

SparkX Pi-Filter

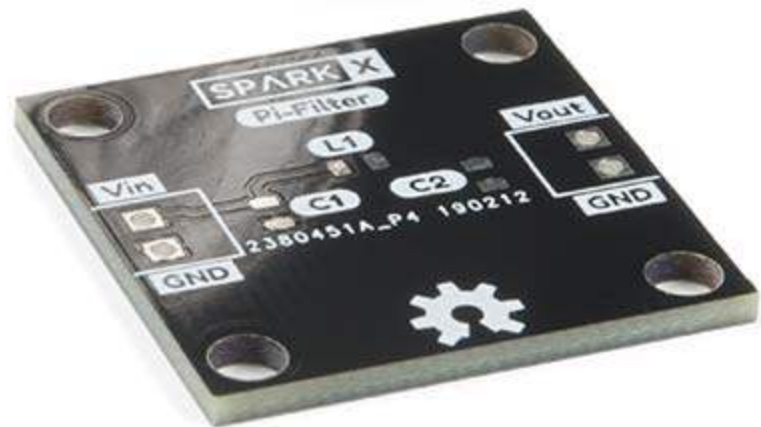
SPX-15260 RoHS

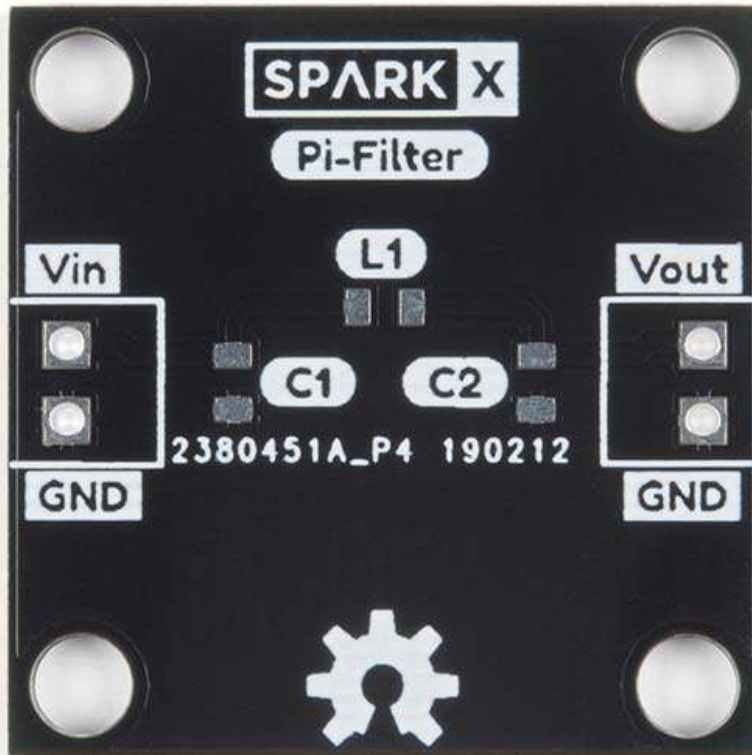
It's 2pm on a Tuesday and you find yourself at the test house with a design failing an emissions test. You quickly determine that you need to hack a filter onto your design but there is no space to do so. If only you had a simple board you could attach to the product. Introducing the Pi-Filter! This simple board gets the name Pi-Filter from its shape, which resembles the Greek letter Pi. It has two shunt capacitors with an inductor in between. In this C-L-C configuration, a person can quickly implement a low pass filter.

Why is this filter so popular? Simplicity and usefulness! With these three components, unwanted noise on a signal or power line can often be filtered out rather quickly. One very popular use for Pi-filters is in regulatory testing for conductive emissions. Conductive emission is when noise from electronics couples onto the interconnecting cables and passes into other equipment.

To relate an experience, when taking a new product through regulatory testing for FCC and CE Mark certifications, the product was failing conductive emissions due to noise from the switching power regulator. Hacking together a Pi-Filter on the DC voltage input signal, the noise was filtered out. While the PCB design had to be revisited to add the Pi-Filter footprint, that experience provided the inspiration to design a simple filter board for others to have in their test bag of tricks to resolve noise issues.

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