

# PNA2602M

## Darlington Phototransistor

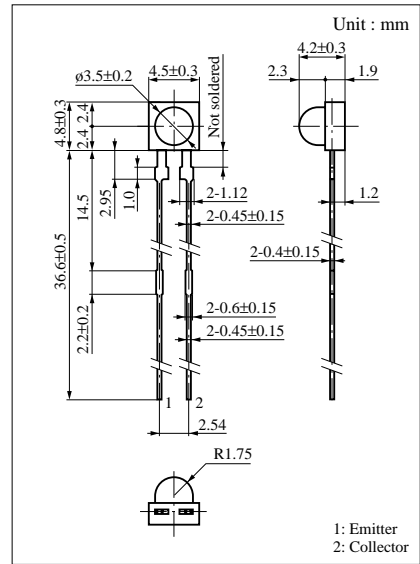
For optical control systems

### ■ Features

- Darlington output, high sensitivity
- Easy to combine light emission and photodetection on same printed circuit board
- Small size, thin side-view type package
- Long lead and visible light cutoff design with PN205

### ■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rated	Unit
Collector to emitter voltage	V <sub>CEO</sub>	20	V
Emitter to collector voltage	V <sub>ECO</sub>	5	V
Collector current	I <sub>C</sub>	30	mA
Collector power dissipation	P <sub>C</sub>	100	mW
Operating ambient temperature	T <sub>opr</sub>	-25 to +80	°C
Storage temperature	T <sub>stg</sub>	-30 to +100	°C

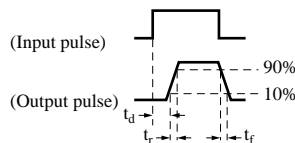
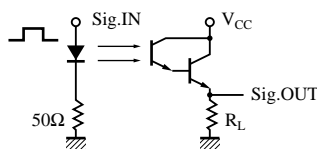


### ■ Electro-Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I <sub>CEO</sub>	V <sub>CE</sub> = 10V			0.5	μA
Sensitivity to infrared emitters	S <sub>IR</sub> <sup>*1</sup>	V <sub>CE</sub> = 10V, H = 3.75 μW/cm <sup>2</sup>	0.1		3.0	mA
Peak sensitivity wavelength	λ <sub>p</sub>	V <sub>CE</sub> = 10V		850		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		35		deg.
Response time	t <sub>r</sub> , t <sub>f</sub> <sup>*2</sup>	V <sub>CC</sub> = 10V, I <sub>C</sub> = 1mA, R <sub>L</sub> = 100Ω		150		μs
Collector saturation voltage	V <sub>CE(sat)</sub> <sup>*1</sup>	I <sub>C</sub> = 100μA, H = 3.75 μW/cm <sup>2</sup>			1.5	V

<sup>\*1</sup> Measurements were made using infrared light (λ = 940 nm) as a light source.

<sup>\*2</sup> Switching time measurement circuit



t<sub>d</sub>: Delay time

t<sub>r</sub>: Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)

t<sub>f</sub>: Fall time (Time required for the collector photo current to decrease from 90% to 10% of its initial value)

