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ML8511-00FC

REFERENCE BOARD Manual for UV Sensor (QFN)

Issue date: August 27, 2013

NOTES

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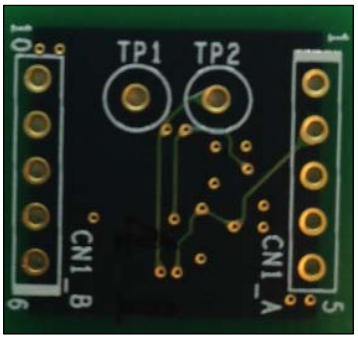
1. General Description

The ML8511-00FC is a reference board for the Lapis Semiconductor UV Sensor ML8511. Below shows the FRONT and BACK of the PCB with a mounted ML8511 in a QFN package.



2. Features

- UV Photodiode sensitive to UV-A and UV-B
- Embedded operational amplifier
- Analog voltage output
- Low supply current (300uA typ.) and low standby current (0.1uA typ.)
- Small SMT package (4.0mm x 3.7mm x 0.73mm, 12-pin ceramic QFN)
- Active high enable pin
- VDD input cap and reference voltage decoupling cap included on reference board

3. Applications

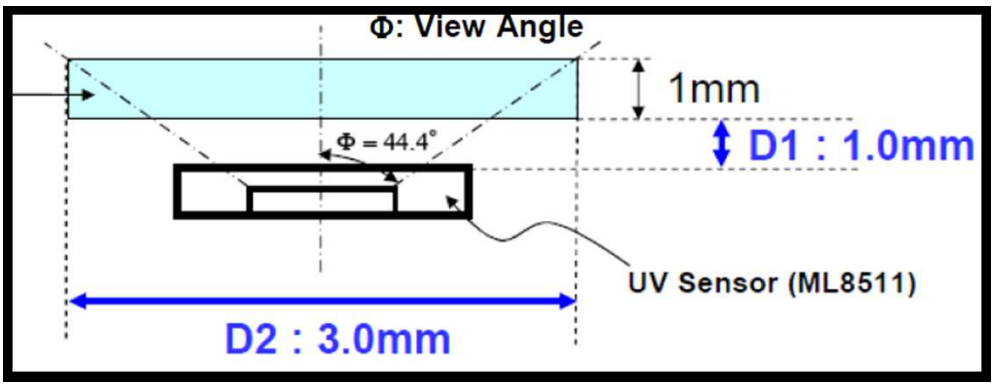
Smart Phone, Watch, Weather station, Bicycle Navigation, Gaming, Health, Fitness, Accessories

4. Recommended Operating Conditions

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Voltage	VDD	2.7	3.3	3.6	V
Operating Temperature	Ta	-20	25	70	°C
Storage Temperature	Tstg	-30	-	85	°C

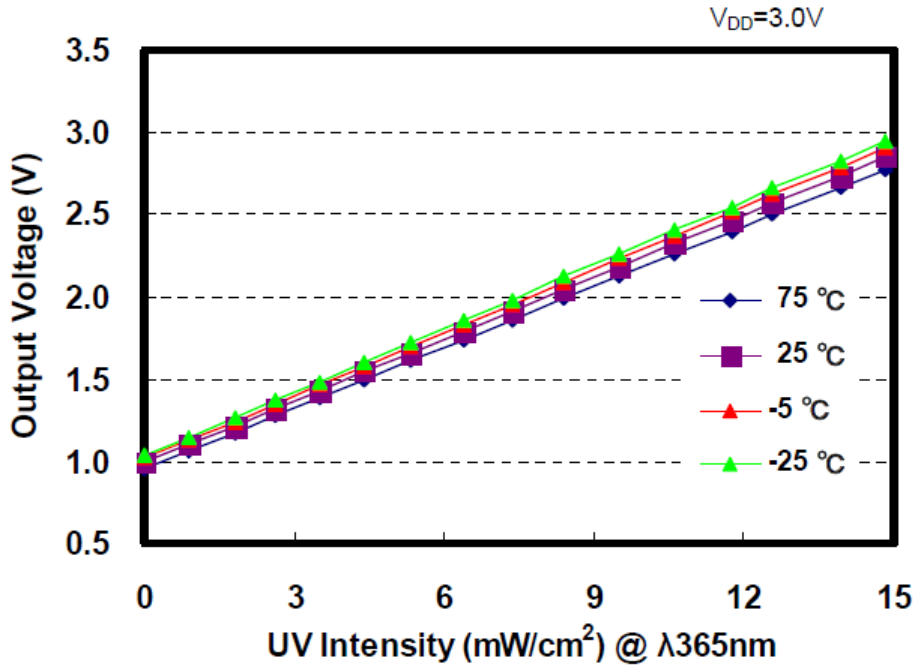
5. UV Sensor Optical Filter

An optical UV transmission filter is recommended with the usage of ML8511. The material recommended is ACRYLITE #000 (1.0mm thickness) with sandblast #220, if opaque filter is desired. The distance from ML8511 to filter is D1. D1 should be ~1.0mm. The aperture size of the filter is D2. D2 should be ~3.0mm.



6. Output Voltage – UV Characteristics

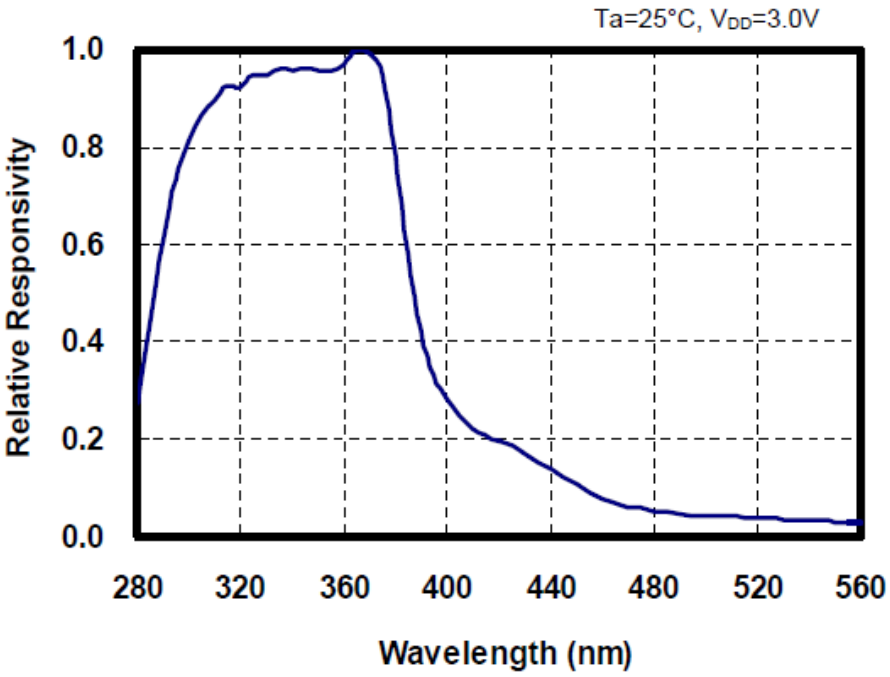
The below chart shows the linear relationship between the sensor's output voltage and UV intensity (mW/cm²) when Vdd = 3.0V. The sensor output is stable across the operating temperature range.



7. Spectral Response Characteristics

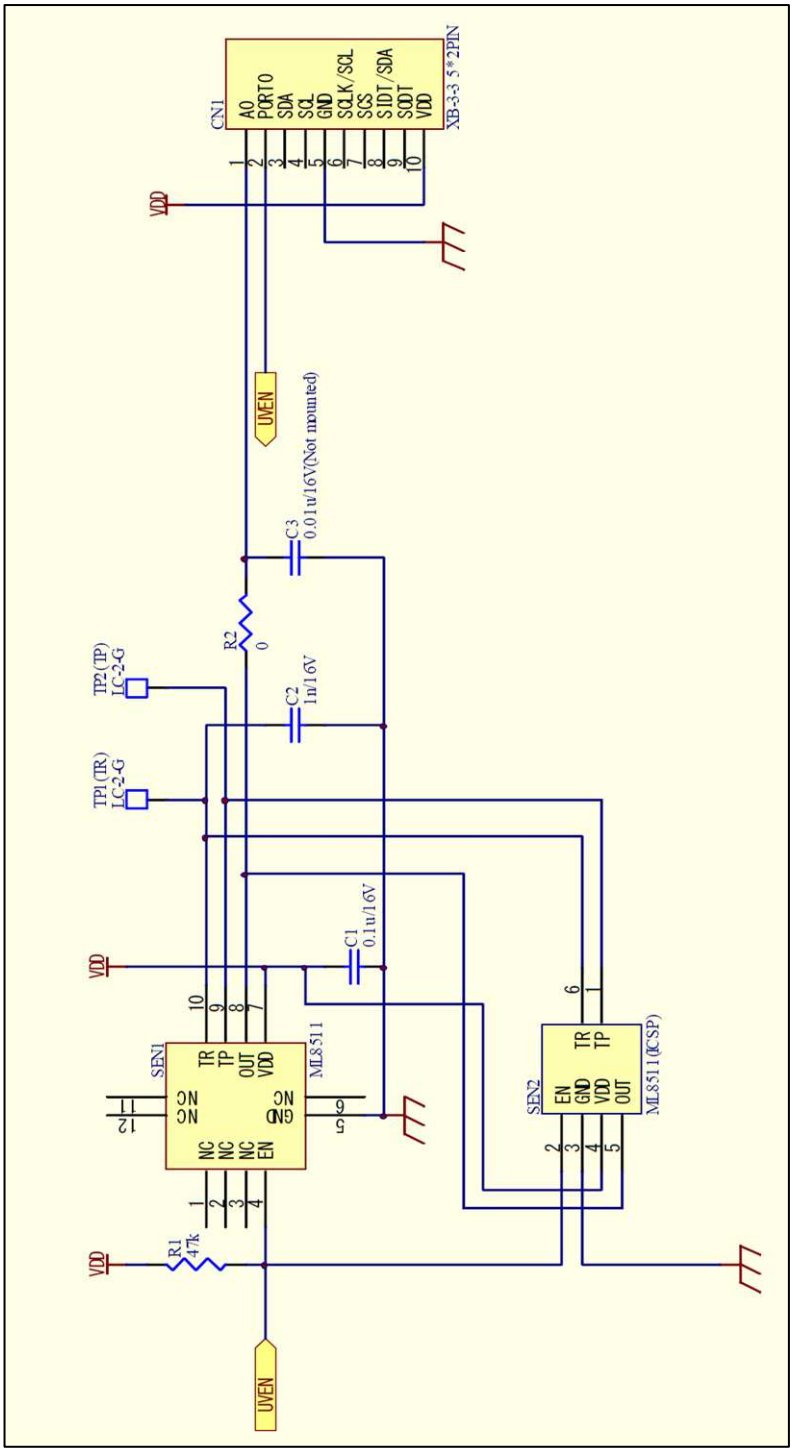
The ML8511 has the spectral response of measuring UVA and UVB wavelengths.

UV-A: 315-400nm
UV-B: 280-315nm

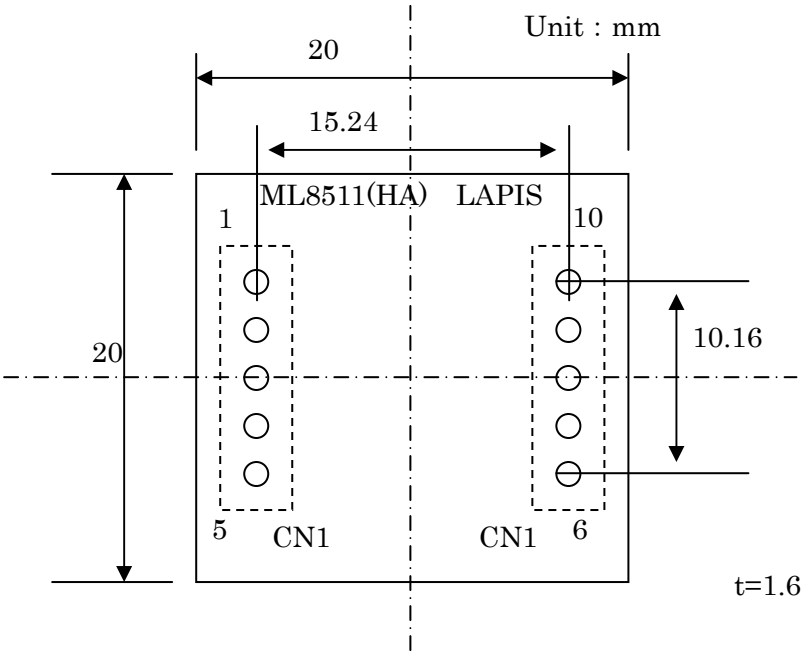


8. Reference Board Schematic

The schematic below shows the reference board inputs/outputs and pin connections.



9. Reference Board Dimensions



10. Table of Pin Descriptions

CN1 through-hole #	Through-hole Name	Function
1	UVOUT	Output
2	UVEN	Active high EN_pin (High: Active / Low: Standby)
3	-	-
4	-	-
5	GND	Ground
6	-	-
7	-	-
8	-	-
9	-	-
10	VDD	Input Voltage

*Please refer to the ML8511 datasheet for additional details on electrical specifications and recommendations.

Revision History

Document No.	Issue Date	Page		Description
		Previous Edition	New Edition	
FEBL8511_REFBOARD_Manual-01	2013.08.27	–	–	First Edition