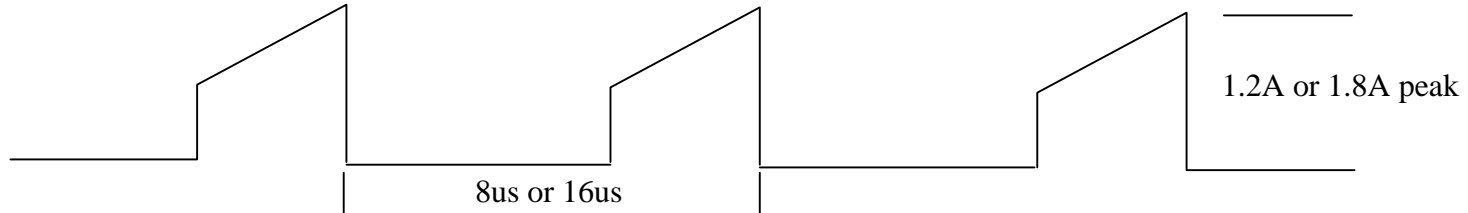


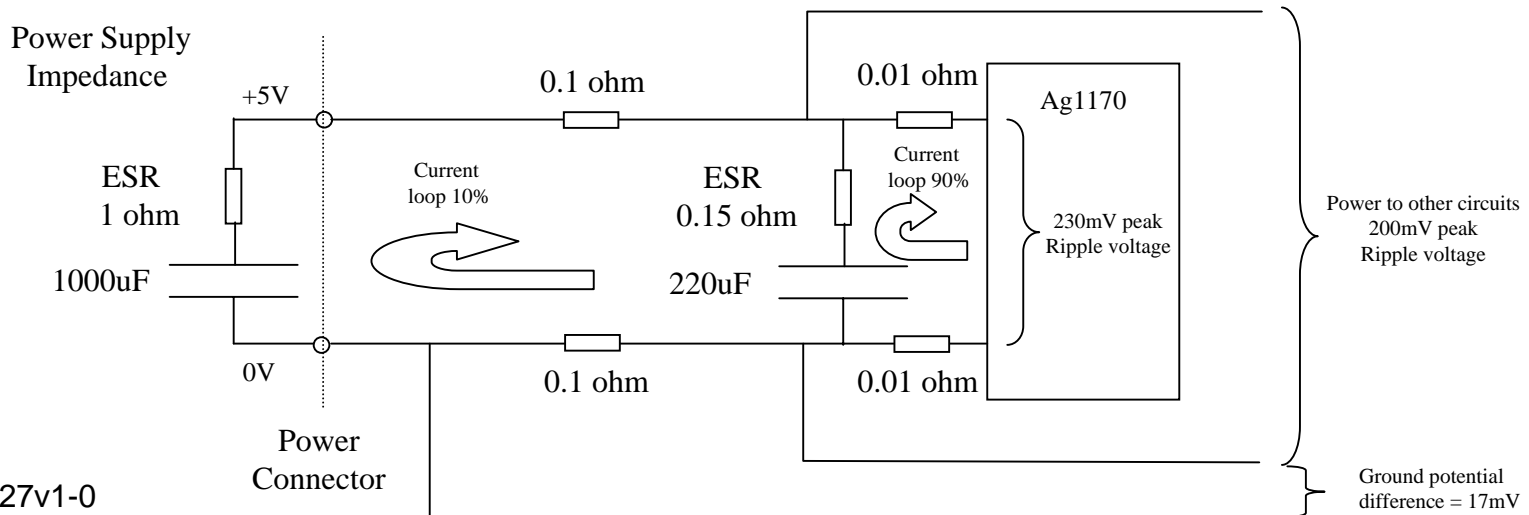
# Power supply connection for Ag1170

The Ag1170 has a DC/DC converter on board. This means the input current flows in a series of pulses at a 64kHz (3.3V) or 128kHz (5V) rate.

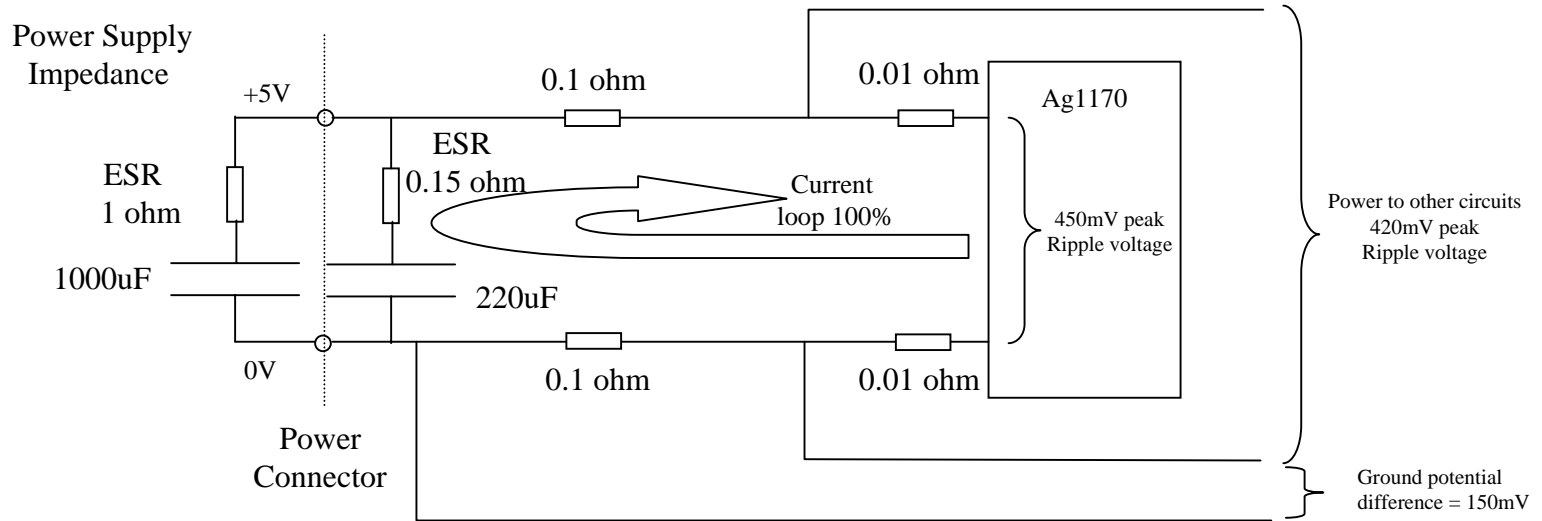


This pulse current can cause problems with interference due to ripple voltage on the supply voltage or on the ground return tracks. It is very important that the correct power supply PCB tracking is used. The correct low ESR (Equivalent Series Resistance) decoupling capacitor, designed to handle this large pulse current, must also be used.

An example of a good power supply connection is shown below. This has a low ESR capacitor mounted close to the Ag1170 power pins. This minimises the ripple voltage and keeps the ripple current loop small to reduce EMI induction. Ground/power for other circuits is taken from one “star” point close to the decoupling capacitor to reduce noise injection. PCB track impedances are shown. These are much higher than DC resistance because of high frequency “skin effect”.



This drawing shows the effect of placing the decoupling capacitor too far away from the Ag1170 power pins. The ripple voltage is doubled to 450mV. Inductive interference is much more likely because of the much larger current loop. Up to 150mV of noise can be injected into other circuits if they use ground connections from different places.



This drawing shows the effect of using a decoupling capacitor with ESR which is too large. The ripple voltage is now 855mV, and induced ground potential 70mV. Interference from voltages this large is very likely.

