

AS7000

Biosensor

General Description

The AS7000 device provides a flexible analog front end for light sensing applications. The photodiode input circuit can be configured in different ways to guarantee best tradeoff between speed and sensitivity for a large number of different sensing applications.

Key Benefits & Features

The benefits and features of AS7000, Biosensor are listed below:

Figure 1:
Added Value of Using AS7000

Benefits	Features
<ul style="list-style-type: none"> Allows smallest application size e.g. narrow HRM measurement band 	<ul style="list-style-type: none"> Single Device Integrated Optical Solution Integrated 32bit Cortex-M0 processor
<ul style="list-style-type: none"> Good HRM measurement quality 	<ul style="list-style-type: none"> Low noise Analog optical front end
<ul style="list-style-type: none"> Additional information for end user 	<ul style="list-style-type: none"> Analog electrical front end (e.g. for NTC or GSR)
<ul style="list-style-type: none"> Long operating time 	<ul style="list-style-type: none"> Hardware Sequencer to offload processor Adjustable LED driver with current control
<ul style="list-style-type: none"> Works reliably with ambient light 	<ul style="list-style-type: none"> Synchronous detector

Applications

The device is suitable for optical sensor platform.

Figure 2:
Application Schematic

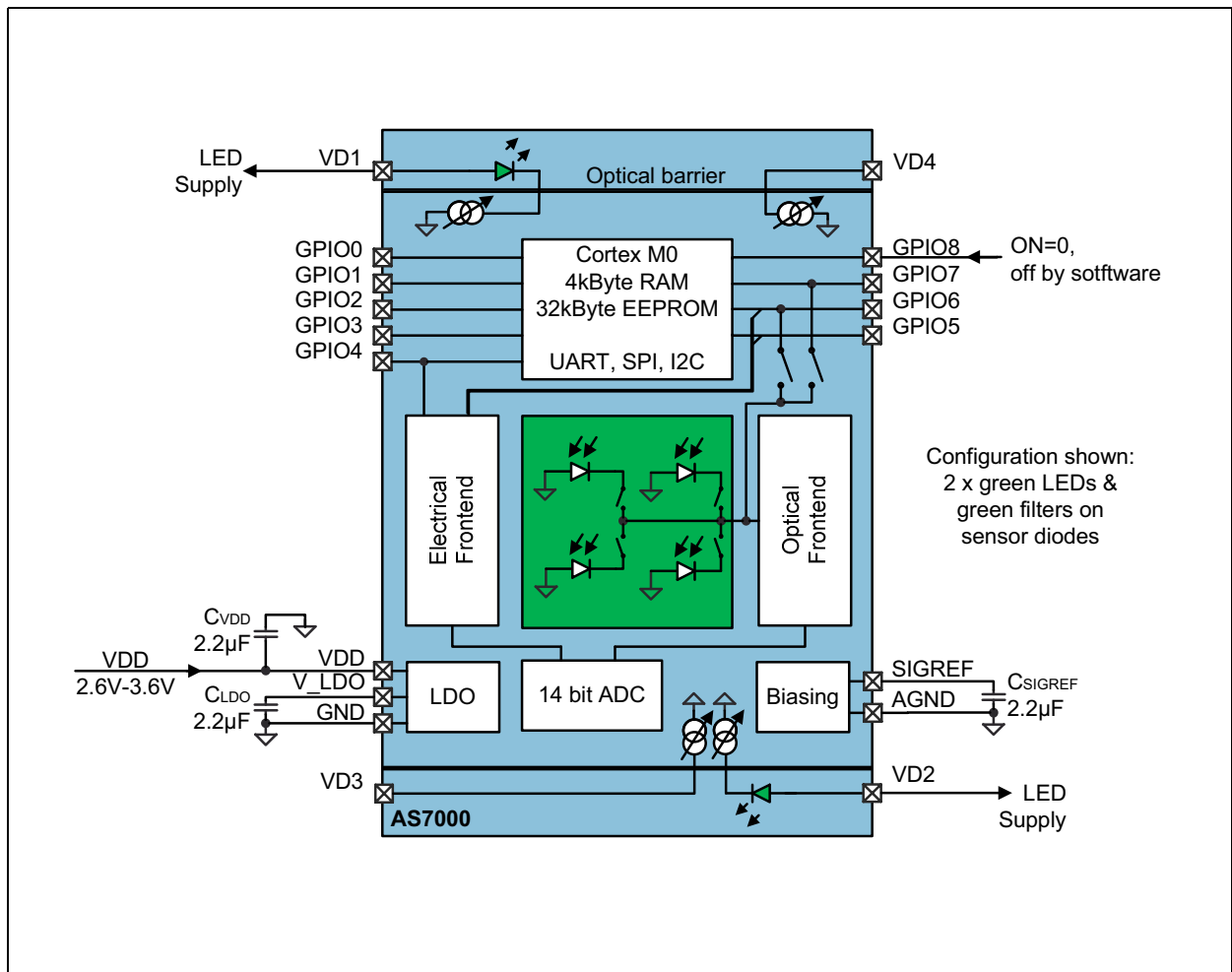
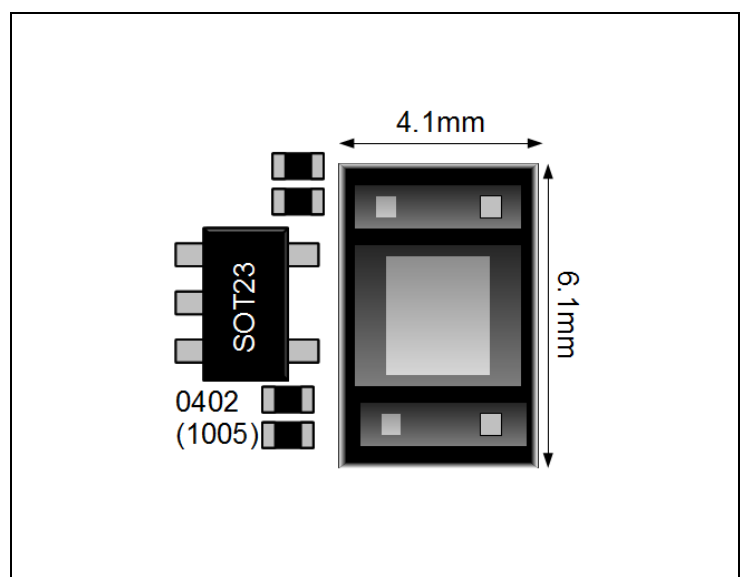


Figure 3:
Typical Form Factor Including VDD LDO



Pin Assignment

Figure 4:
Optical Module Pinout (Top View)

Optical Module Pinout:
This drawing is not to scale

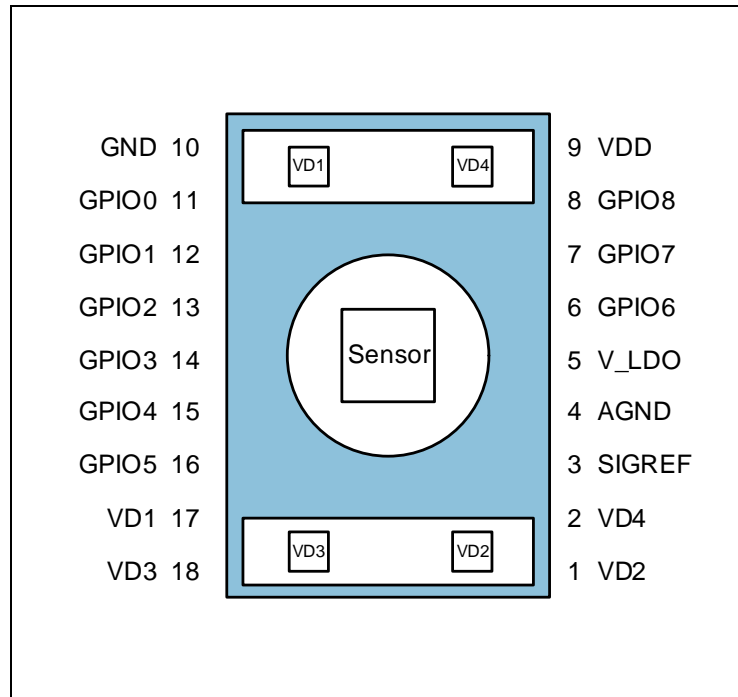


Figure 5:
Pin Description

Pin Number	Pin Name	Description
1	VD2	Supply voltage for LED D2
2	VD4	Supply voltage for LED D4
3	SIGREF	Analog reference output. Connect 2.2uF capacitor to GND (e.g. 0402 sized capacitor GRM153R60J225ME95 or 0201 sized GRM033R60J225ME47 from Murata – needs to have >1uF specified for 1.0V voltage bias); do not load externally The typical operating voltage on this pin is 0.6V (sigref_en=1)
4	AGND	Analog ground. Connect to low noise GND
5	V_LDO	1.9V output voltage. Connect 2.2uF capacitor to GND (e.g. 0402 sized capacitor GRM153R60J225ME95 or 0201 sized GRM033R60J225ME47 from Murata – needs to have >1uF with 1.0V voltage bias); do not load externally
6	GPIO6	General purpose input/output
7	GPIO7	General purpose input/output

Pin Number	Pin Name	Description
8	GPIO8	General purpose input/output
9	VDD	Supply voltage
10	GND	Power supply ground. All voltages are referenced to GND.
11	GPIO0	General purpose input/output
12	GPIO1	General purpose input/output
13	GPIO2	General purpose input/output
14	GPIO3	General purpose input/output
15	GPIO4	General purpose input/output
16	GPIO5	General purpose input/output
17	VD1	Supply voltage for LED D1
18	VD3	Supply voltage for LED D3

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