GP2D06/GP2D07

Paper Size Sensor System Employing Optical Distance Measuring Method

■ Features

1. High sensitive detection because of less influence on the color (reflectivity) of reflective objects thanks to position sensitive detector (PSD).
2. 1-beam type : **GP2D06**
   3-beam type : **GP2D07**
3. 8-bit serial output
4. Realizes 2 type detecting system
   A/B size detection
   Both A/B size and inch size detection

■ Applications

1. Copiers

■ Absolute Maximum Ratings

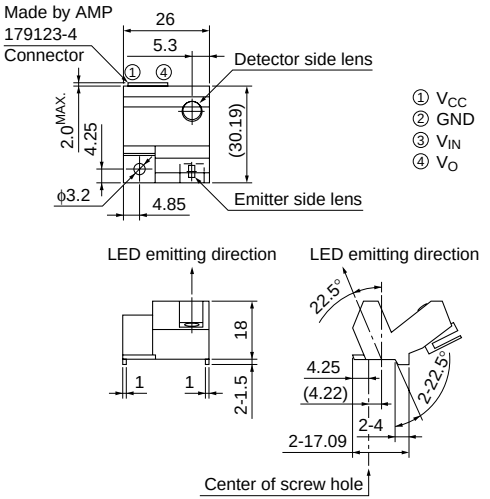
(Ta=25°C, V_{CC}=25V)

Parameter		Symbol	Rating	Unit
Supply voltage		V_{CC}	–0.3 to +10	V
Input terminal voltage 1		V_{in}	–0.3 to +3	V
Input terminal voltage 2	**GP2D06**	V_{LED}	–	V
	GP2D07		–0.3 to Vcc +0.3	
Output terminal voltage		V_O	–0.3 to +10	V
Operating temperature		T_{opr}	–10 to +60	°C
Storage temperature		T_{stg}	–40 to +70	°C
Operating Supply voltage		V_{CC}	4.5 to 5.5	V

■ Outline Dimensions

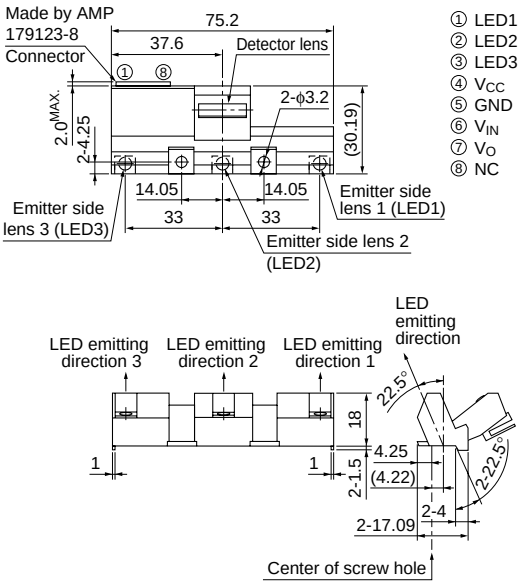
(Unit : mm)

GP2D06



❋ Unspecified tolerance : ±0.3mm

GP2D07



❋ Unspecified tolerance : ±0.3mm
❋ ( ) : Reference dimensions

■ Electro-optical Characteristics

(Ta=25°C, V_{CC}=5V)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Recommended detection height		H		50	60	70	mm
Output data		D	H=60mm L=0mm *1 *2	110	160	210	DEC
Distance characteristics of output data	**GP2D06**	ΔD_L	H=60mm displacement *1 *2 Output change at L=50mm→0mm	70	90	110	DEC
	GP2D07			65	85	105	
Output displacement of paper tolerance	**GP2D06**	ΔD_{X1}	Output difference of output between paper *1 *2 *3 output and X1=8mm output. H=60mm L=0mm	30	–	–	DEC
	GP2D07		Output difference of output between paper *1 *2 *3 output and X1=9mm output. H=60mm L=0mm				
	GP2D06	ΔD_{X2}	Output difference of output between paper *1 *2 *3 output and X2=2mm output. H=60mm L=0mm	–	–	30	DEC
	GP2D07		Output difference of output between paper *1 *2 *3 output and X2=3mm output. H=60mm L=0mm				
Output displacement on low reflection ratio paper		ΔD_P	Output displacement when 60% of *1 *4 the luminosity go down. H=60mm L=0mm	–	0	30	DEC
Dissipation current		I_{CC}	At smoothing (including LED current)	–	33	48	mA

Note) DEC : Decimal number of sensor output (8bit serial).
D, ΔD_L and ΔD_P shall be specified at LED1 : ON or LED2 : ON or LED3 : ON (**GP2D07**).
ΔD_{X1}, ΔD_{X2} shall be specified at LED1 : ON or LED2 : ON or LED3 : ON (**GP2D07**).

*1 H : Distance between the surface of the sensor and the upper side of paper setting up glass. (Refer to Fig.1,2 (1))
L : Distance between the upper side of paper setting up glass and the object (paper). (Refer to Fig.1, 2(1))

*2 Reflective object : White paper
(Made by Kodak Co. Ltd. glay chart R-27 · white surface, reflective ratio ; 90%)

*3 X1 : Distance between the edge of the object (paper) and the center position of the lens when the paper is undetectable. (Refer to Fig.1, 2(1))
X2 : Distance between the edge of the object (paper) and the center position of the lens when the paper is detectable. (Refer to Fig.1, 2(1))
ΔD_{X1}, ΔD_{X2} : (Refer to Fig.1, 2(2))

*4 Reflective object : Glay paper
Made by Kodak Co. Ltd. glay chart R-27 · Glay surface, reflective ratio ; 18%
This is based on the output when no luminosity decreases by the reflective object (white paper).

Fig.1 The Relation To The Upper Side Of Paper

GP2D06

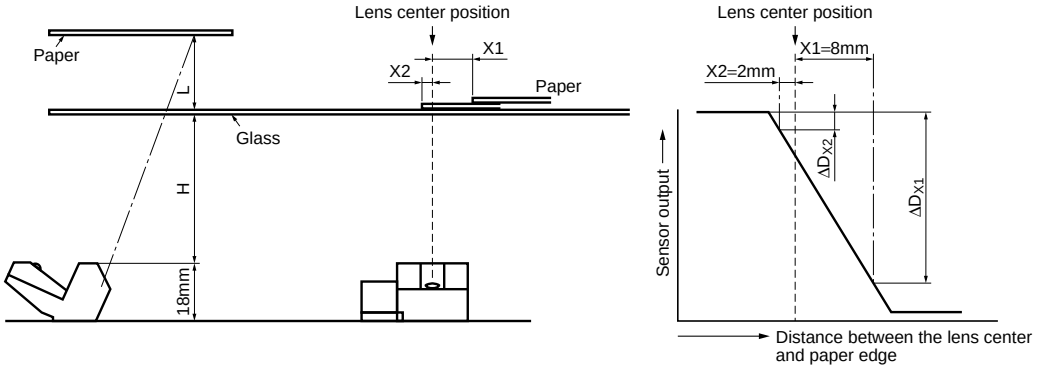


Fig.2 The Relation To The Upper Side Of Paper

GP2D07

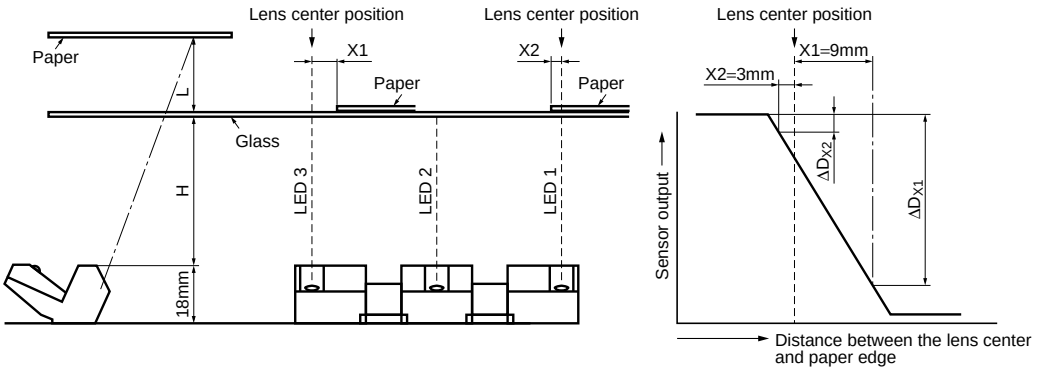


Fig.3 Internal Block Diagram

GP2D06

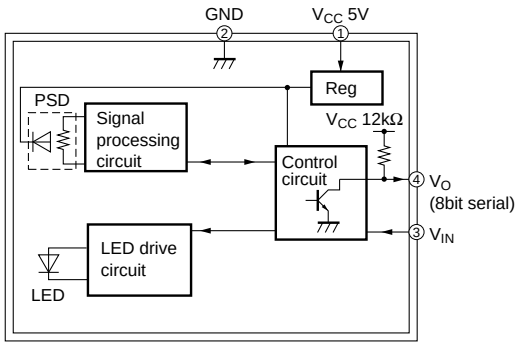


Fig.4 Internal Block Diagram

GP2D07

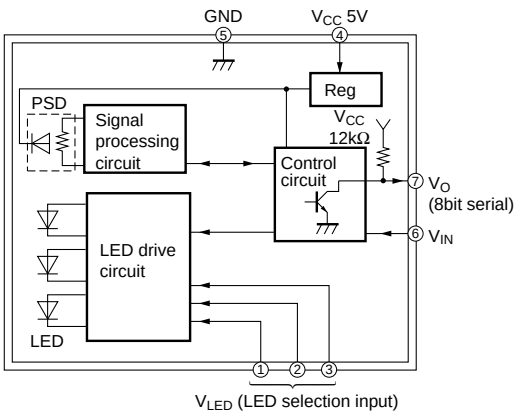


Fig.5 Timing Chart

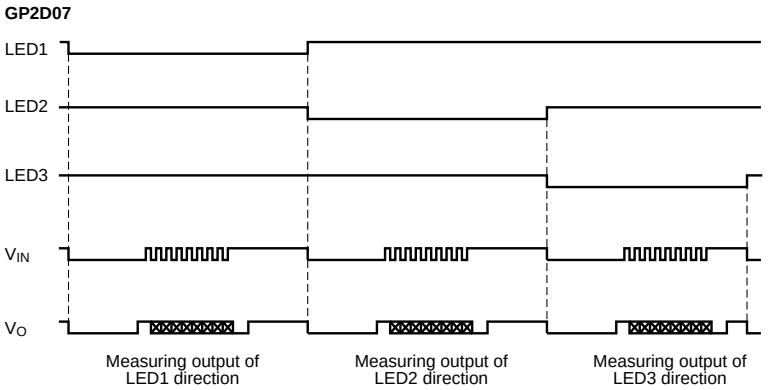


Fig.6 Vin,Vo signal timing chart

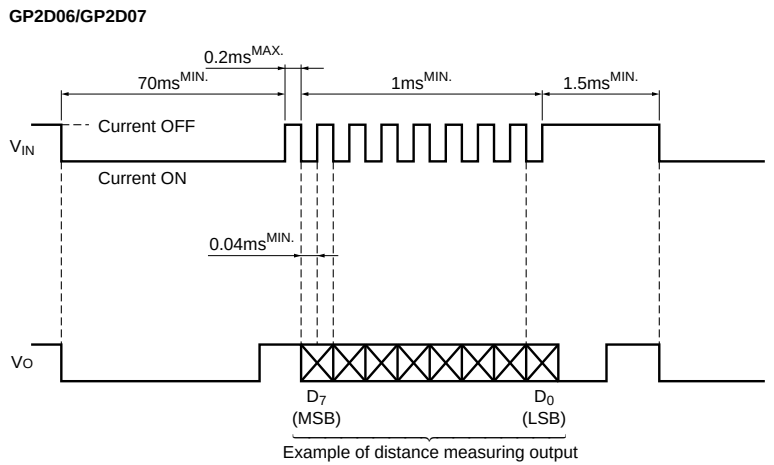


Fig.7 Vin signal timing chart for I_{CC} measuring

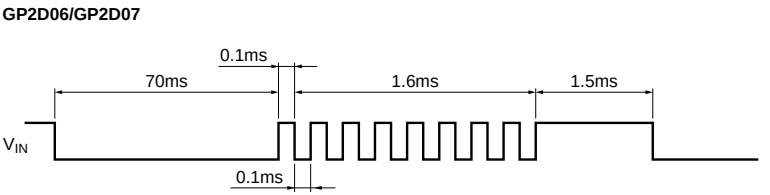


Fig.8 Example of Sensor Arrangement

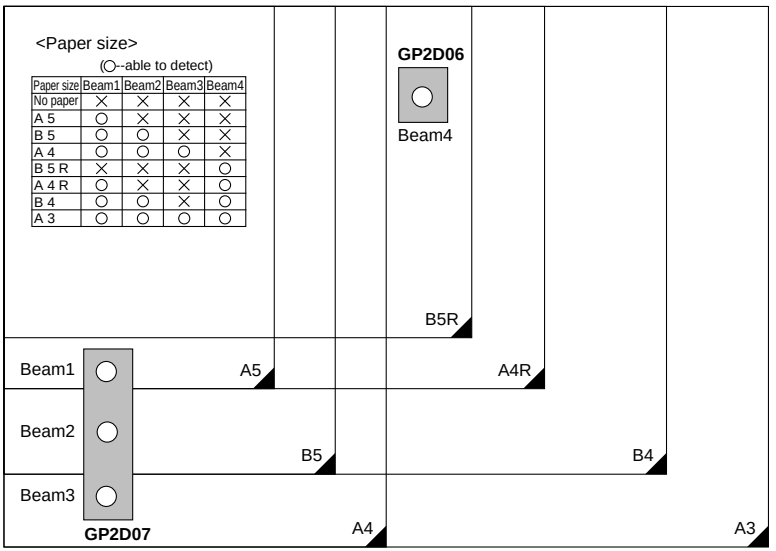


Fig.9 Example Of Output Distance Characteristics (H=60mm)

H : Distance between the surface of the sensor and the upper side of paper setting up glass

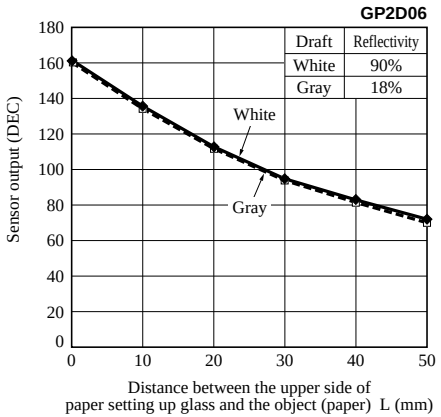
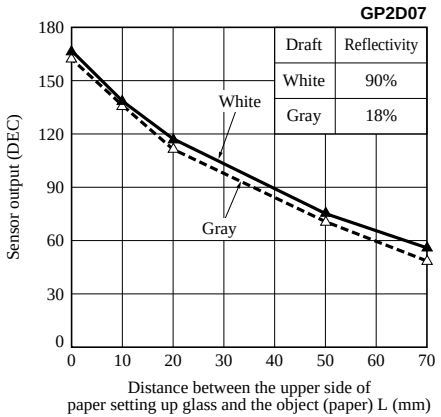


Fig.10 Example Of Output Distance Characteristics (H=60mm)

H : Distance between the surface of the sensor and the upper side of paper setting up glass



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