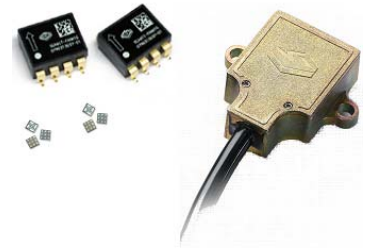


Supply Voltage Regulation



OBJECTIVE

To give recommendations on the power supply arrangements for VTI Technologies' inclination and acceleration sensors.

DESCRIPTION OF THE PROBLEM

The output signal(s) of the sensors is (are) sensitive to the power supply arrangements. Unstable supply voltage will effect the output signal(s) of the device.

The analogue output of the sensors is ratiometric. Therefore, any fluctuation in the supply voltage will directly cause the analogue output to vary respectively. The ratiometric error may result a maximum error of 2%, i.e. for 5V => 5±0.25V a maximum of 25mg in SCA61T - FA1H1G.

In some cases, the external circuitry can cause an overload in the analogue or digital outputs of the SCA61T, SCA100T, SCA103T, or SCA1000 devices, and increase current consumption. In such cases, the supply voltage may become unstable, thus causing the output of the device to fluctuate.

SOLUTION

The best performance for the sensors can be achieved by taking into account the following considerations.

1. Arrange a stable power supply voltage of 5V for the sensor. For best performance, the supply voltage should be kept as 5V or at a stable voltage in the range of 4.75 ... 5.25V.
2. For either the SCA100T, SCA103T or SCA1000, locate a supply filtering capacitor (min. 100 nF) between pin 6 (Vss) and pin 12 (Vdd). The capacitor should be placed as close to pin 12 (Vdd) as possible. In case of the SCA 61T, connect a min. 100nF capacitor between pin 4 (Vss) and pin 8 (Vdd).
3. Typical 7-30V supply voltage regulator circuitry that can be used is shown in Figure 1.

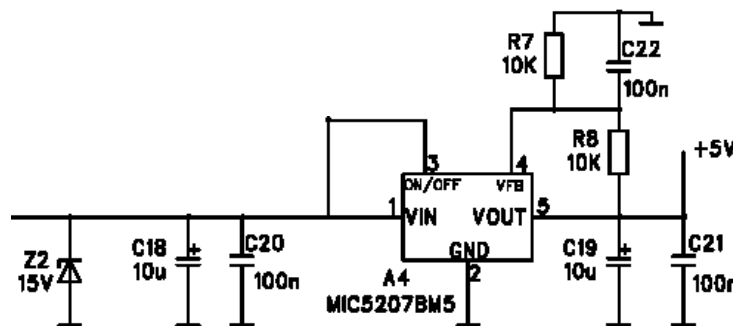


Figure 1. Typical supply voltage regulator circuitry

Please see also the product specific datasheets.

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