There are various ways of controlling the change-over between the input supply and the battery back-up. Section 6 in the datasheet gives one example which is shown below in Figure 1. However this does have the slight disadvantage of having a momentary break in the output supply when the relay switches off (see Figure 2).

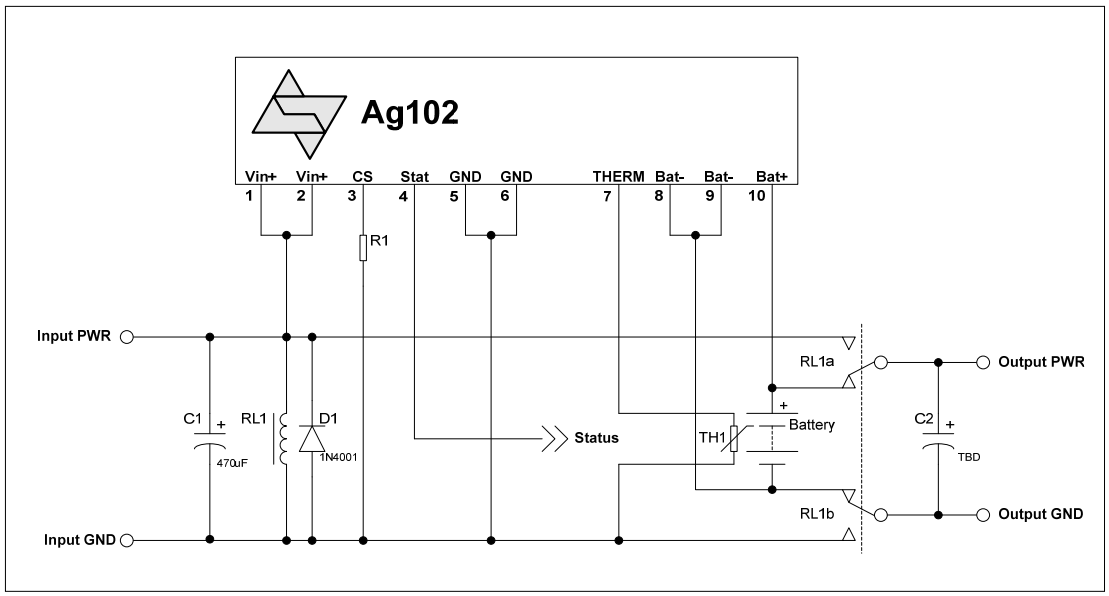

Figure 1: Simple change-over circuit

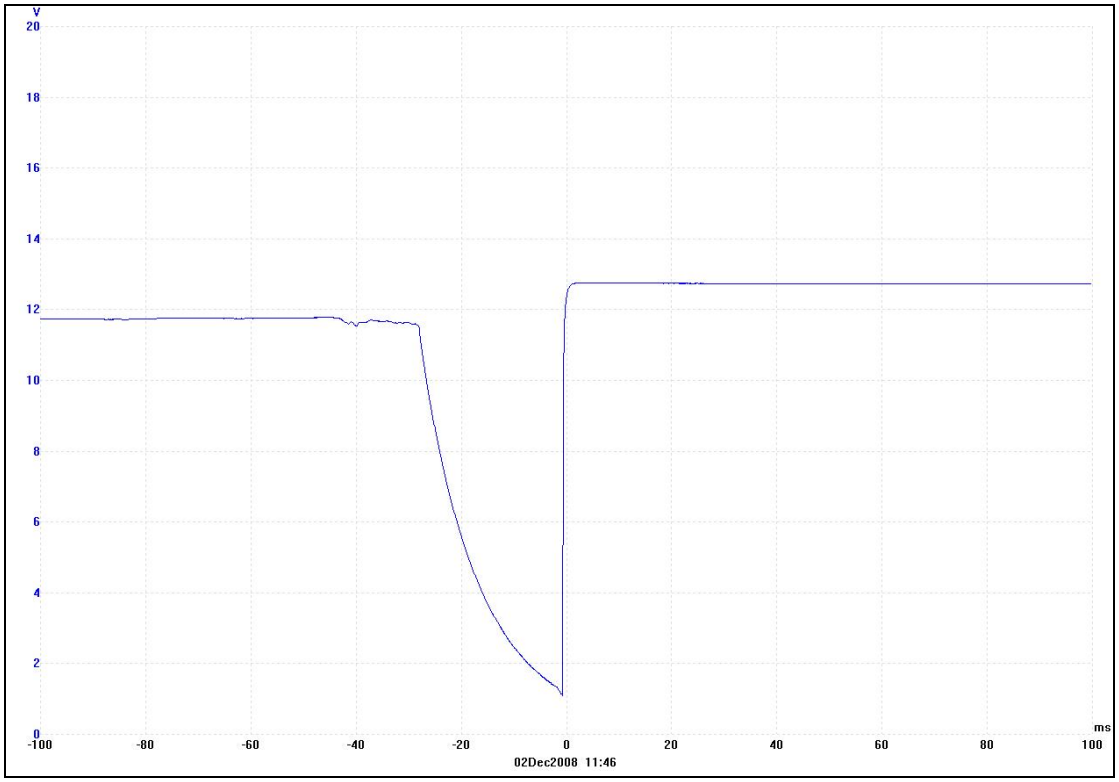

Figure 2: Change–over response of Figure 1

If this is not practical and the output needs be supplied continuously, then this can be achieved with the addition of only a three extra components.

Figure 3 shows the addition of a zener, a transistor and a resistor, this increases the relay switch off threshold. In this example ZD1 is an 8V2 zener, which will result in the relay switching off when the supply rail drops to ~9V.

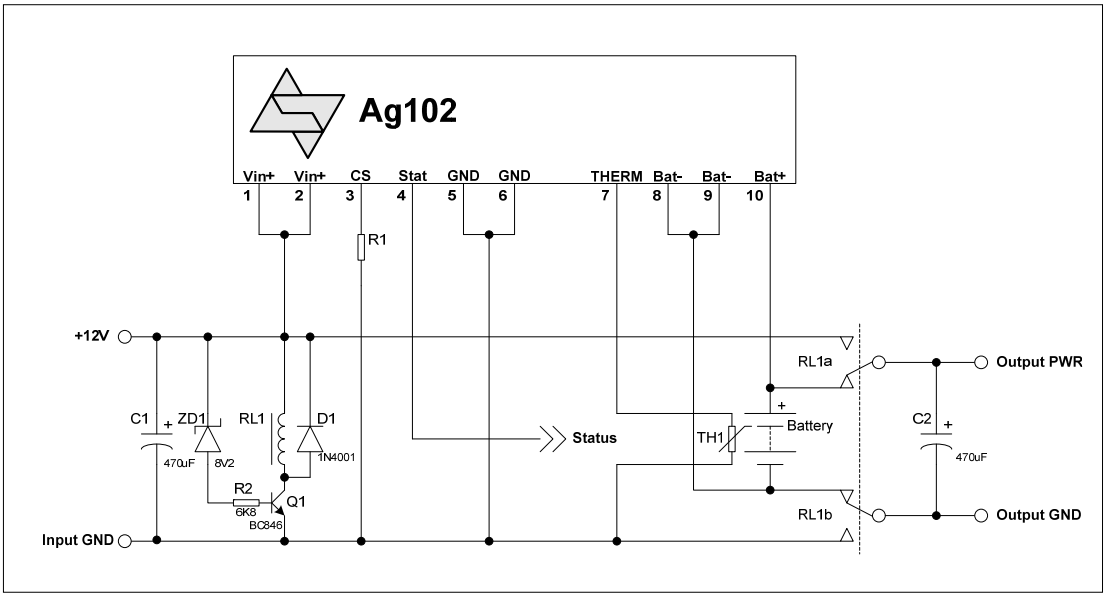

Figure 3: Improved change-over circuit

Figures 4 & 5 show the change-over response measured between Output PWR and Output GND.

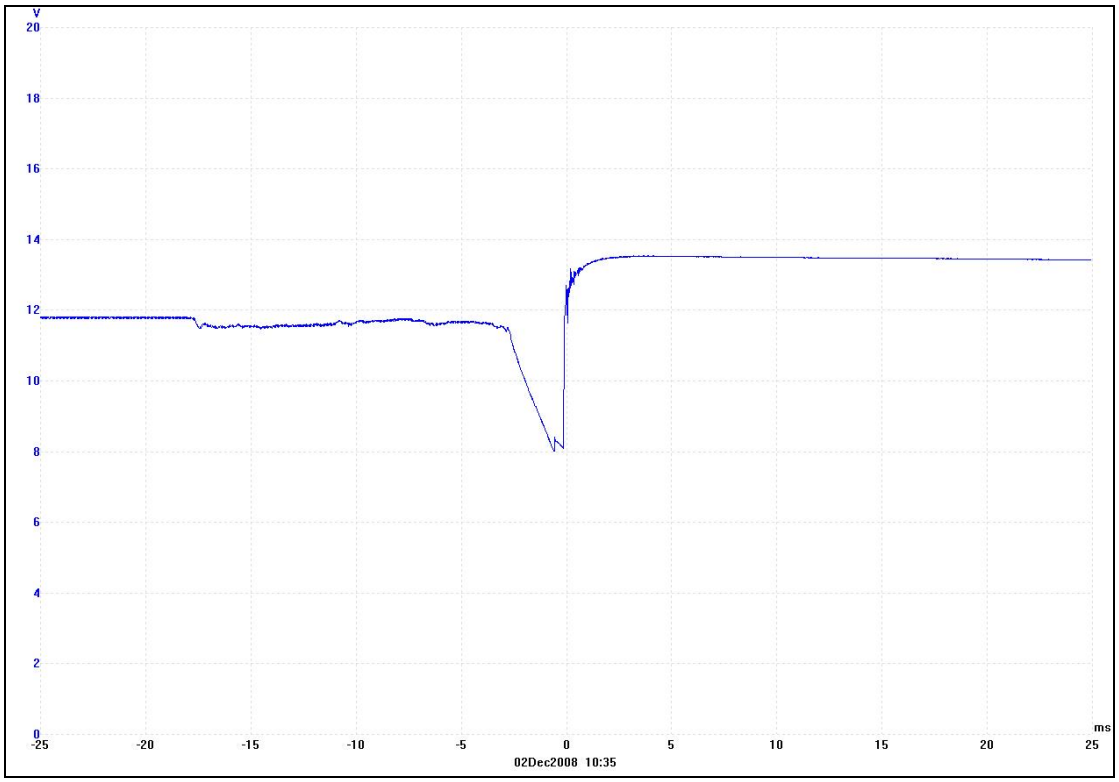

Figure 4: Response from +12V Supply to Battery

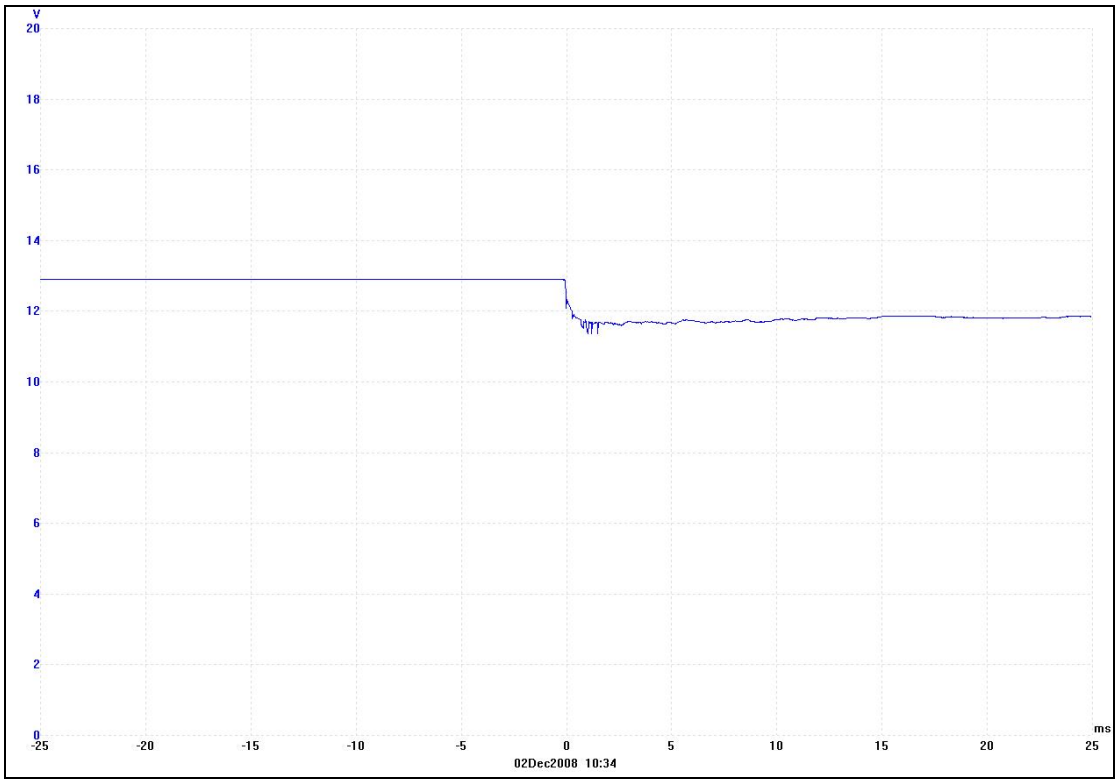

Figure 5: Response from Battery to +12V Supply

If using a relay is undesirable, then Figure 6 shows an alternative method using a MOSFET.

Once again ZD1 (8V2) is used to set the supply switch over threshold to ~9V. D2 is only required if the current drawn from the battery is >1.2A. If the current is less than this, then D2 doesn't need to be fitted and the return path to the battery will be via pins 5 & 6 (GND) of the Ag102.

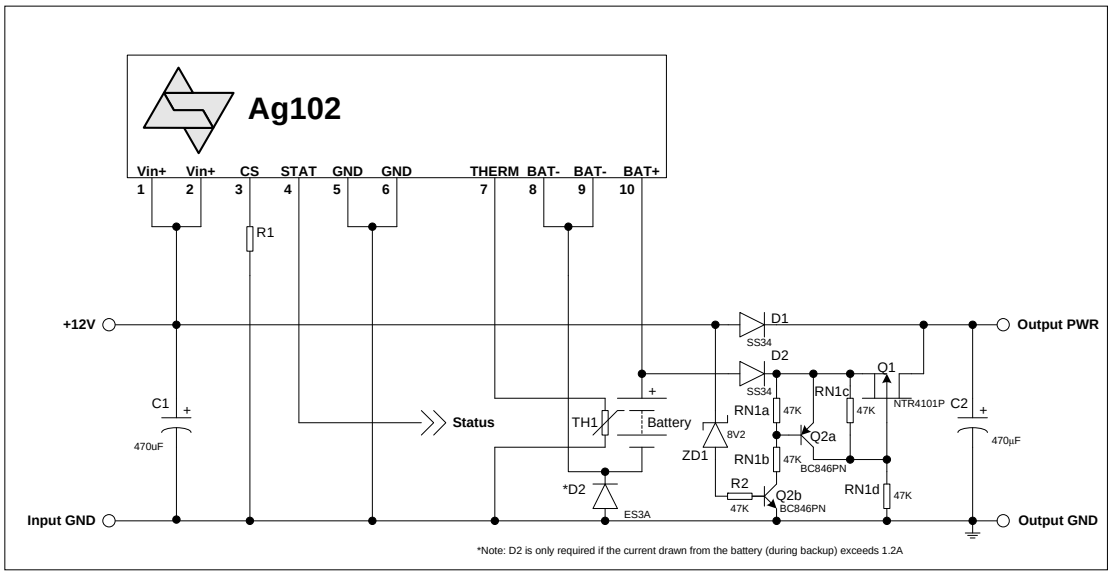

Figure 6: MOSFET change-over circuit

Figure 7 & 8 show the change-over response of the MOSFET circuit. These results are similar to the relay circuit results shown in Figures 4 & 5.

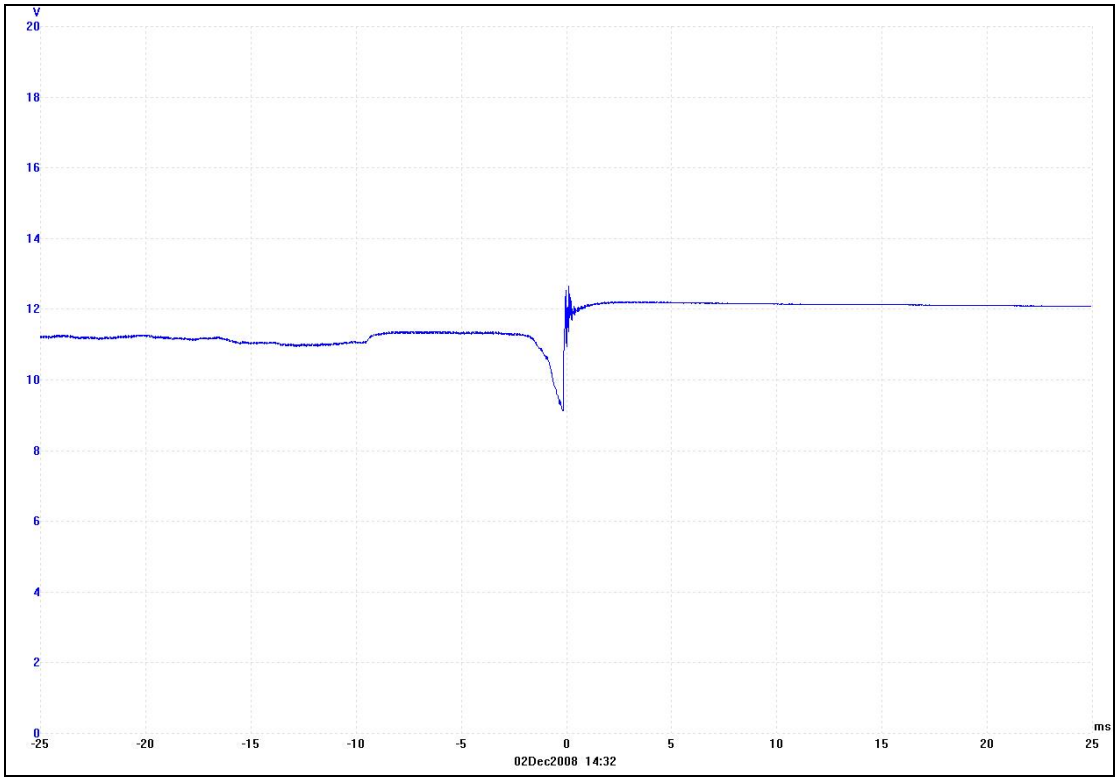

Figure 7: Response from +12V Supply to Battery

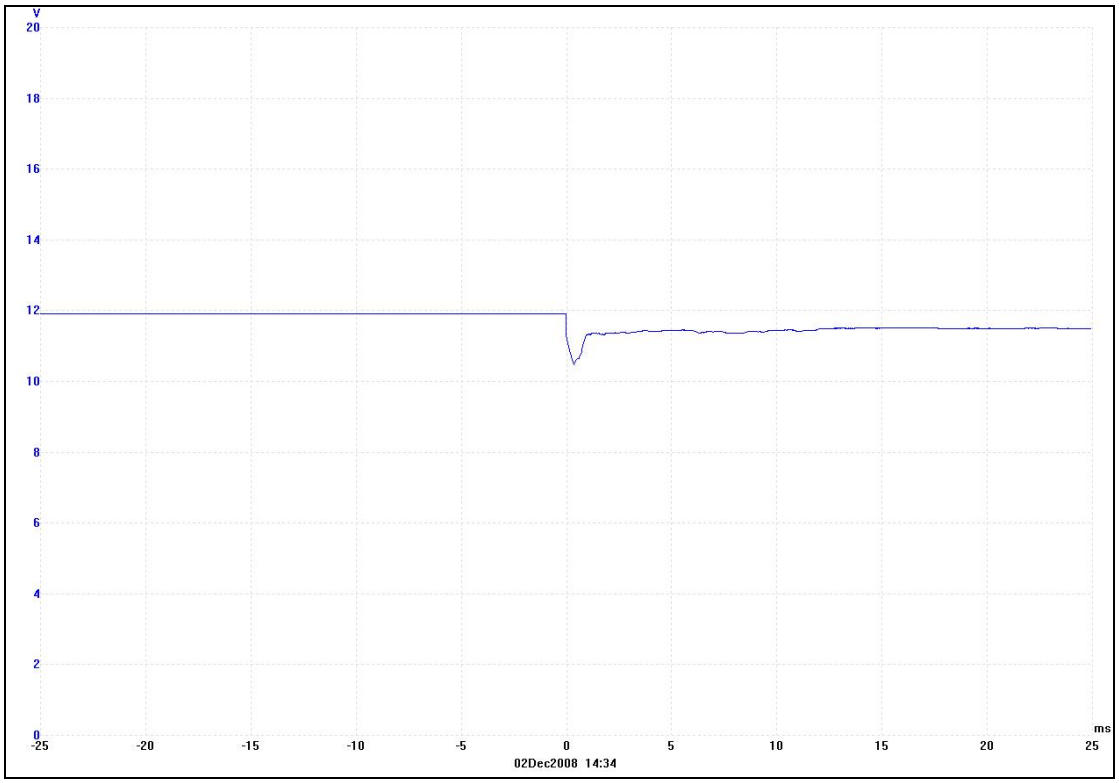

Figure 8: Response from Battery to +12V Supply