Application Note

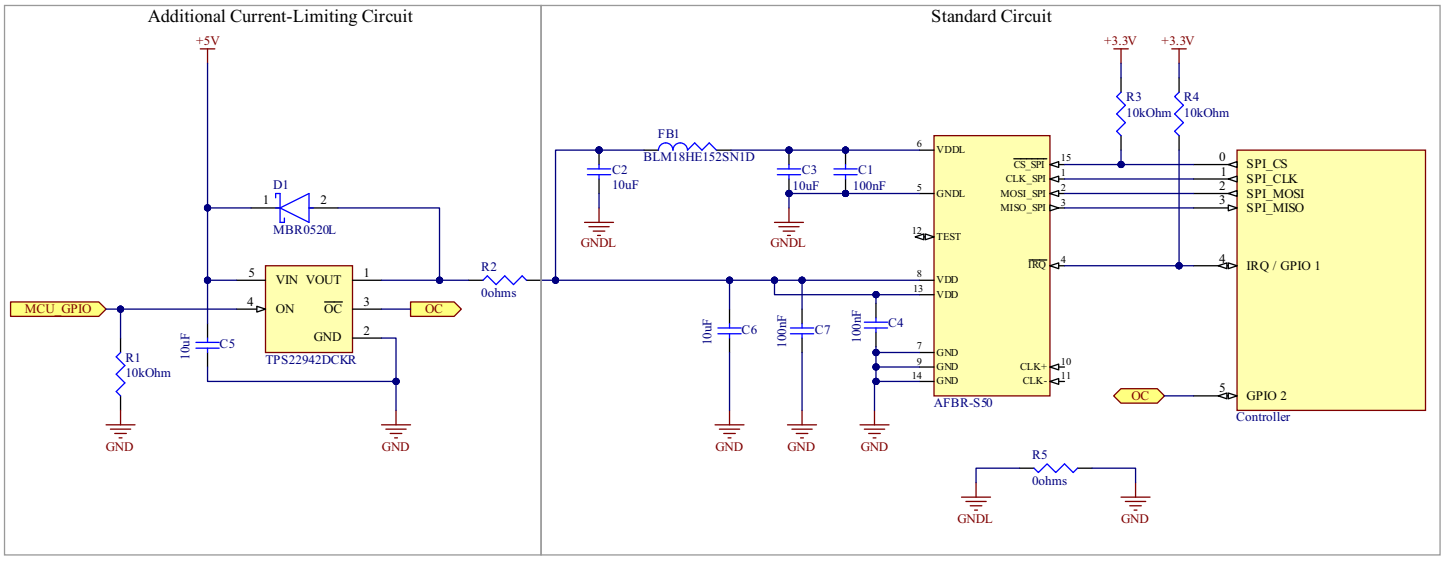
AFBR-S50

Interference Response to Pulsed High-Power Lasers

NOTE: This application note applies only to sensors with a date code smaller than *2409*.

This document discusses an application-specific measure for environments in which AFBR-S50 sensors might be directly exposed to highly collimated and intense radiation from pulsed light of several watts of peak power and beyond. An example of such interference sources is radiation from mid-range to long-range scanning LiDAR. In such a case, it is recommended to limit the current on the VDD and VDDL branches to a maximum of 150 mA to avoid optically induced current latches during operation. The following figure shows a possible implementation circuit.

Figure 1: Recommended Schematic Including Current Limitation

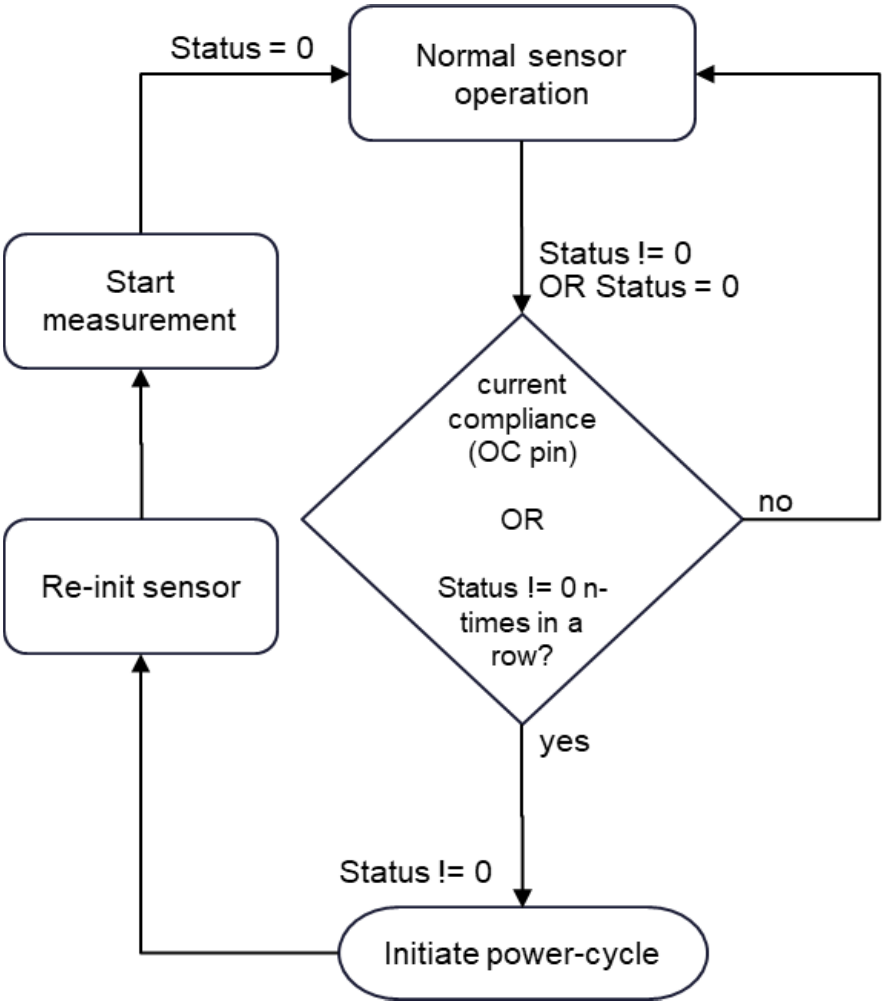


WARNING! In the worst case, exposure to highly collimated, intense, and pulsed light sources might lead to permanent damage of the sensor. Therefore a current limitation is recommended.

Beside a current limitation, it is also necessary to trigger a power-cycle of the supplies in order to cure the device state after a current latch-up. Since a latch-up might not always result in a current being in compliance (can be checked via the OC pin), it is recommended to manually control and initiate the power-cycle (via the ON pin). This is possible with the load switch IC that is utilized in Figure 1.

The following figure depicts a possible software implementation process for a controlled power-cycle loop.

Figure 2: Software Process Flow to Initiate a Restart after a Fault Condition



The process flow shown in Figure 2 initiates a power-cycle that is dependent on an application-specific number of frame states not equal to zero or on current compliance occurrences.