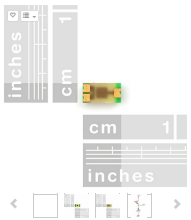

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Ambient Light Sensor - TEMT6000x01

COM-08348 ROHS ✔

DESCRIPTION DOCUMENTS

This is a small ambient light sensor that acts as an NPN transistor. The more the sensor is exposed to light, the stronger the base bias. Simple to use! Simple breakout board available below.

Tags

AMBIENT LIGHT IC LIGHT / IMAGING SENSOR TEMT6000

Ambient Light Sensor - TEMT6000x01 Product Help and Resources

TUTORIALS SKILLS NEEDED

TEMT6000 Ambient Light Sensor Hookup Guide
OCTOBER 26, 2016

Bring the ability to detect light levels to any project with the SparkFun TEMT6000 Ambient Light Sensor Breakout.

COMMENTS 19 REVIEWS 0

Customer Comments

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EmptySimon / about 5 years ago / ★ 1
Would I be correct in saying that the Base is not connected to anything?

sunnycanuck / about 5 years ago / ★ 1
I've bought 4-5 of these for use in our lab, one is mounted on our sun tracker controller, and works great (using it with 4 photo-resistors to give the sun's relative location and irradiance.) but the last 3 have been duds. The diode reads either as an open or shorted circuit. We hook them up to arduino's, so even a crossed wire hook up should only be 5V, which I don't think can burn out a photodiode. Any idea what is happening? Here are pics of the good and bad sensor (https://plus.google.com/107935709908498477582/posts/5fXwMVz4Yfh). Could overheating the board when soldering do this?

jkatebin / about 5 years ago / ★ 1
I usually solder @ 368°C, 3-4 seconds on the to-be-joined metals, then apply a solder bridge, then solder the other bit to join to the bridge (4-6 seconds total). But according to the datasheet these have a MAX time of 3 seconds with a MAX temp of 260°C. Which means I would probably destroy everyone I soldered using my 'norm.' If you're like me then yes you probably overheated them...

tl;dr: Solder it in under 3 seconds and under 260°C

Member #139062 / about 7 years ago / ★ 1
I was wondering how bad temperature would affect this sensor. We are planning on using them to determine the brightness of the sunlight on livestock. We are in the south and the heat can get rather extreme. Also, I only have 3.3 volts available, will this work with a lower voltage? Thanks, Brian

Madbodger / about 6 years ago / ★ 1
In that a temperature-compensated light-to-frequency converter like the TSL23SR instead. It works fine on 3.3V too.

MikeGrusin / about 7 years ago / ★ 1
And yes, it will work fine at 3.3V.

nanogear / about 6 years ago / ★ 1
Hmm, the temt6000 is no longer produced by Vishay. Are you going to replace it with the new TEMT6000X01?

MikeGrusin / about 6 years ago * / ★ 1
I checked and the part we're selling is the TEMT6000X01. Thanks for pointing this out, I'll get the new datasheet posted. (In the meantime, the datasheet can be found at: http://www.vishay.com/docs/81579/temt6000.pdf)

Member #139062 / about 7 years ago / ★ 1
Thanks so much!

Kamiquasi / about 7 years ago / ★ 1
Have a look at the datasheet directly from Vishay;
http://www.vishay.com/docs/81579/temt6000.pdf
Page 491 (don't worry, there's not actually that many pages in the document) has the current vs ambient temperature graphs you're looking for.

Member #139062 / about 7 years ago / ★ 1
Thanks so much. So, on a given day it could be 70 in the morning and 98 in the afternoon. Would I need to log temperature and do some sort of correction for the light measurement to be the same through out the day?

Kamiquasi / about 7 years ago / ★ 1
In that chart, the relative output is basically a multiplier, with 1.0 set to about 77F (25C).
For 70F, the multiplier is about 0.94.
For 98F, the multiplier is about 1.18.
Whether that is of actual concern depends on your application, though.

Member #139062 / about 7 years ago / ★ 1
Thanks so much again for your help. This would be used for livestock behavior research. We have Kinetamaps that we are using for location and accelerometer to count steps and bites. We would like to add the ability to log the brightness of the sun. Basically, we are trying to determine at what sun intensity an animal seeks shade. So we would need the sensor to accurately record the brightness of the sun across all temperatures so that data recorded in the dead of winter is comparable to data that is recorded in the height of summer. Do you think this type of sensor is the right choice? If so, should I record temperature and use the multipliers to compensate for temperature?

Kamiquasi / about 7 years ago / ★ 1
Yes, you would have to record temperature as well (which I'm guessing you may already be recording?) and compensate accordingly.
However, I'm not sure this sensor is right for the purpose. The datasheet doesn't really give the information I was looking for, namely the range of the sensor. However, the lux vs current graph only goes up to 1,000 lux. Broad daylight (not even counting the sun) is well into the tens of thousands of lux. On the other hand, the datasheet also mentions a maximum collector current of 20mA which, if the graph continues linearly, should be adequate even for full sunlight.
So this might be a question for the forums - get a few more eyes on it. If nothing else, I'm sure there will be alternatives suggested :)

DmitryS / about 7 years ago / ★ 1
Is it possible to detect colors(red|blue) with this sensor?

SigEpBlue / about 7 years ago / ★ 1
Sort of, but probably not in a way you'd like. If you look at the second page of the datasheet, you'll see a graph relating responsivity and wavelength. Assuming red == 700nm and blue == 450nm, you're looking at ~0.8 and 0.6 relative responsivity.
Whether that's enough to be discernible by your control system is up to you and your design.

TimZaman / about 5 years ago / ★ 1
Obviously that is not possible as it heavily depends on the luminance of the object. i suggest buying 3, and buying 3 markers, a red blue and green marker. Those make sure only resp. red blue and green light passes through. jippy problem solved.

p.kusmierski / about 7 years ago / ★ 1
Here's a very direct way of doing pulse oximetry with TEMT6000 by measuring the amount of light from a red LED that passes through human body:
http://fiqthatbit.net/2011/04/simple-pulsoximeter/

fruitfly / about 9 years ago / ★ 1
TEMT6000X01 product information
http://www.vishay.com/product?tdocid=81579

In 2003, CU student Nate Seidle blew a power supply in his dorm room and, in lieu of a way to order easy replacements, decided to start his own company. Since then, SparkFun has been committed to sustainably helping our world achieve electronics literacy from our headquarters in Boulder, Colorado.

No matter your vision, SparkFun's products and resources are designed to make the world of electronics more accessible. In addition to over 2,000 open source components and widgets, SparkFun offers curriculum, training and online tutorials designed to help demystify the wonderful world of embedded electronics. We're here to help you start something.