FAIRCHILD SEMICONDUCTOR®

May 2011

FLD00030
Analog Ambient Light Sensor

Features

- Spectral response close to human eye
- Good output linearity across wide illumination range
- Small footprint: 1.7mm x 0.8mm
- Low profile: 0.6mm
- Phototransistor with filter technology

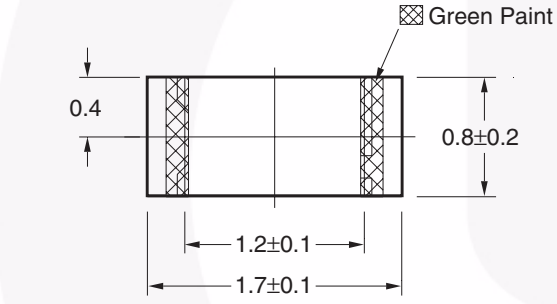
Applications

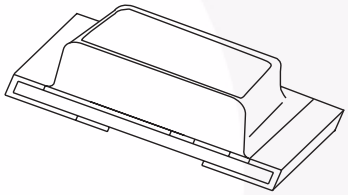
- Cell Phones, Notebook PCs, PDAs, Digital Still Cameras

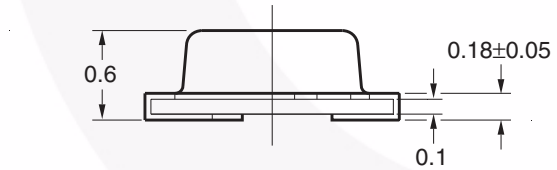
Description

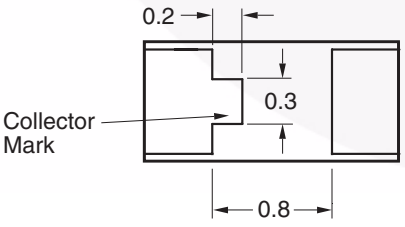
The FLD00030 is a small, low profile photo detector. It incorporates a phototransistor detector chip which makes it an ideal choice for low cost ambient light measurement applications like mobile appliances backlighting.

Package Dimension



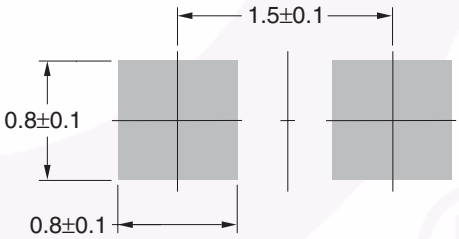




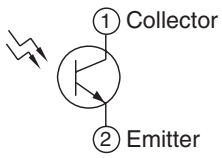


Recommended Solder Screen Pattern

(for reference only)



Schematic



Note:
All dimensions are in mm, tolerances are ±0.1mm unless otherwise specified.

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Min.	Max.	Unit
V_{CE}	Collector-Emitter Voltage		6.0	V
T_{OPR}	Operating Temperature	-40	+85	°C
T_{STG}	Storage Temperature	-40	+100	°C

Electrical/Optical Characteristics (T_A = 25°C and V_{CE} = 5.0V, unless specified otherwise)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$I_L(1)$	Light Current (1)	E_V = 100 Lx(1)	7	10		µA
$I_L(2)$	Light Current (2)	E_V = 1,000 Lx(1)	200	230		µA
$I_L(3)$	Light Current (3)	E_V = 1,000 Lx(2)	950	1,100		µA
$I_L(3) / I_L(2)$	Light Current Ratio			4.8		
I_{LEAK}	Dark Current	V_{CE} = 10V, E_V = 0			0.1	µA
V_O	Saturation Output Voltage	V_{CC} = 5V, E_V = 1000 Lx(2), R_L = 75kΩ	4.5	4.6		V
λ_P	Peak Sensitivity, Wavelength			630		nm

Notes:

1. White fluorescent light (color temperature = 6,500K)
2. Illuminance by CIE standard illuminant-A / 2856K incandescent lamp.

Typical Performance Characteristics

Fig. 1 Illuminance vs. Output Photocurrent

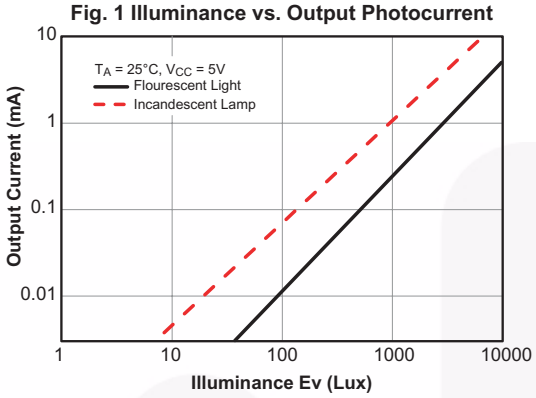


Fig. 2 Illuminance vs. Output Voltage

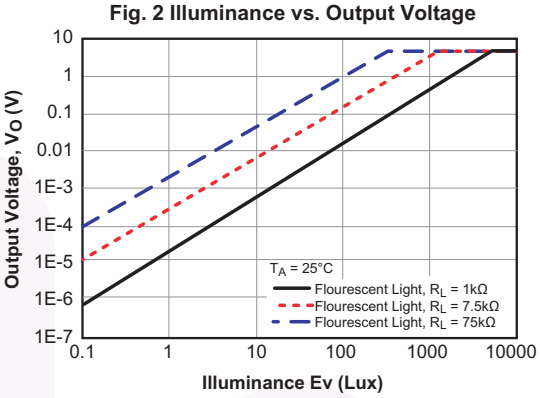


Fig. 3 Spectral Response

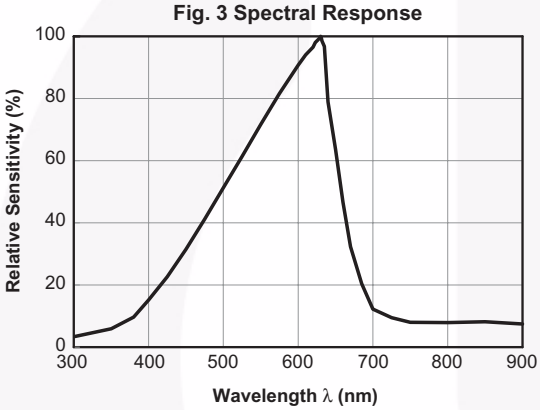


Fig. 4 Light Current vs. Supply Voltage

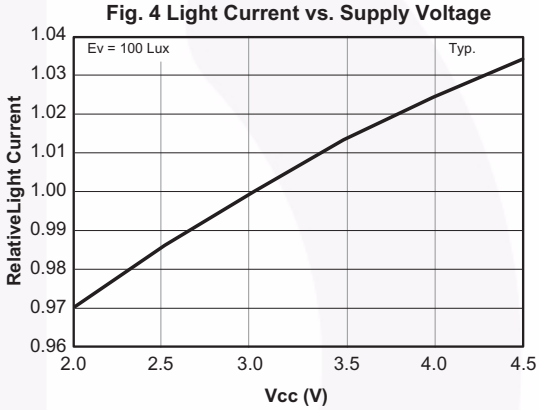
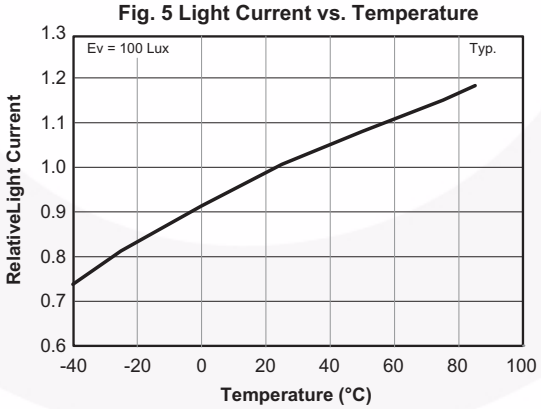
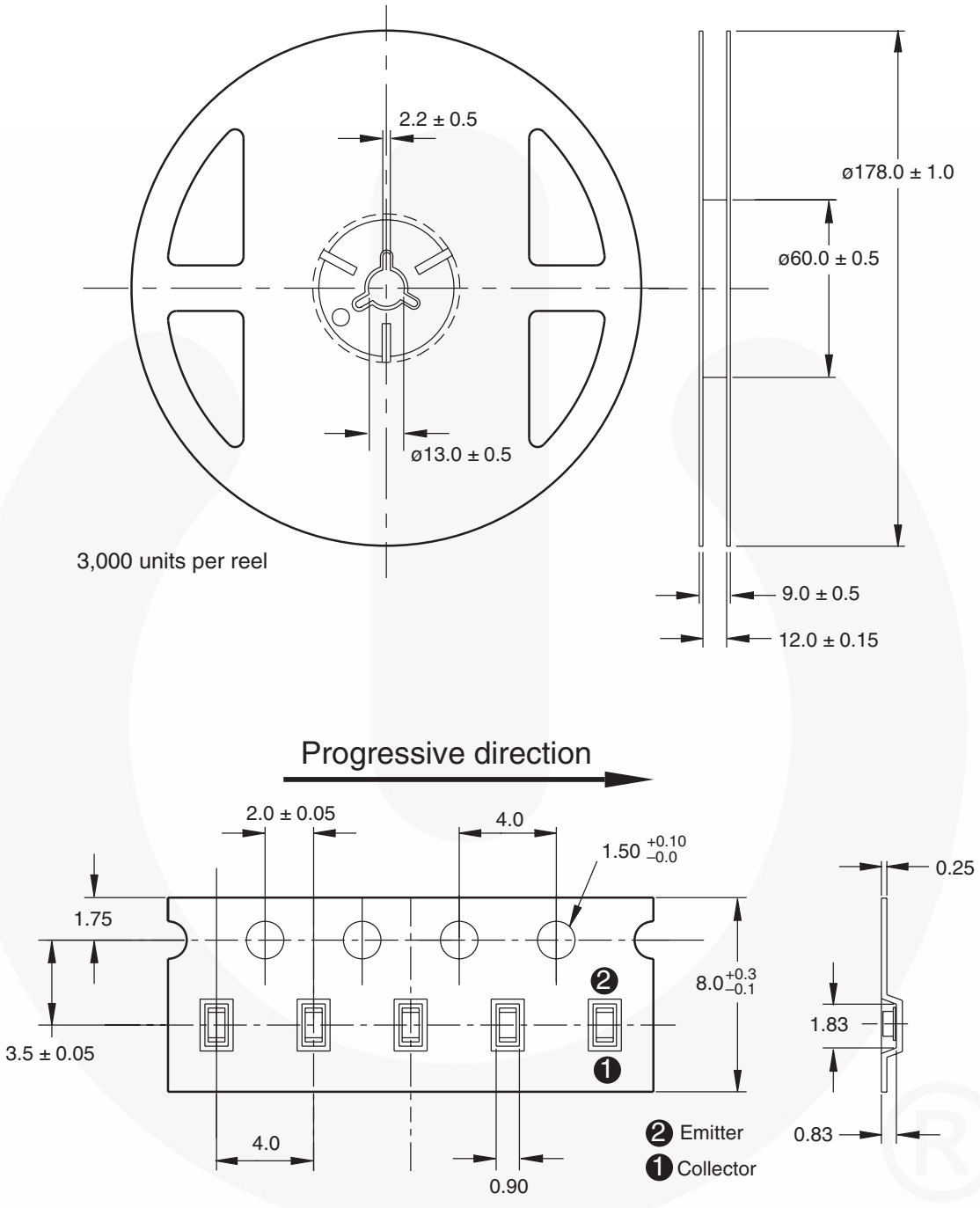


Fig. 5 Light Current vs. Temperature

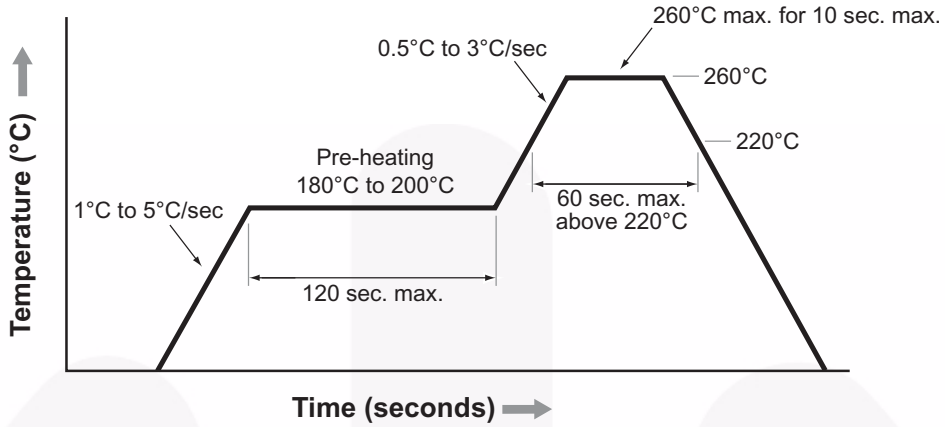


Tape and Reel Dimension



Note: Tolerances are ±0.1mm unless otherwise stated. All dimensions in mm.

Reflow Profile



Note: Reflow soldering should not be done more than twice.

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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