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# PNA1601M (PN166)

## Silicon planar type

For optical control systems

### ■ Features

- High sensitivity
- Wide spectral sensitivity characteristics, suited for detecting various kinds of LEDs
- Ultraminiature, thin side-view type package

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
Collector current	$I_C$	20	mA
Collector power dissipation *	$P_C$	50	mW
Operating ambient temperature	$T_{opr}$	-25 to +65	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-30 to +85	$^\circ\text{C}$

Note) \*: The rate of electric power reduction is 1.5 mW/ $^\circ\text{C}$  above  $T_a = 25^\circ\text{C}$ .

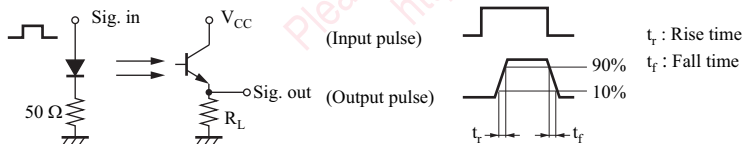
### ■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Sensitivity to infrared radiation *1	$S_{IR}$	$V_{CE} = 10\text{ V}, H = 15\ \mu\text{W}/\text{cm}^2$	3	5	25	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 10\text{ V}$			0.2	$\mu\text{A}$
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 10\ \mu\text{A}, H = 15\ \mu\text{W}/\text{cm}^2$			0.5	V
Peak sensitivity wavelength	$\lambda_{PD}$	$V_{CE} = 10\text{ V}$		850		nm
Half-power angle	$\theta$	The angle when the sensitivity to infrared radiation is halved		35		$^\circ$
Rise time *2	$t_r$	$V_{CC} = 10\text{ V}, I_C = 5\text{ mA}, R_L = 100\ \Omega$		4		$\mu\text{s}$
Fall time *2	$t_f$			4		$\mu\text{s}$

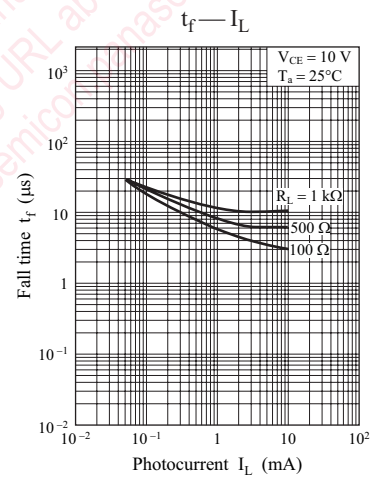
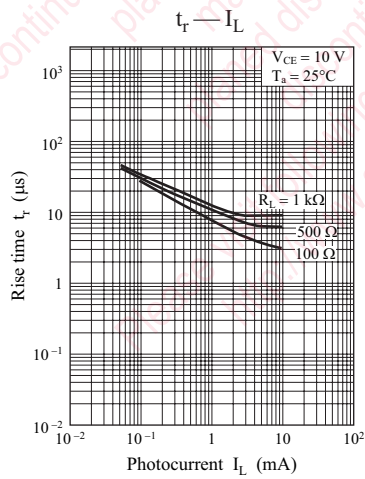
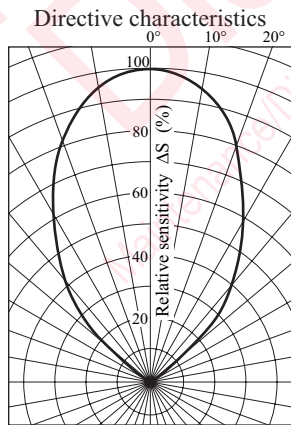
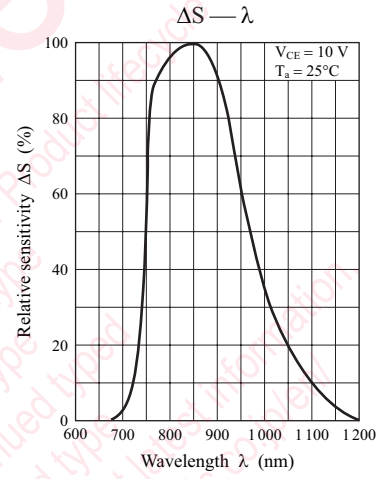
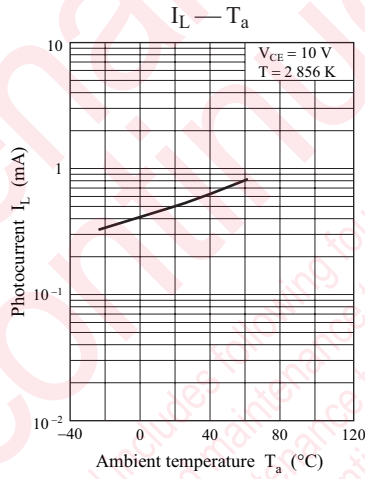
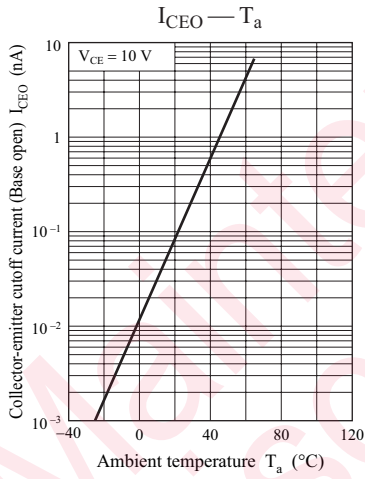
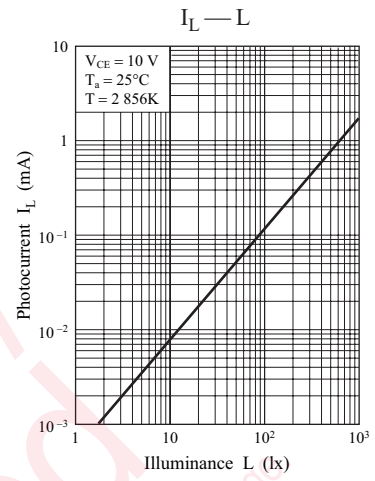
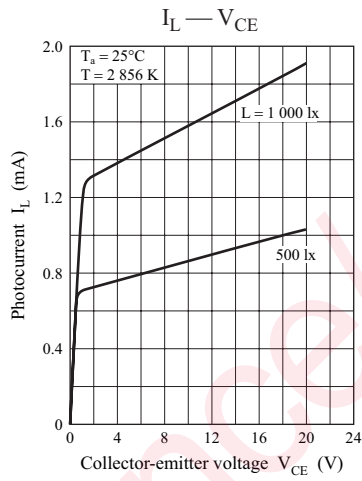
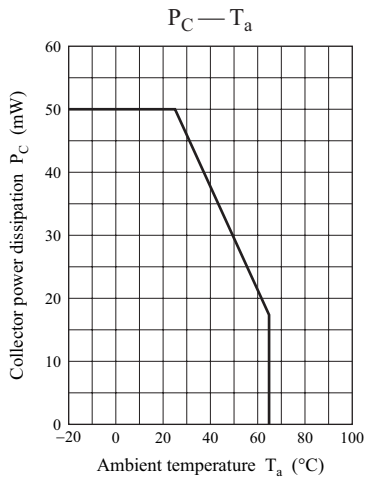
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. Spectral sensitivity characteristics: Sensitivity for wave length over 400 nm maximum sensitivity ratio is 100%.
3. This device is designed by disregarding radiation.
4. \*1: Source: Infrared radiation ( $\lambda = 940\text{ nm}$ )

\*2: Switching time measurement circuit



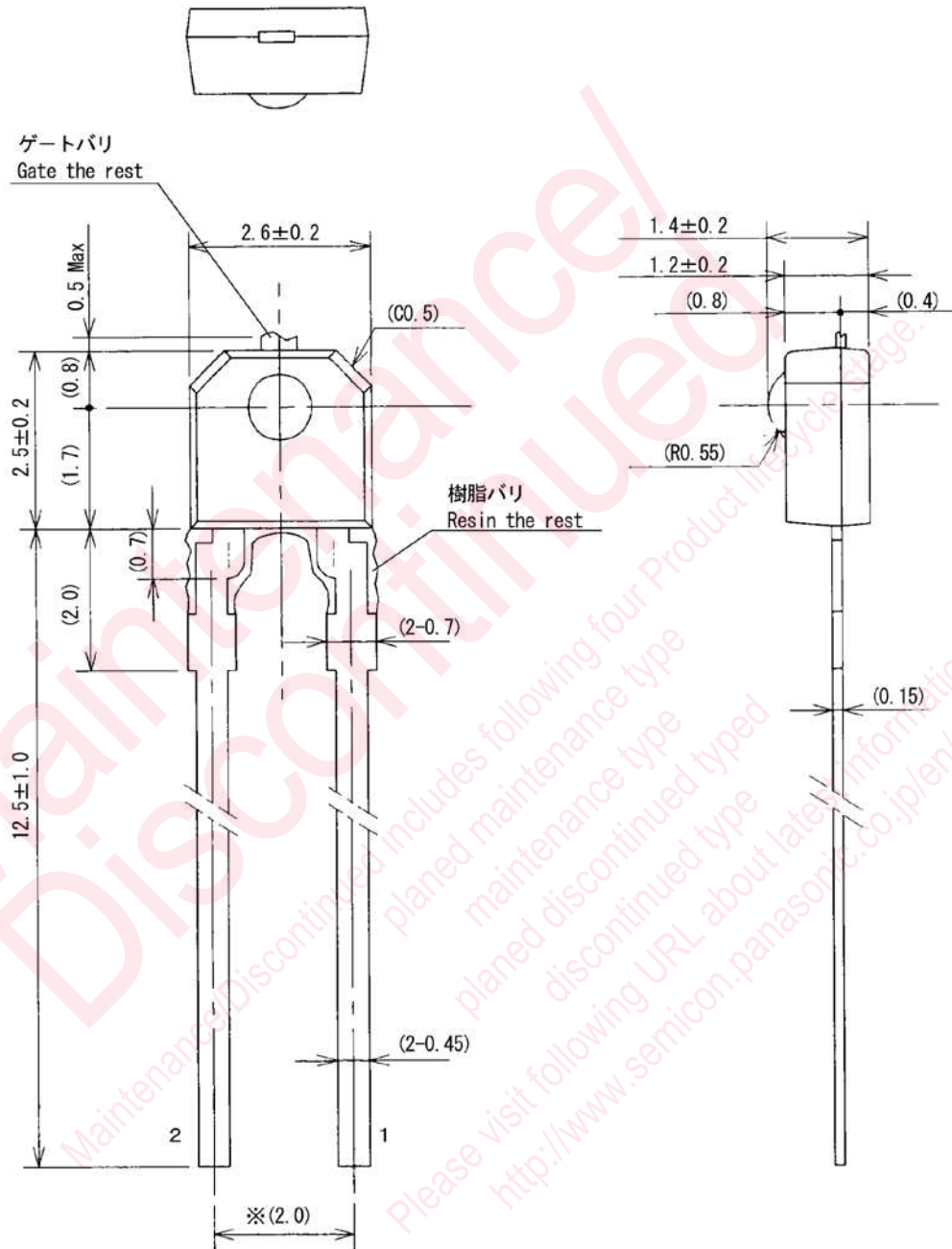
Note) The part number in the parenthesis shows conventional part number.





■ Package (Unit: mm)

LPTLSN2S0004



(注 1)※リード根元寸法とする。/(Note1)※Indicates root dimensions of lead.

- Pin name
- 1: Collector
- 2: Emitter

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