POE Output Filtering

Silver Telecom POE (Power Over Ethernet) modules are designed to have low output ripple. But if this needs to be reduced further then this application note shows how a simple filter that can be used.

Figure 1 shows the standard output configuration (see product datasheet for more information) and Figure 2 shows the output with the additional filter circuit. It Is important that L1 has a low resistance 0.1 Ohms (or less), otherwise the voltage drop at high currents will be too high and that these components are kept as close to the output pins as possible.

Figure 3 shows the response of this filter circuit with an Ag9000 output model.
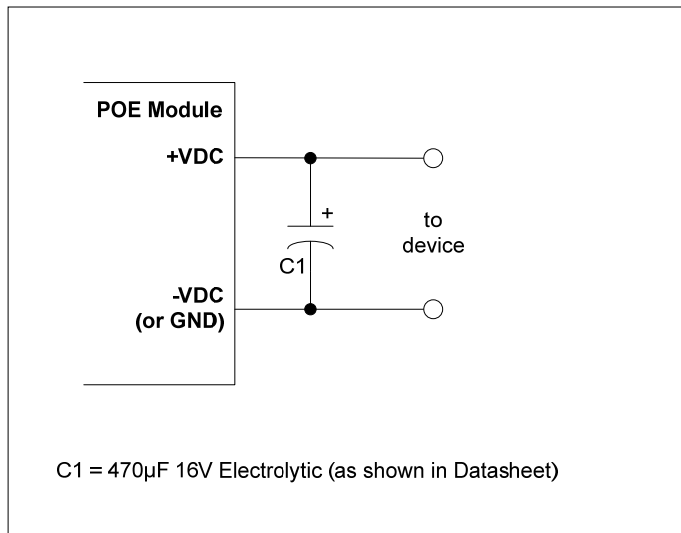

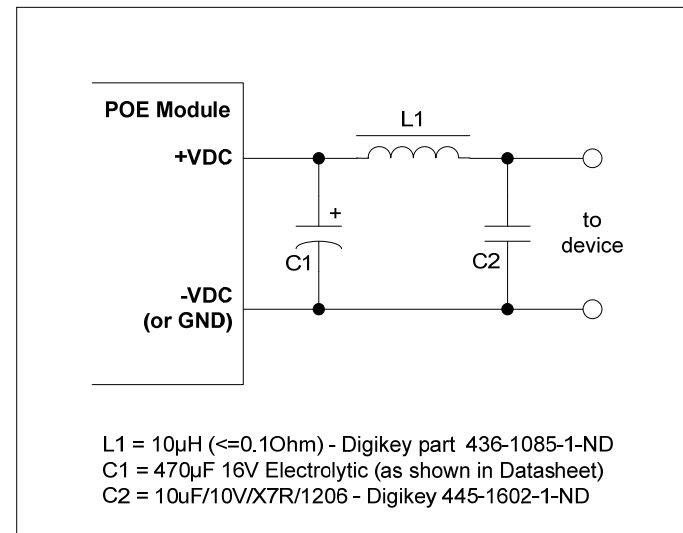C1 = 470µF 16V Electrolytic (as shown in Datasheet)

Figure 1: Standard Circuit

L1 = 10µH (<=0.1Ohm) - Digikey part 436-1085-1-ND
C1 = 470µF 16V Electrolytic (as shown in Datasheet)
C2 = 10uF/10V/X7R/1206 – Digikey 445-1602-1-ND

Figure 2: Filter Circuit

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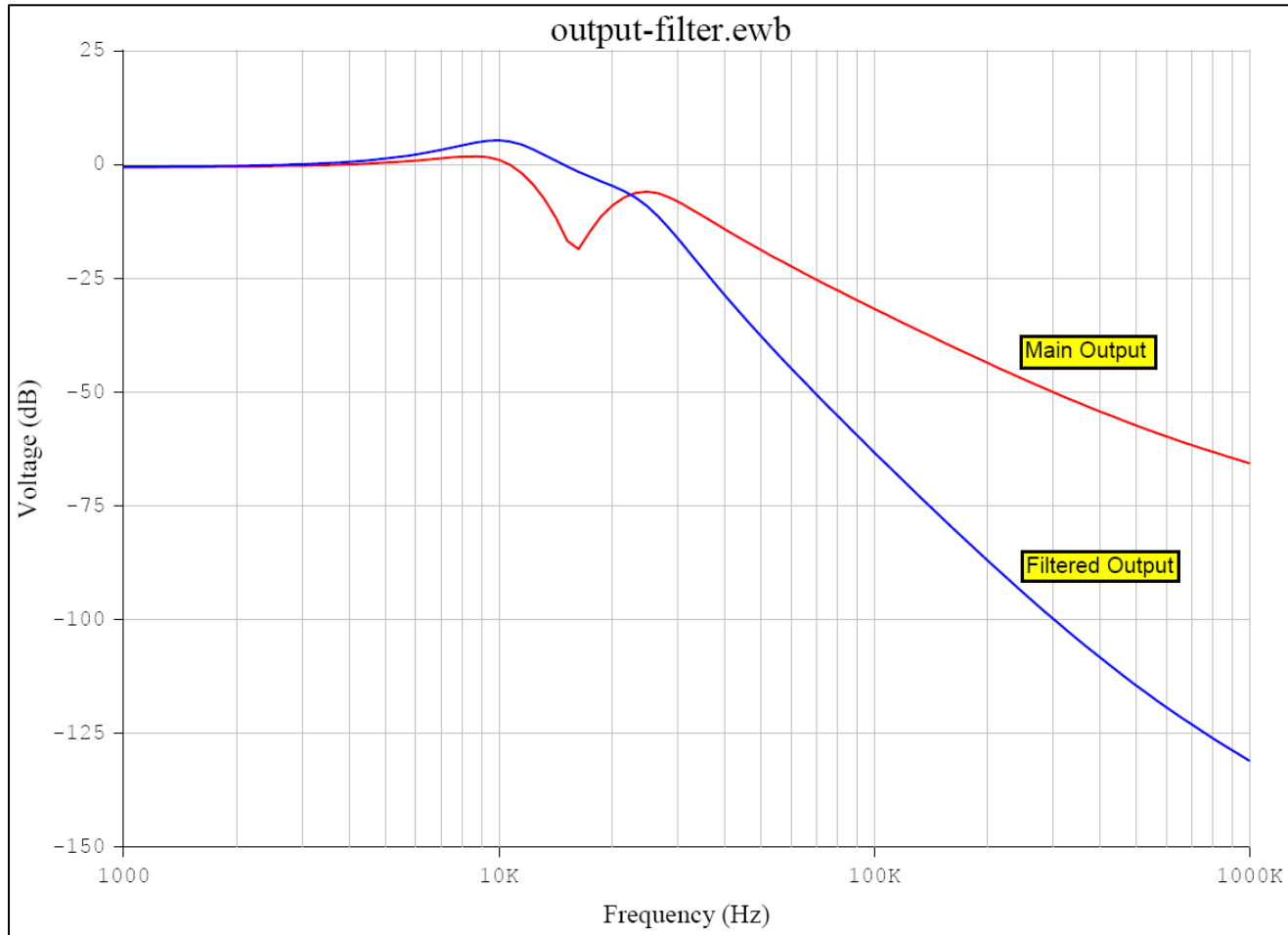
Figure 3: Filter response (using an Ag9000 output model)

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Figure 4 shows the output ripple from an Ag9120 measured directly across the output pins. Figure 5 shows the greatly reduces ripple measured after the filter circuit (shown in Figure 2).
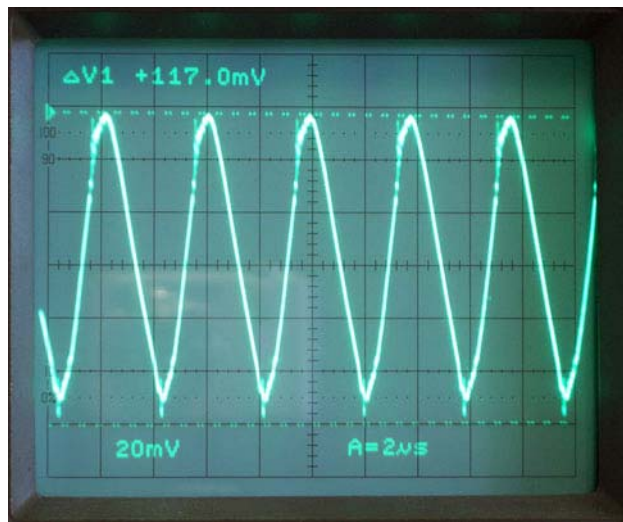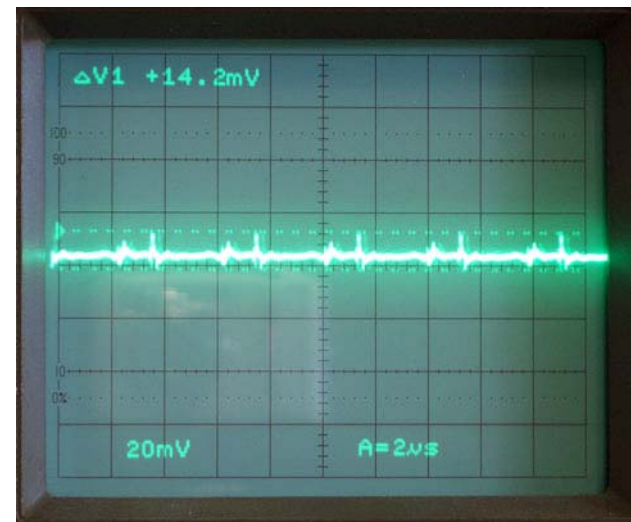

Figure 4: Ripple before filter circuit

Figure 5: Ripple after filter circuit

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