



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

LV0101CF

Monolithic Linear IC

For Ultra-small illumination Sensor
Photo IC

Overview

The LV0101CF is a photo IC for ultra-small illumination sensor. It enables to be mounted on a very small limited space such as on the mobile phones which is becoming small and thinner and on other mobile applications.

Functions

- Logarithm current output
- Excellent luminous efficiency function
- Built-in sleep function
- Low current consumption

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\ max}$		6	V
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +100	$^\circ\text{C}$

Recommended Operating Conditions and Operating Voltage Range at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Recommended supply voltage	V_{CC}		2.3	2.5	5.5	V
SW pin low voltage	V_l	Sleep mode	0		0.4	V
SW pin high voltage	V_h	Normal mode	1.5		V_{CC}	V

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<http://semicon.sanyo.com/en/network>

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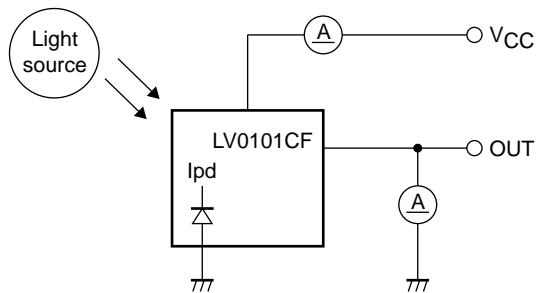
Electrical and optical characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 2.5\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current dissipation *1, *3	I_{CC}	$E_v = 1000 \text{ lx}$, $R_L = 27\text{k}\Omega$	50	75	100	μA
Sleep current	I_{sl}	$E_v = 0 \text{ lx}$		0.01	0.1	μA
Output current (1) *1, *3	I_{O1}	$E_v = 100 \text{ lx}$	18	21	24	μA
Output current (2) *1, *3	I_{O2}	$E_v = 1000 \text{ lx}$	27	31	35	μA
Dark current	I_{leak}	$E_v = 0 \text{ lx}$		0.35	0.5	μA
Temperature coefficient *2	I_{tc}	$E_v = 100 \text{ lx}$		0.1		$\%/^\circ\text{C}$
Rise time *4	T_{r1}	$E_v = 1000 \text{ lx}$		40	100	μs
Fall time *4	T_{f1}	$E_v = 1000 \text{ lx}$		2	5	ms
Peak sensitivity wave length *2	λ_p			550		nm

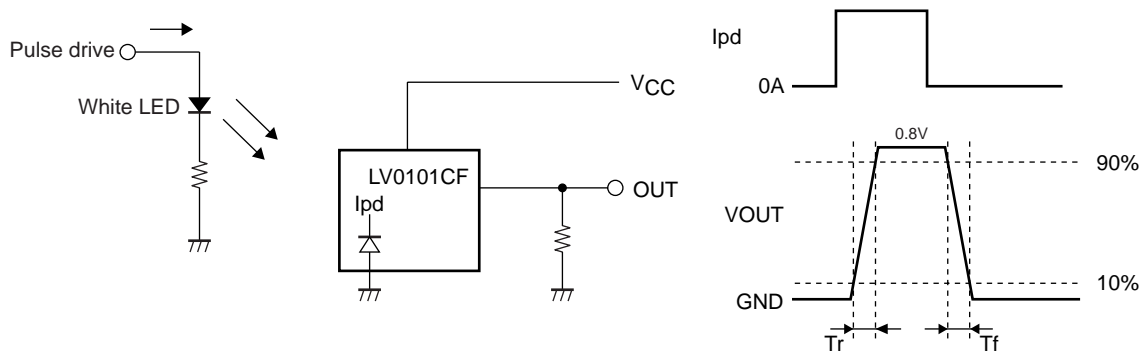
*1. Measured with the standard light source A. White LED is used instead in the mass production line.

*2. Design guaranteed item

*3. Test circuit for measuring current dissipation and output current



*4. Measuring method of rise time (T_r) and fall time (T_f)

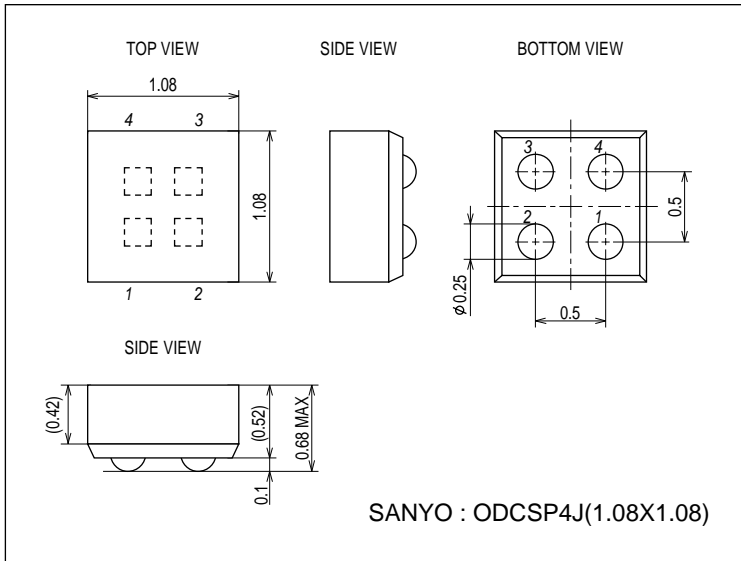


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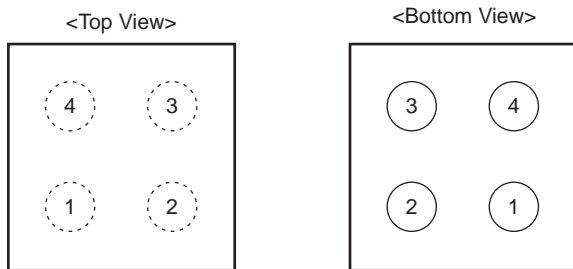
Package Dimensions

unit : mm (typ)

3410



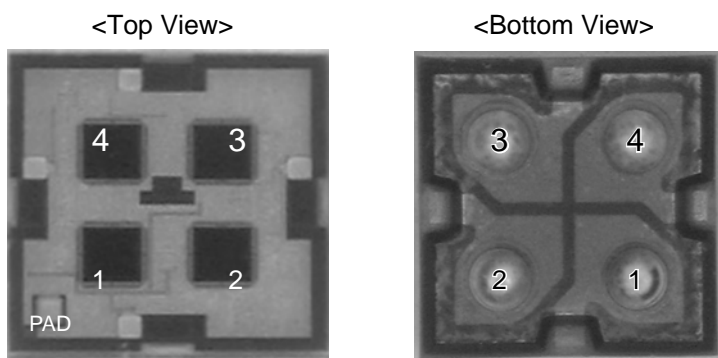
Pad Layout



Pin No.	Pin Name	Function
1	VCC	Power supply
2	EN	Enable
3	GND	Ground
4	OUT	Output

Ball pitch : 0.5mm, Ball size : 0.25mm ϕ

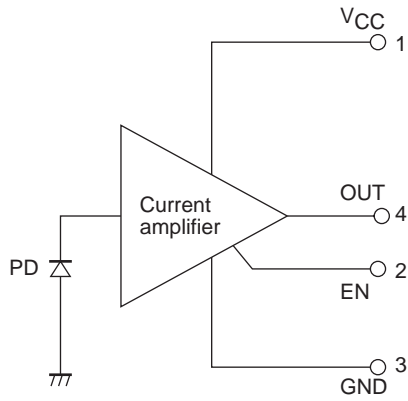
Pad Layout (Photos)



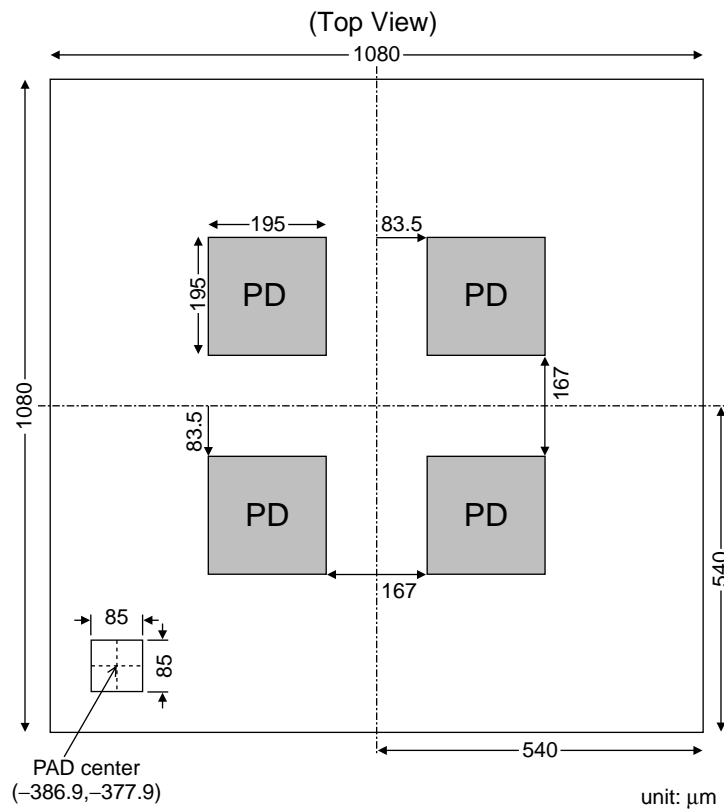
* The position with PAD becomes pin 1.

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Internal Block Diagram

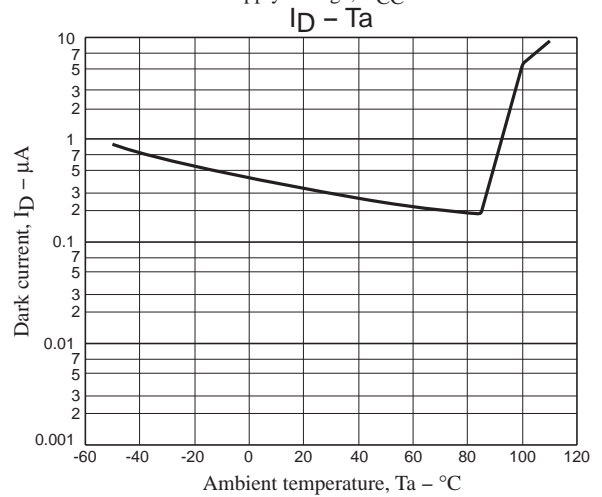
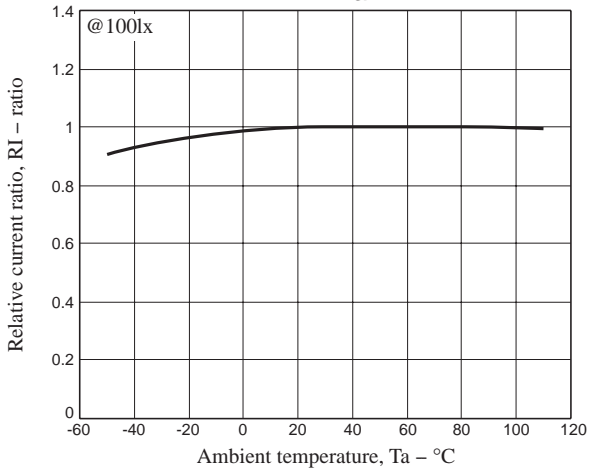
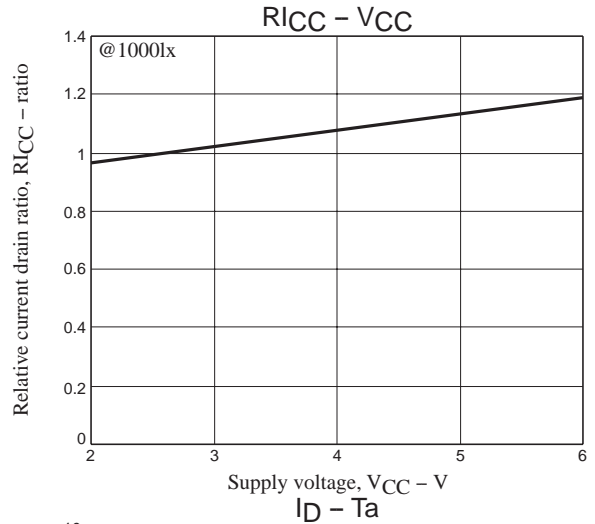
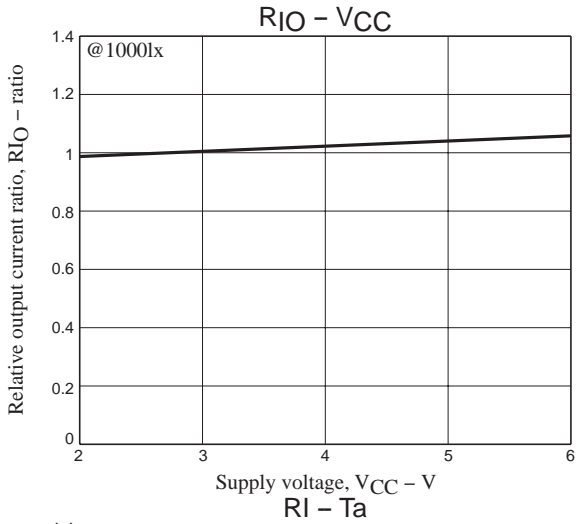
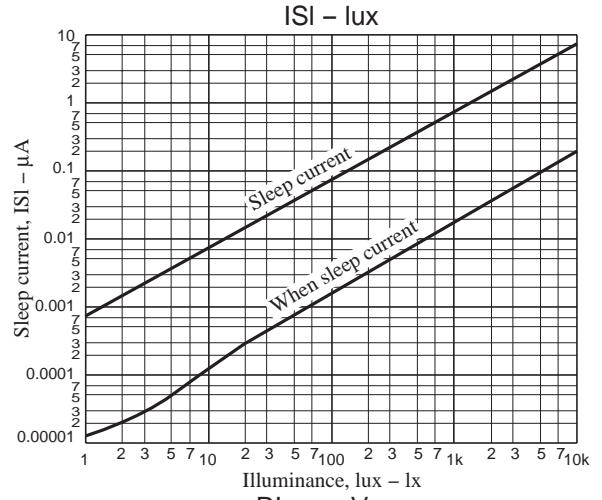
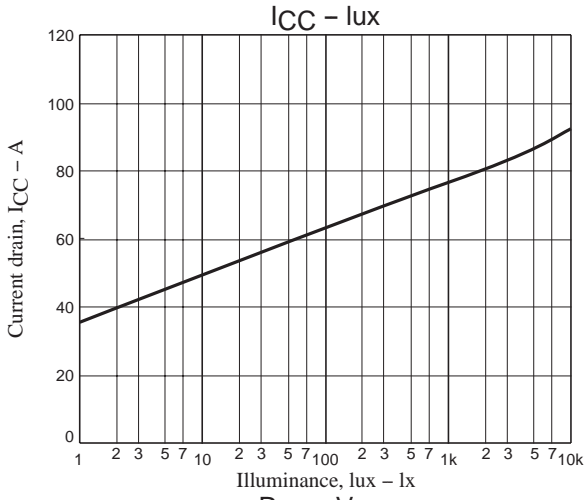
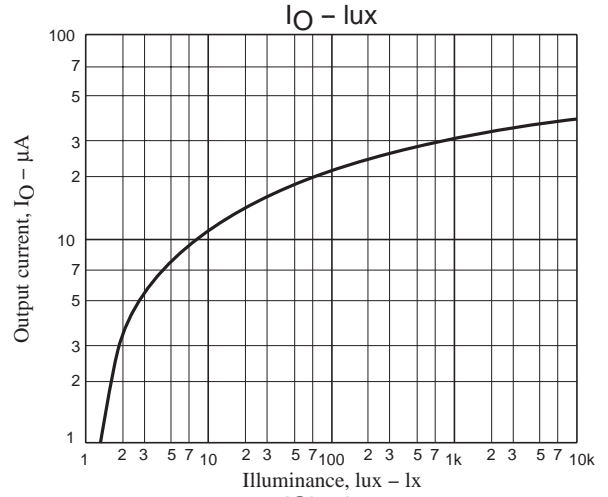
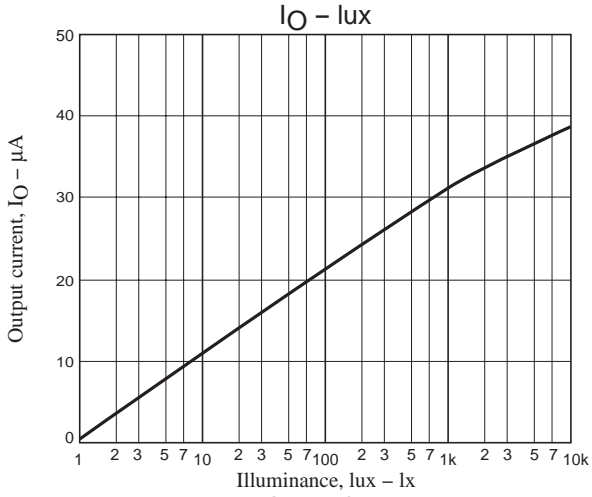


Chip Pattern Diagram

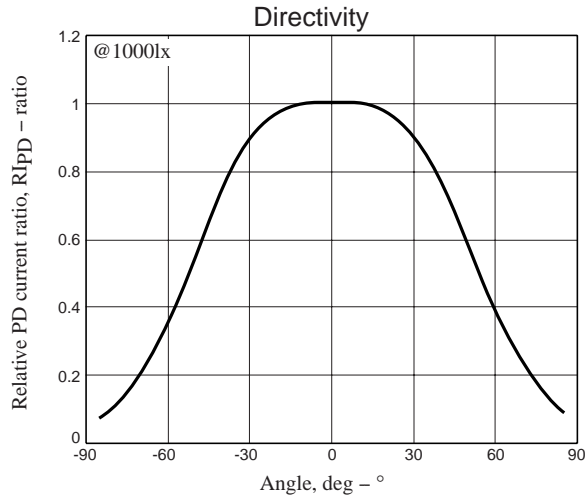
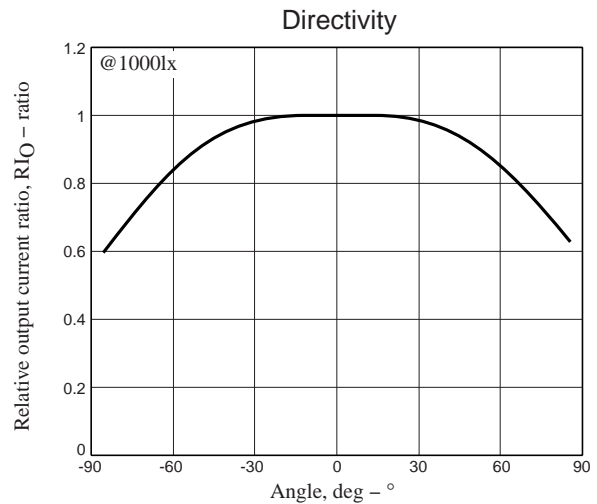
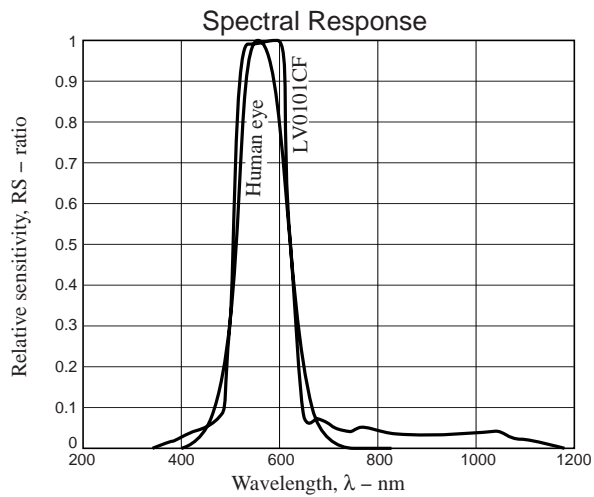


* The PAD becomes pin 1.

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