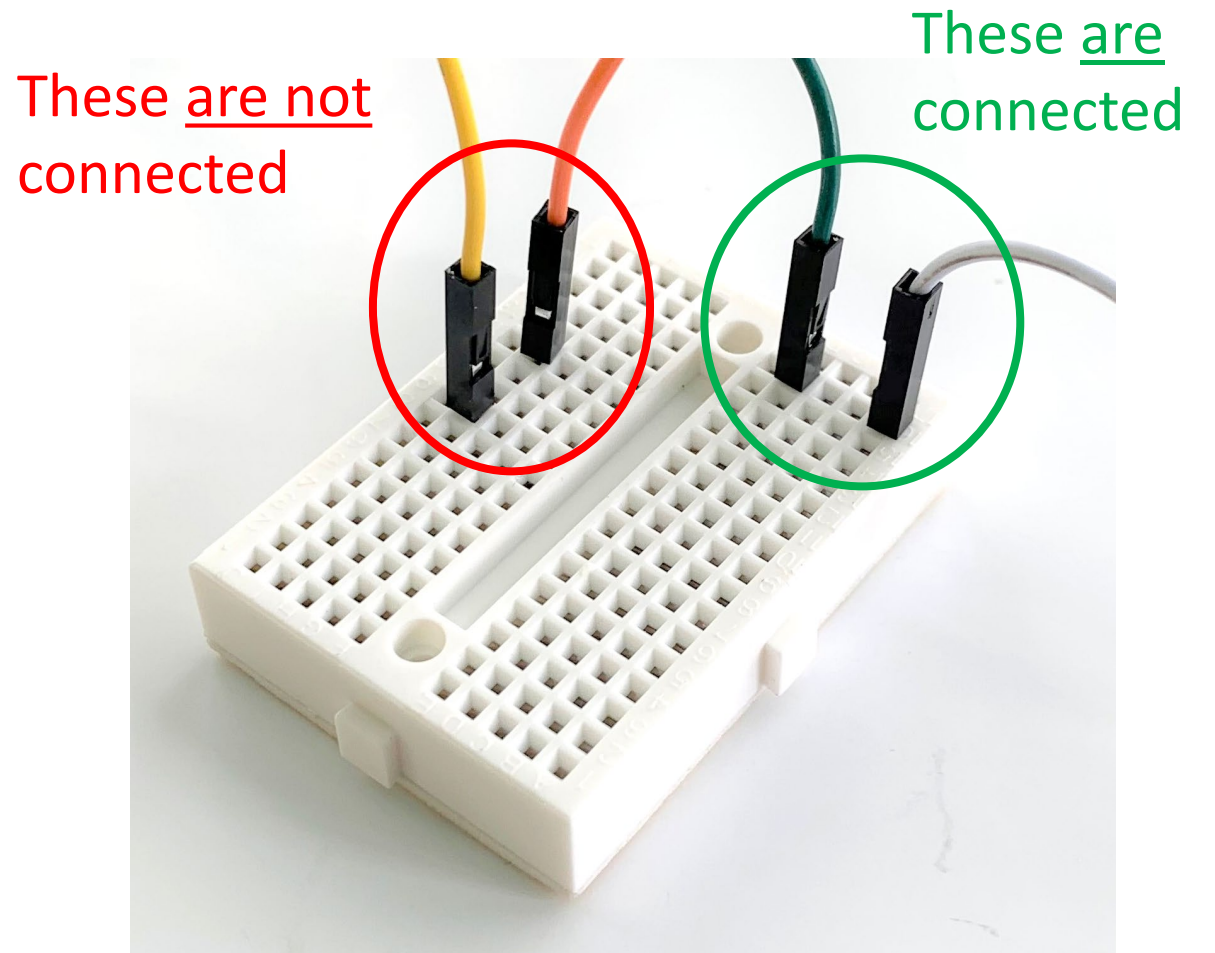
Breadboard



Used to make electrical connections between things pushed into the holes



The holes are electrically connected in groups of 5



Examples

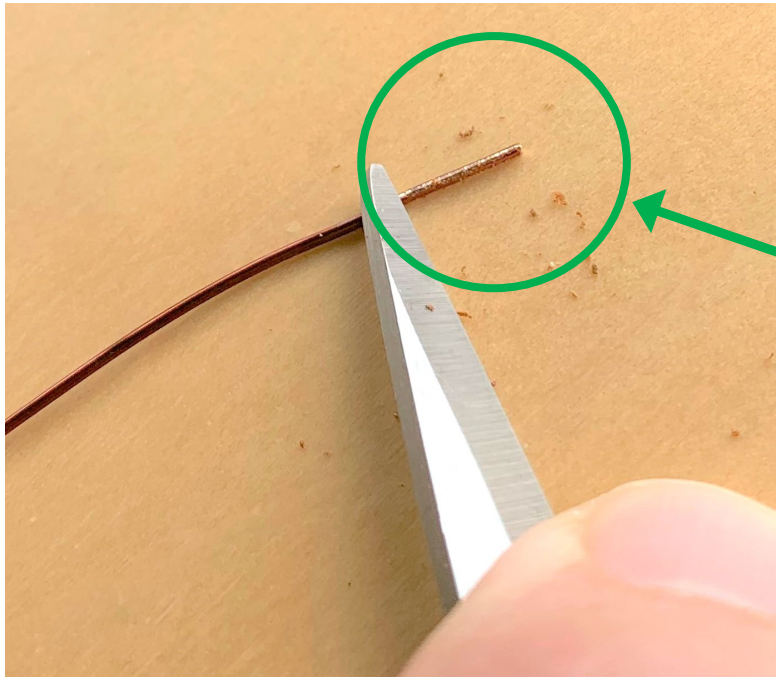
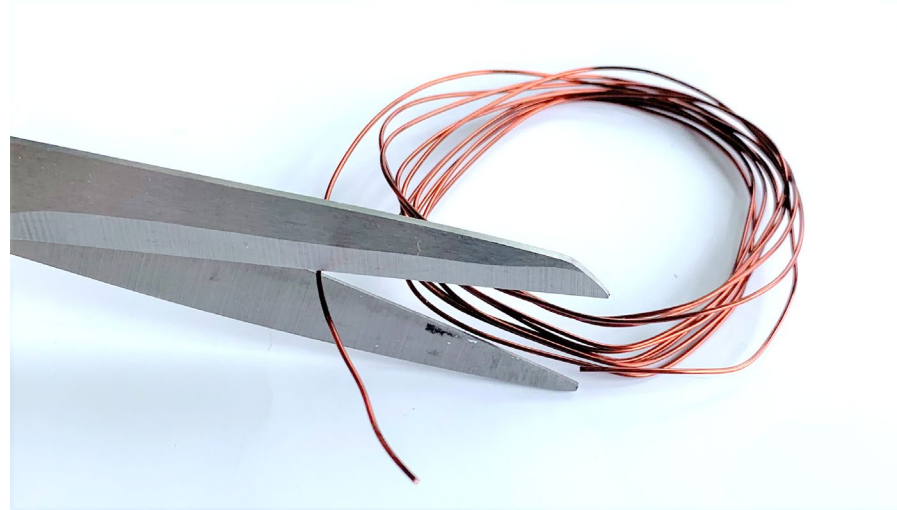
Magnet Wire

This is just a copper wire that has a thin insulating coating on its surface.

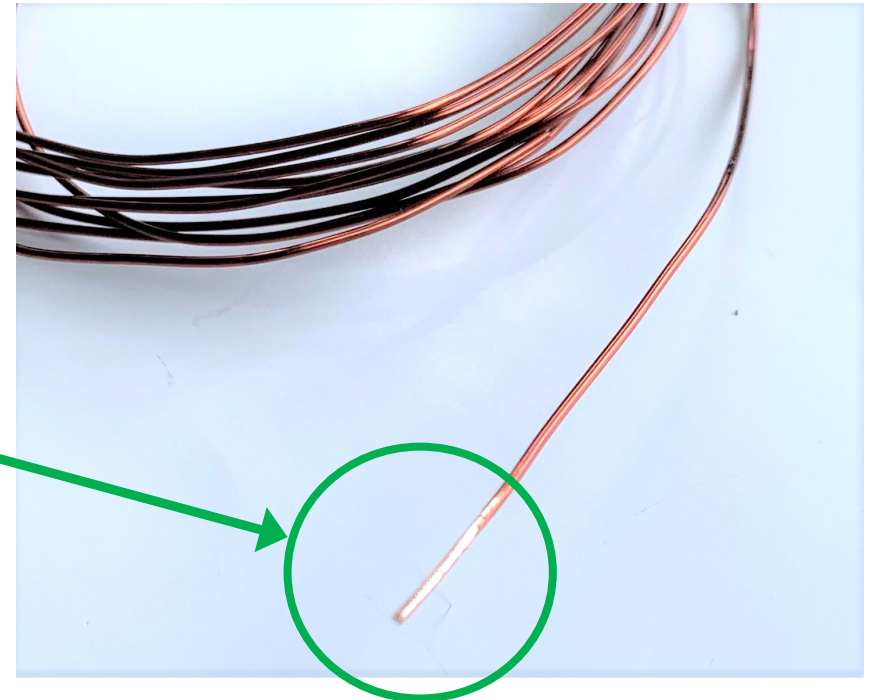


FYI: The wire is not magnetic. It has this name because it can be used to make electromagnets.

Magnet wire can be cut with nail clippers or scissors.



To make an electrical connection to the wire you need to scrape off the insulation.



Magnet & Hook

The name basically says it all.

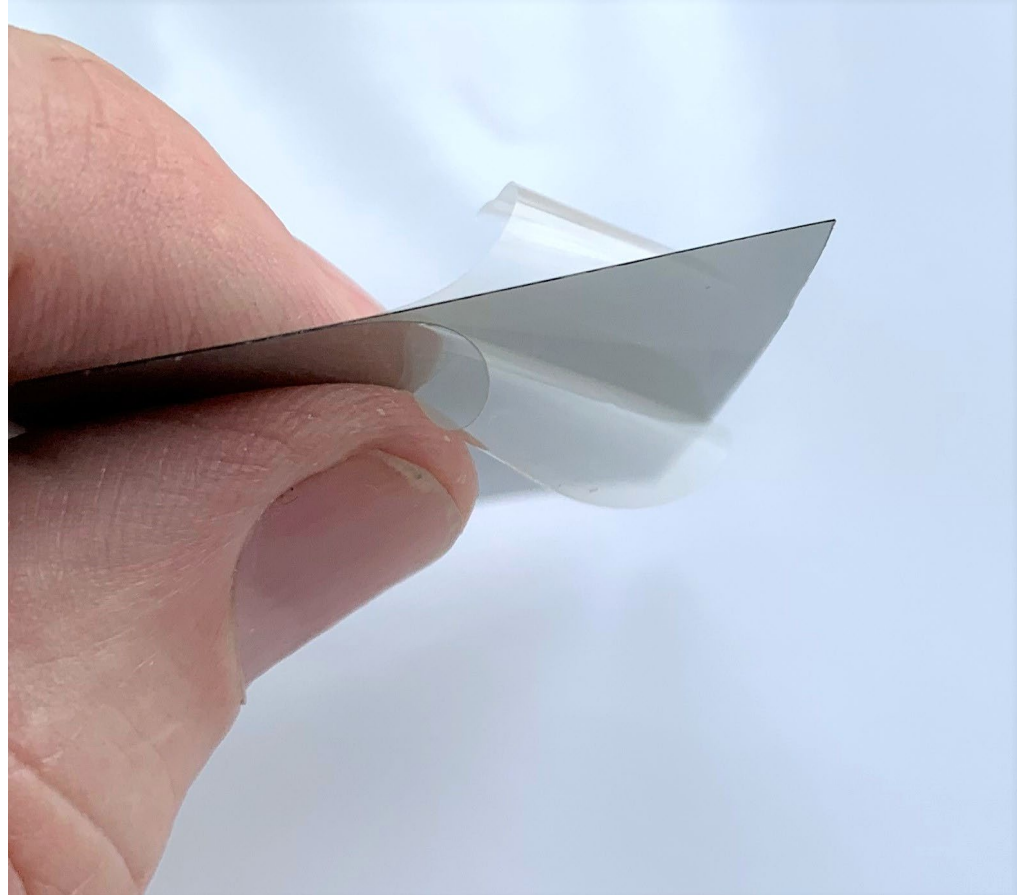


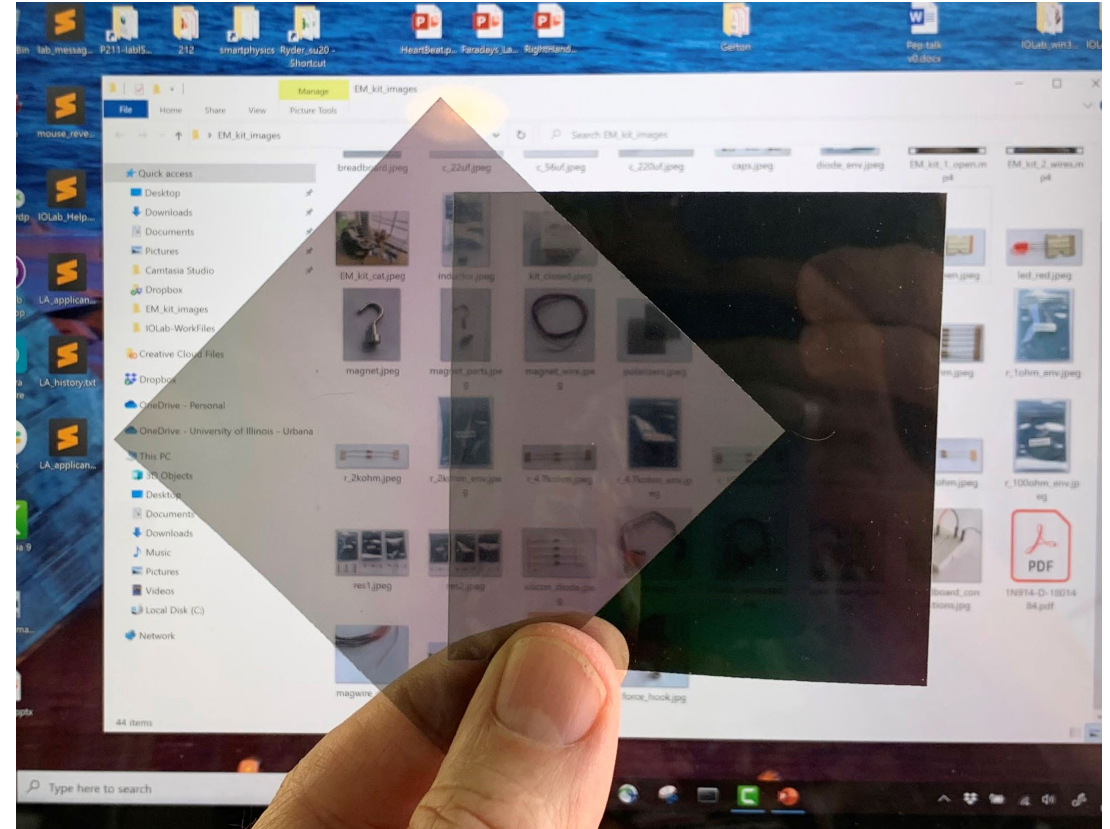
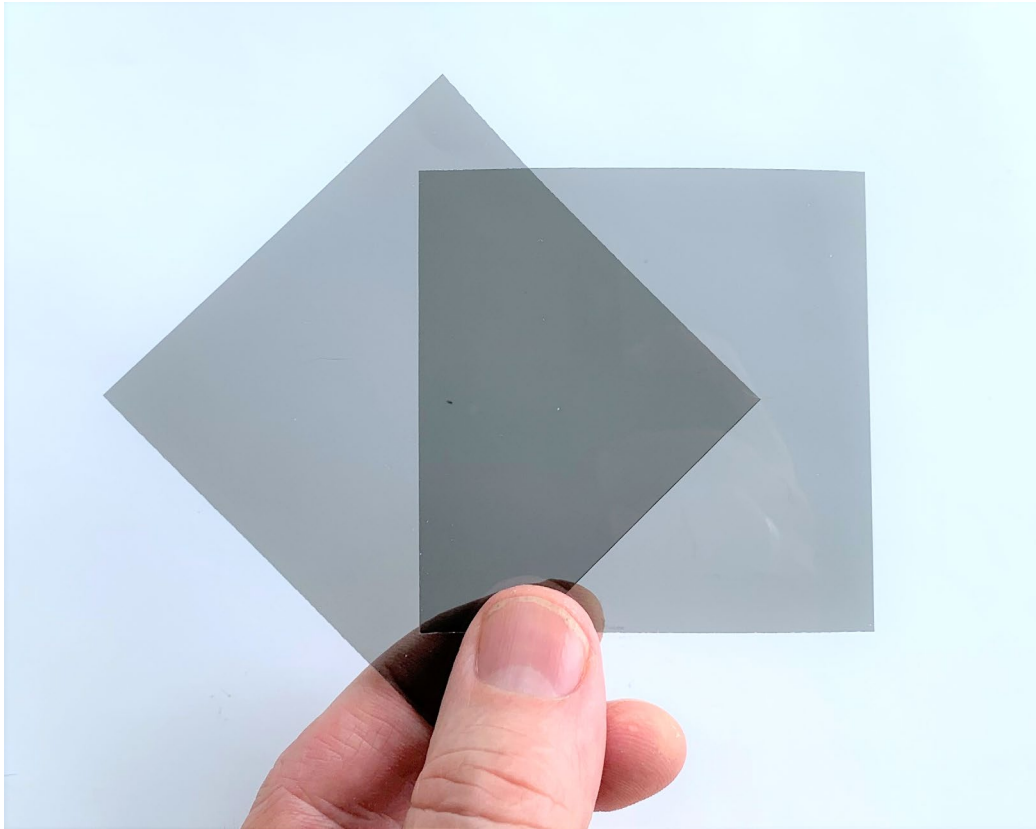
Bonus: The hook unscrews from the magnet and can be screwed into the IOlab force probe



Polarizing Sheets

Each one has a protective covering on both sides that you can peel off.





Try them in different orientations in front of a window and in front of a laptop screen.

