



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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# LV0101CF

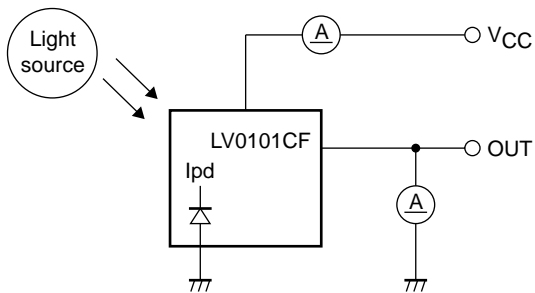
**Electrical and optical characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 2.5\text{V}$

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	$\mu\text{A}$
Sleep current	$I_{sl}$	$E_v = 0 \text{ lx}$		0.01	0.1	$\mu\text{A}$
Output current (1) *1, *3	$I_{O1}$	$E_v = 100 \text{ lx}$	18	21	24	$\mu\text{A}$
Output current (2) *1, *3	$I_{O2}$	$E_v = 1000 \text{ lx}$	27	31	35	$\mu\text{A}$
Dark current	$I_{leak}$	$E_v = 0 \text{ lx}$		0.35	0.5	$\mu\text{A}$
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	$\mu\text{s}$
Fall time *4	$T_{f1}$	$E_v = 1000 \text{ lx}$		2	5	ms
Peak sensitivity wave length *2	$\lambda_p$			550		nm

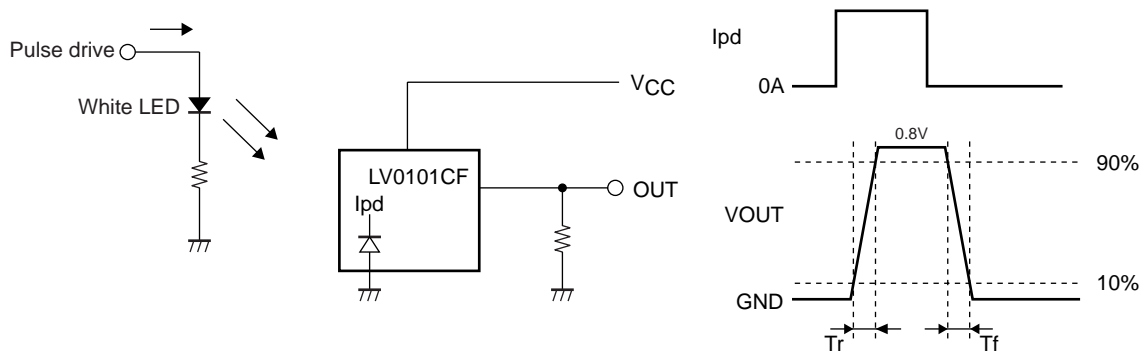
\*1. Measured with the standard light source A. White LED is used instead in the mass production line.

\*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 ( $T_f$ )

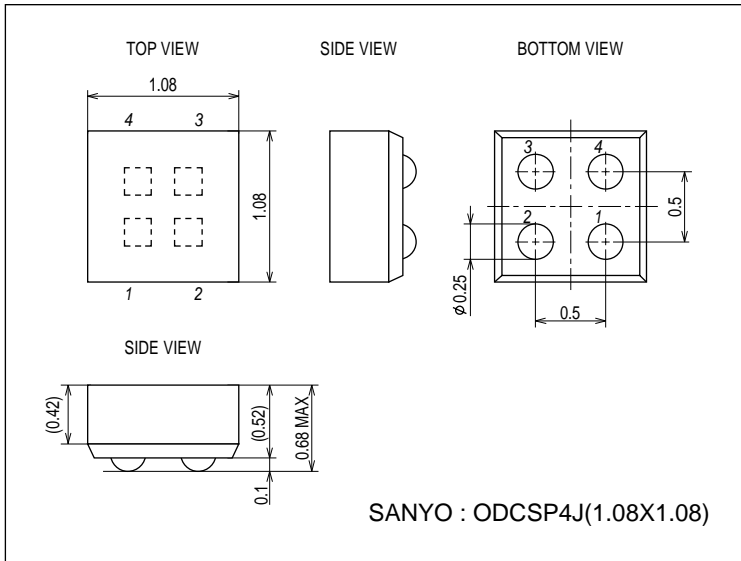


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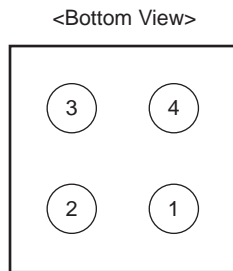
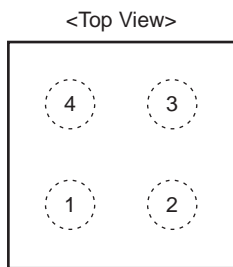
## Package Dimensions

unit : mm (typ)

3410



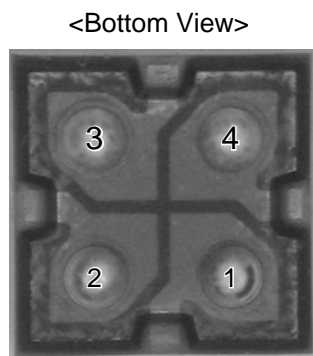
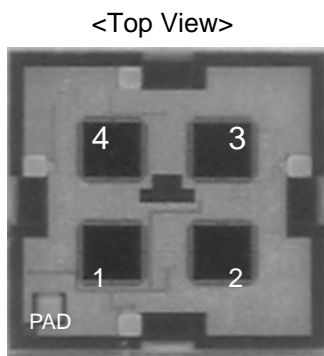
## Pad Layout



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 $\phi$

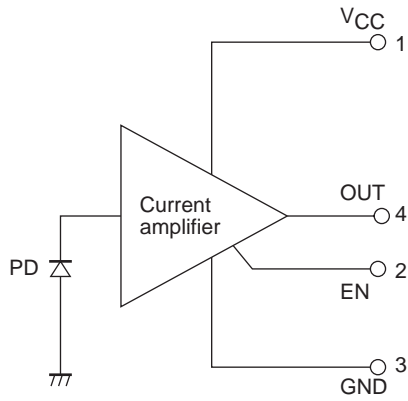
## Pad Layout (Photos)



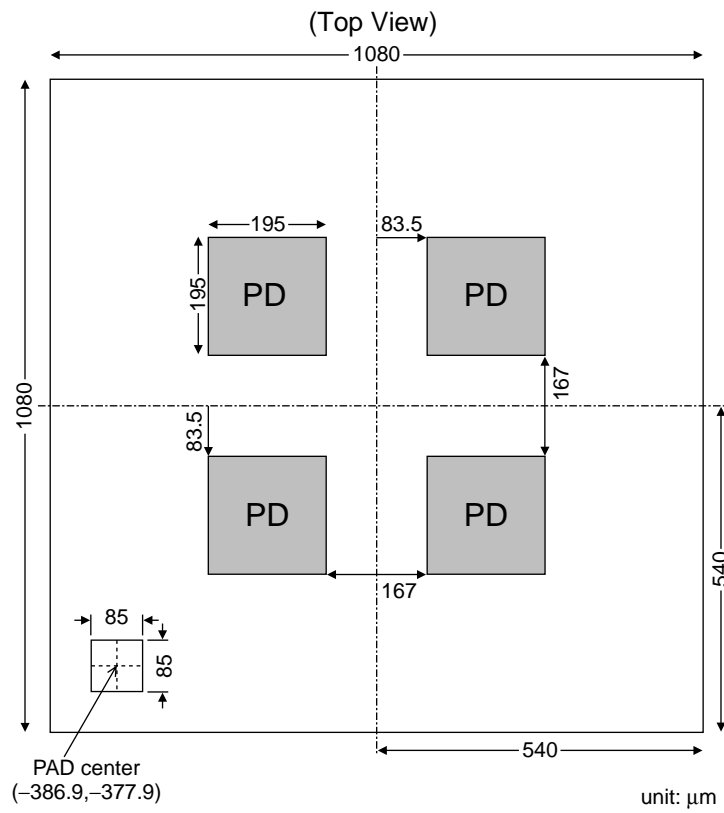
\* The position with PAD becomes pin 1.

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## Internal Block Diagram

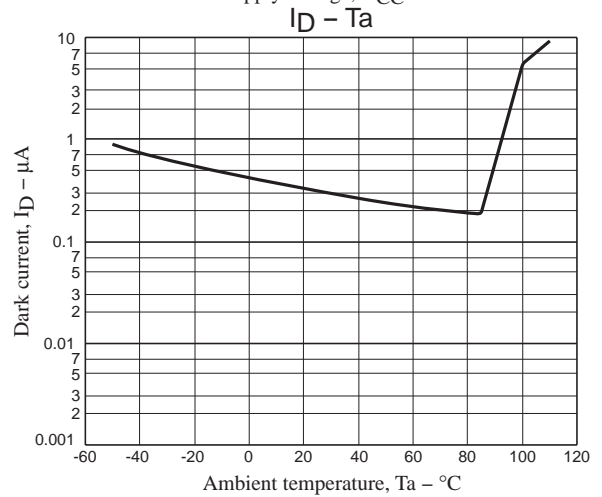
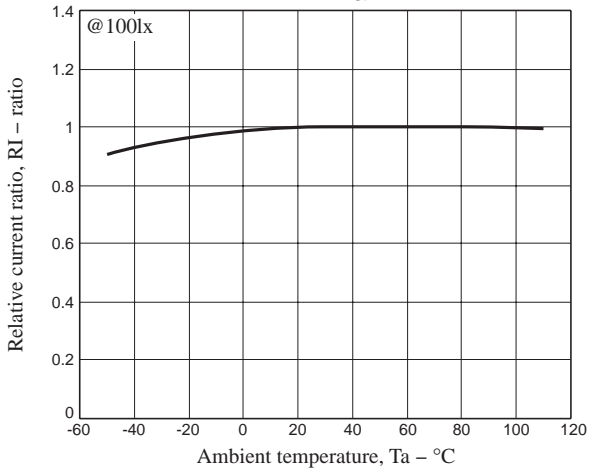
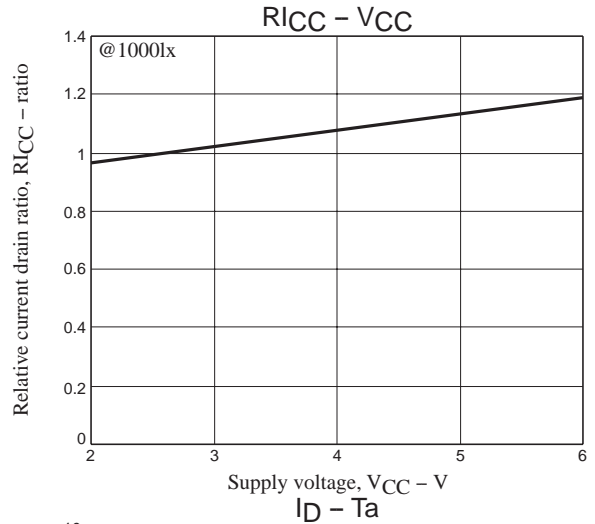
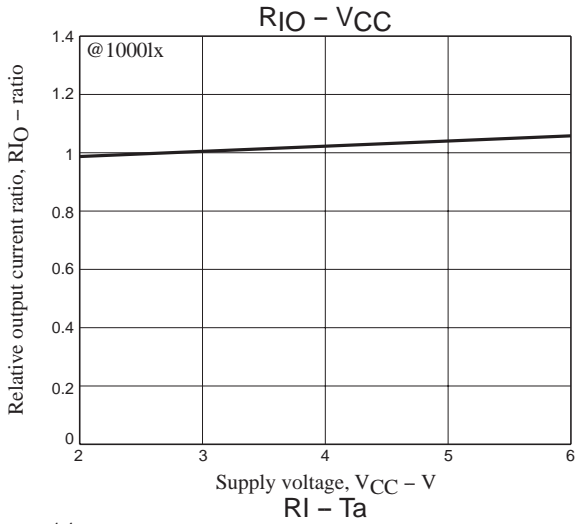
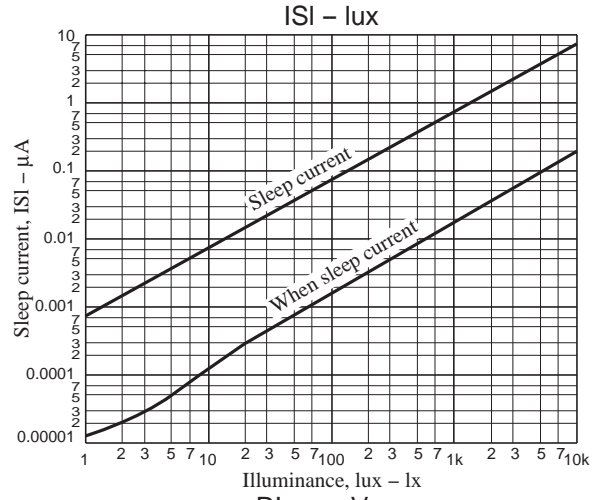
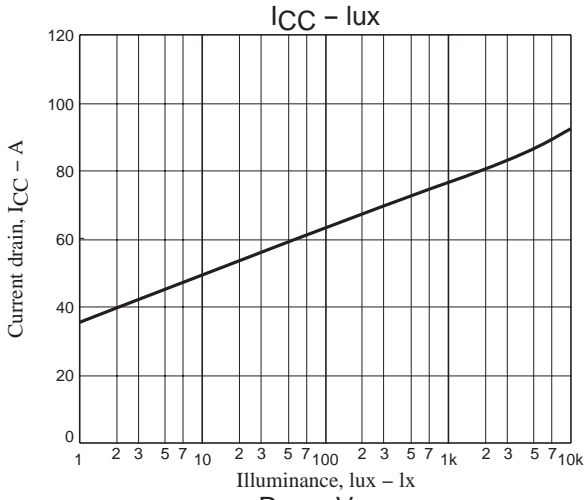
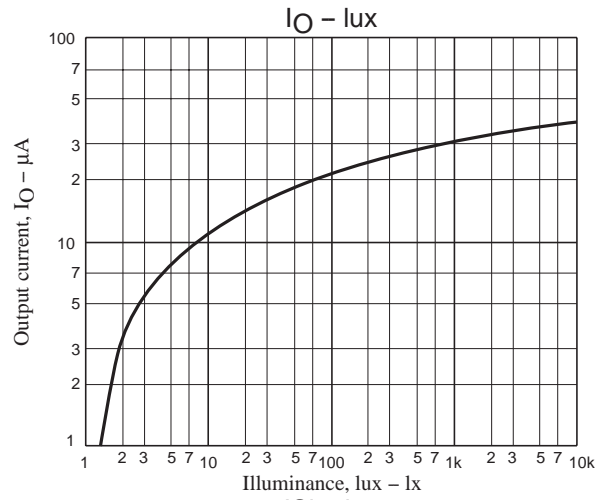
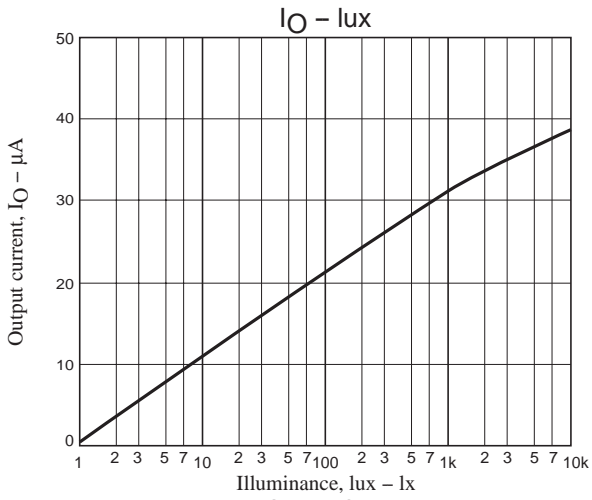


## Chip Pattern Diagram

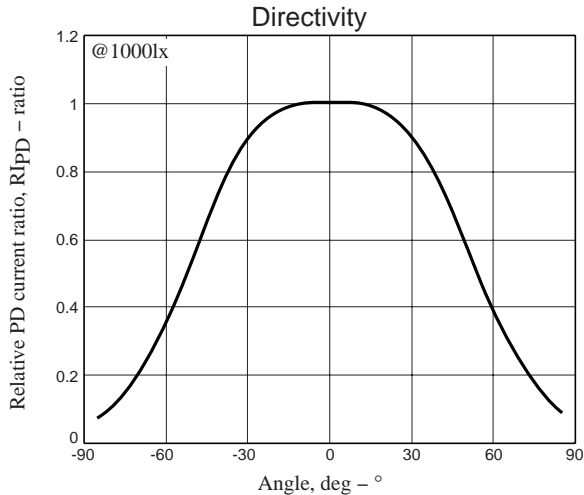
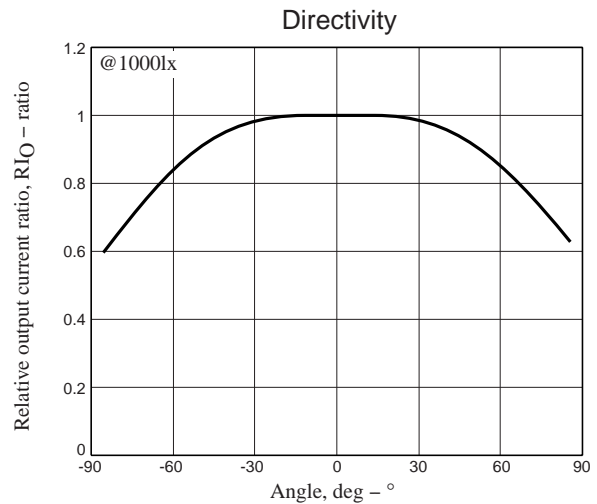
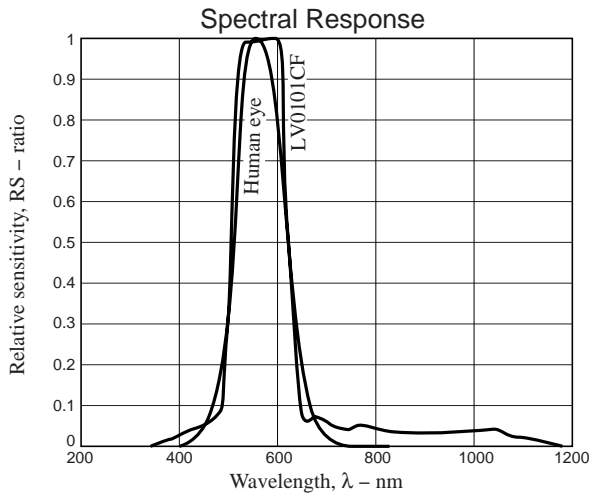


\* The PAD becomes pin 1.

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