

TOSHIBA Phototransistor Silicon NPN Epitaxial Planar

TPS615(F)

Floppy Disk Drive

VCR

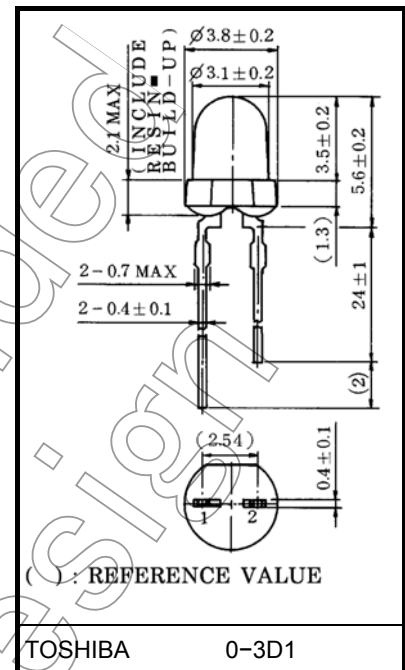
Position Detector Of Home Electric Equipment

Stroboscope

Opto-Electronic Switch

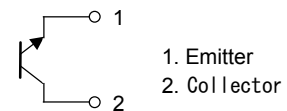
- $\phi 3.1\text{mm}$ epoxy resin package
- Light current: $I_L = 20\mu\text{A}$ (min.) at $E = 0.1\text{mW} / \text{cm}^2$
- Half value angle: $\theta_{1/2} = \pm 30^\circ$ (typ.)

Unit in mm



Weight: 0.12 g (typ.)

Pin Connection



Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-emitter voltage	V_{CEO}	30	V
Emitter-collector voltage	V_{ECO}	5	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	75	mW
Collector power dissipation derating (Ta > 25°C)	$\Delta P_C / ^\circ\text{C}$	-1	mW / °C
Operating temperature range	T_{opr}	-30~85	°C
Storage temperature range	T_{stg}	-30~100	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Not for

Opto-Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Dark current	I_D (I_{CEO})	$V_{CE} = 24\text{ V}$	—	0.01	0.1	μA
Light current	I_L (Note 2)	$V_{CE} = 3\text{ V}$, $E = 0.1\text{ mW/cm}^2$ (Note 1)	20	—	150	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\ \mu\text{A}$, $E = 0.1\text{ mW/cm}^2$ (Note 1)	—	0.2	0.4	V
Peak Sensitivity wavelength	λ_P	—	—	800	—	nm
Half value angle	$\theta_{\frac{1}{2}}$	—	—	± 30	—	°
Switching time	Rise time	$V_{CC} = 10\text{ V}$, $I_C = 1\text{ mA}$ $R_L = 1\text{ k}\Omega$	—	9	—	μs
	Fall time		—	10	—	

Note 1: Color temperature = 2870K standard tungsten lamp

Note 2: I_L Classification A: 20~50 μA , B: 34~85 μA , C: 60~150 μA , AB: 20~85 μA , BC: 34~150 μA

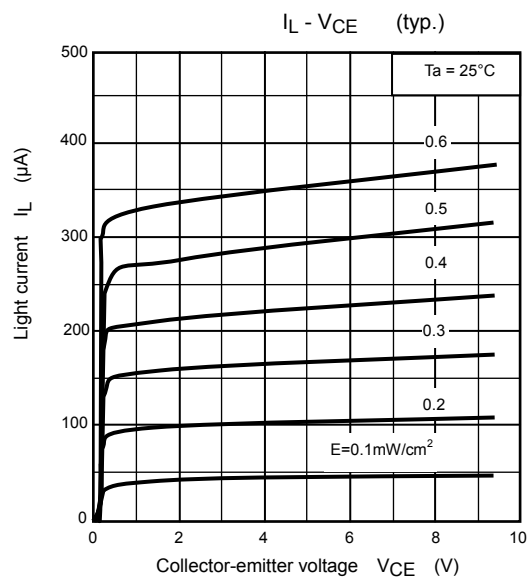
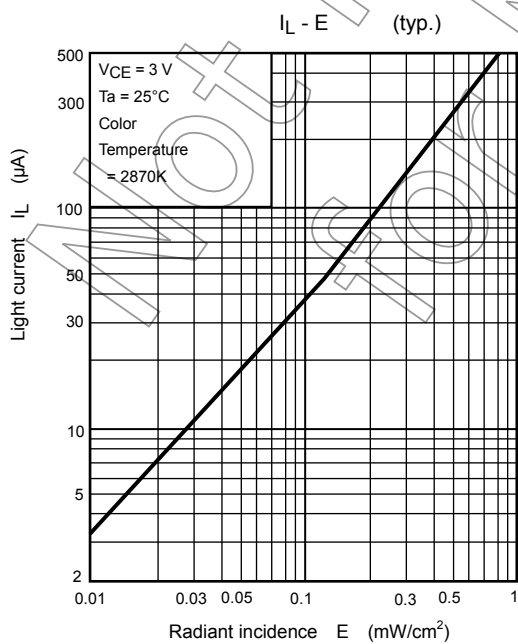
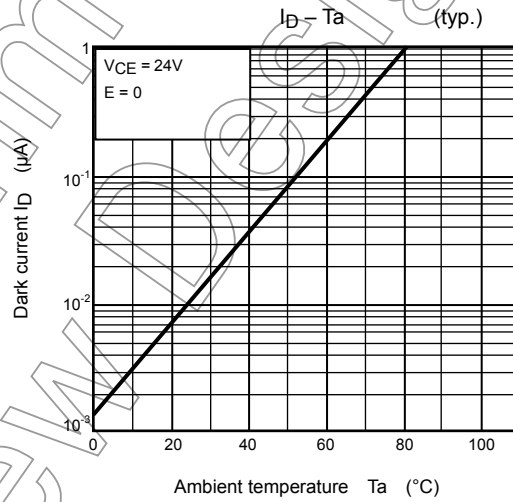
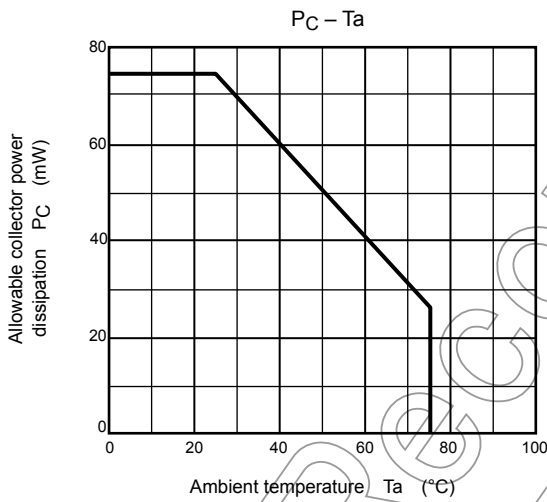
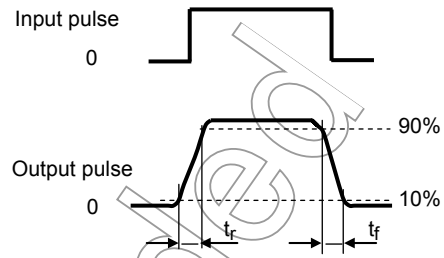
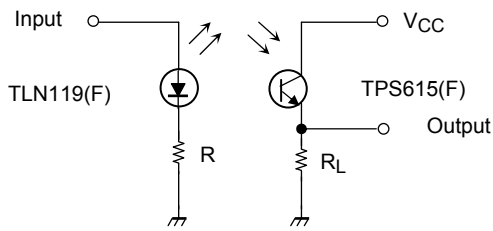
Precaution

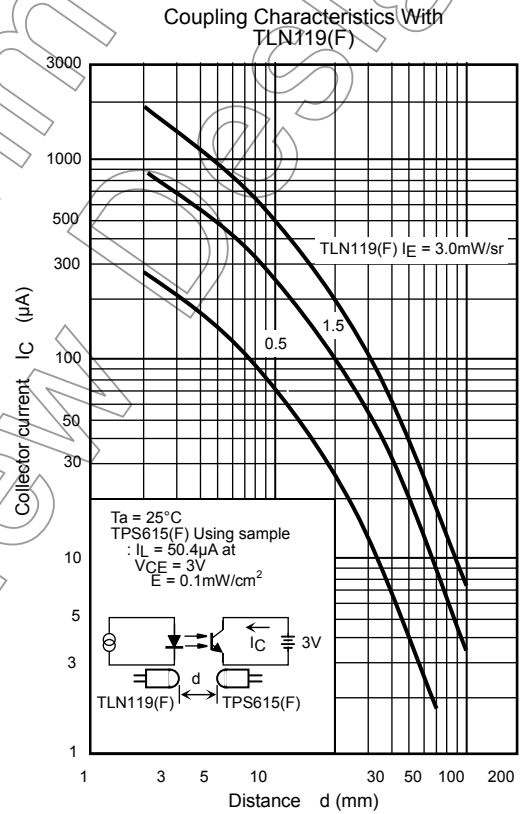
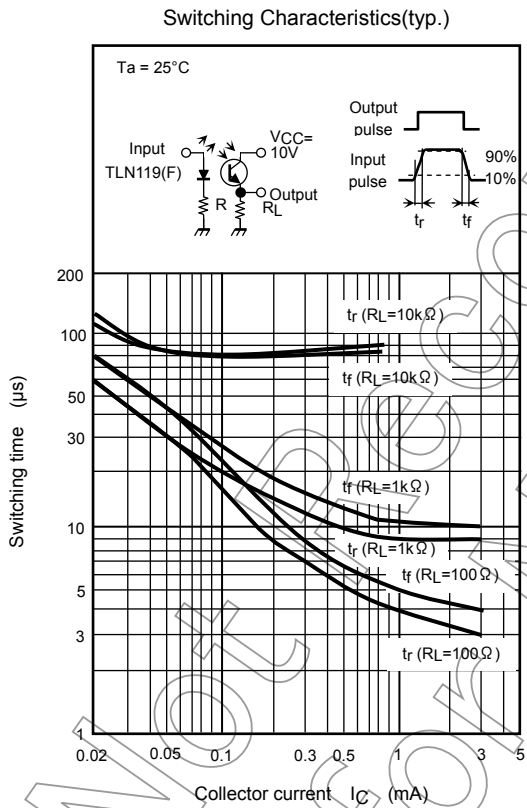
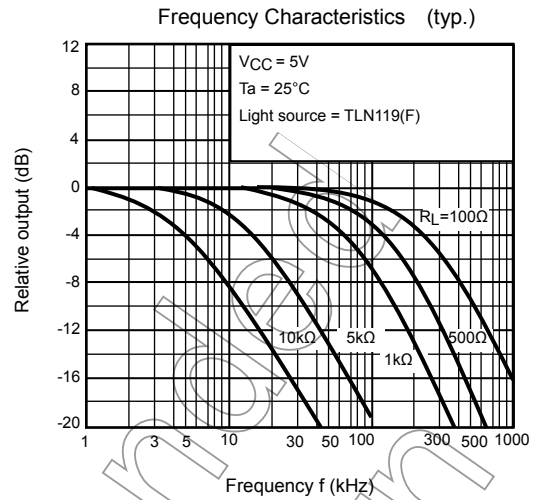
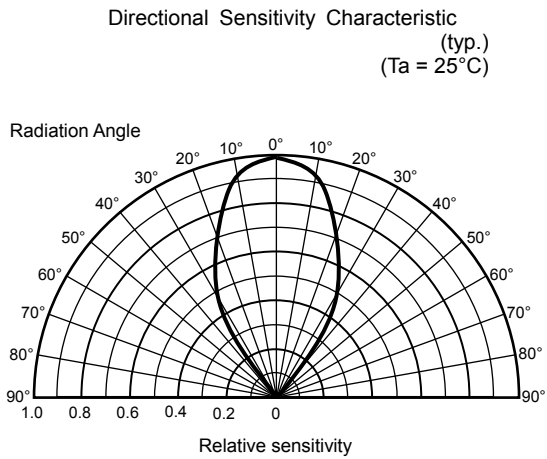
Please be careful of the followings.

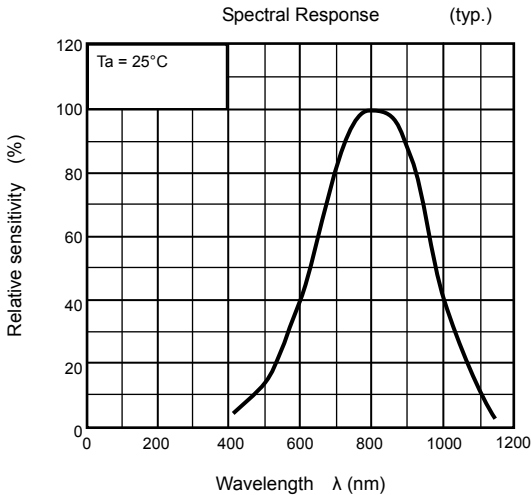
- Soldering temperature: 260°C max.
Soldering time: 3s max.
(Soldering portion of lead: above 1.5mm from the body of the device)
- If the lead is formed, the lead should be formed at a distance of 2mm from the body of the device.
Soldering shall be performed after lead forming.

Not Recommended for New Design

Fig. 1 Switching Time Test Circuit







Not Recommended for New Design

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