TOSHIBA Photo Transistor Silicon NPN Epitaxial Planar

TPS622(F)

Lead–free Product

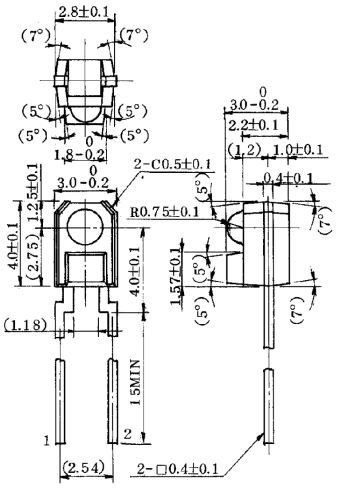
Opto-electronic Switch

Optical Mouse

Optical Touch Switch

- Compact side view epoxy resin package
- High response speed: t_r, t_f = 6μs (typ.)
- Half value angle: θ1/2 = ±15° (typ.)
- Visible light cut type (black package)
- Optimum in combination with infrared LED TLN117(F) with identical external dimensions.

Unit in : mm



TOSHIBA 0 – 3G1

Weight: 0.1 g (typ.)

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	50	mA
Collector power dissipation	P_C	75	mW
Collector power dissipation derating (Ta > 25°C)	ΔP_C / °C	−1	mW / °C
Operating temperature range	T_{opr}	−25~85	°C
Storage temperature range	T_{stg}	−40~100	°C
Soldering temperature (5s)	T_{sol}	260 (Note 1)	°C

Note 1. Soldering portion of lead: At least 2mm from the body of the device.

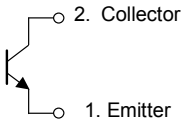
Opto-electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Dark current		$I_D(I_{CEO})$	V_{CE} = 24V, E = 0	—	0.005	0.1	μA
Light current		I_L	E = 0.1mW / cm^2, V_{CE} = 3V (Note 2,3)	27	70	—	μA
Collector–emitter saturation voltage		$V_{CE(sat)}$	E = 0.1mW / cm^2, I_L = 10μA	—	0.15	0.4	V
Peak sensitivity wavelength		λ_P	—	—	870	—	nm
Half value angle		$\theta\frac{1}{2}$	—	—	±15	—	°
Switching time	Rise time	t_r	V_{CC} = 5V, I_C = 2mA R_L = 100Ω	—	6	—	μs
	Fall time	t_f		—	6	—	

Note 2. Color temperature = 2870K standard tungsten lamp
Note 3. I_L classification

Rank	I_L (μA)
(A)	27~80
(B)	55~165
—	27min.

Pin Connection

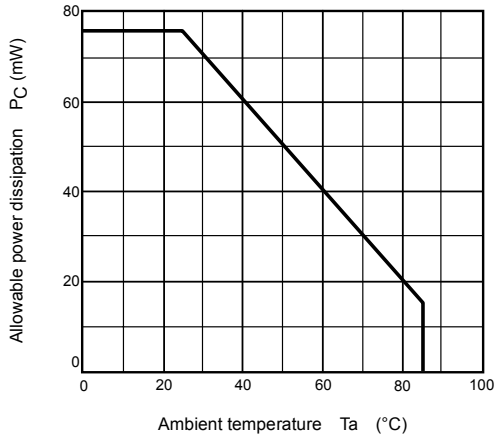


Precaution

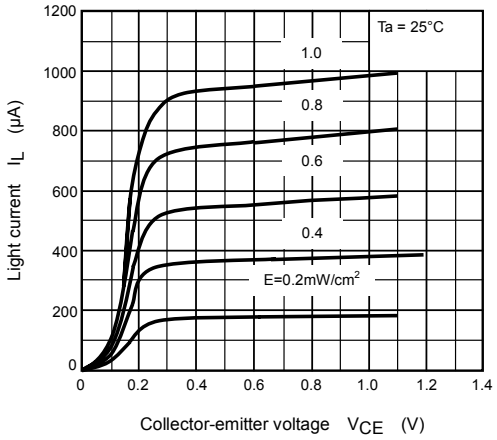
Take particular care with the following:

1. Lead forming should be carried out at least 2 mm from the body of the device without applying forming stress to the plastic.
   Soldering should be performed after lead forming.

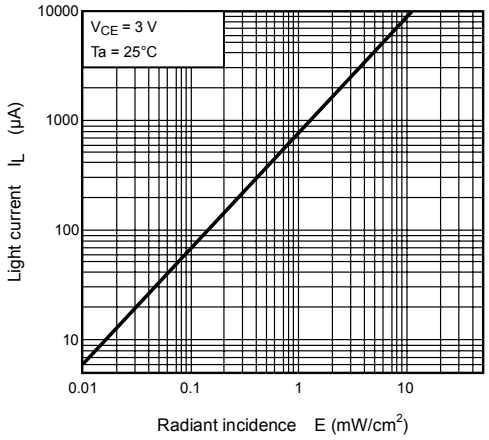
P_C - Ta



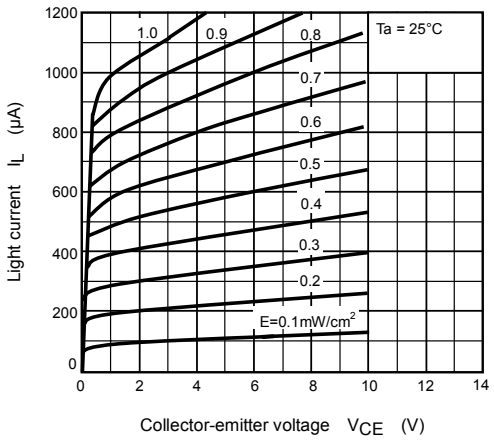
I_L - V_{CE} (low voltage region) (typ.)



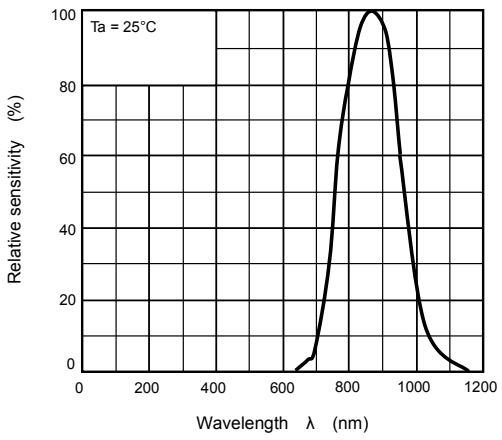
I_L - E (typ.)



I_L - V_{CE} (typ.)

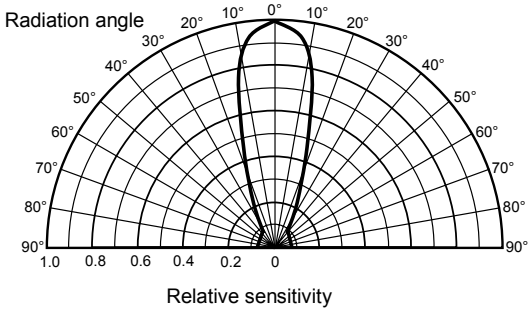


Spectral Response (typ.)

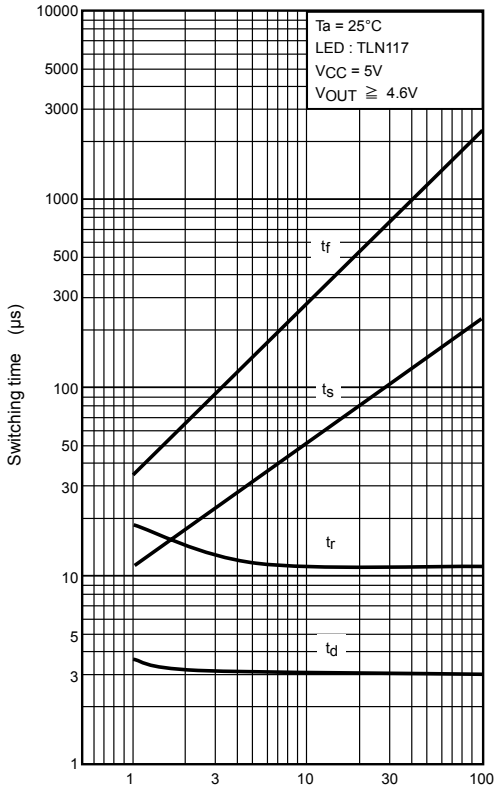


Directional Sensitivity Characteristic (typ.)

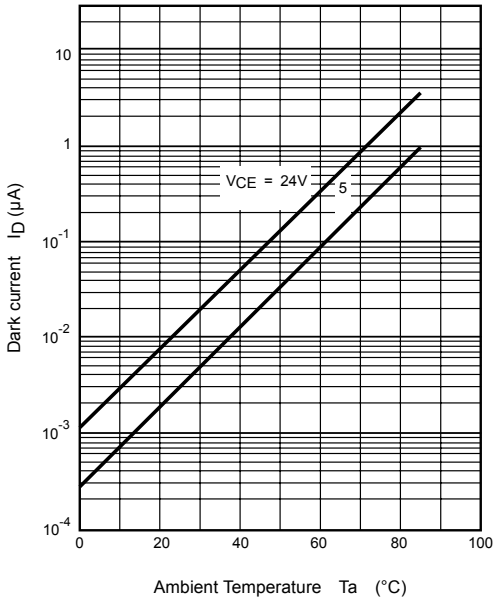
Ta = 25°C



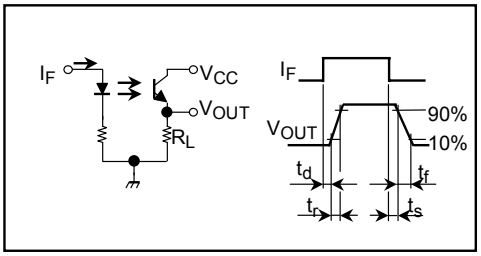
Switching Characteristics
(saturated operation) (typ.)



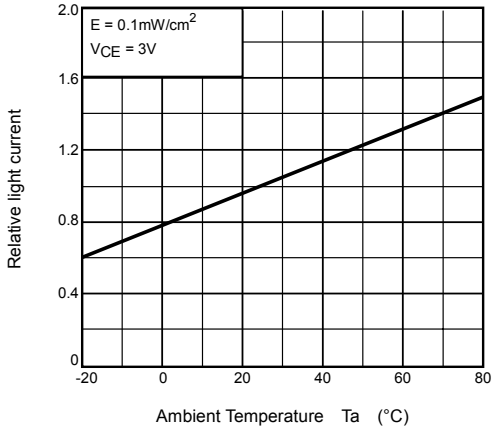
$I_D(I_{CEO})$ – Ta (typ.)



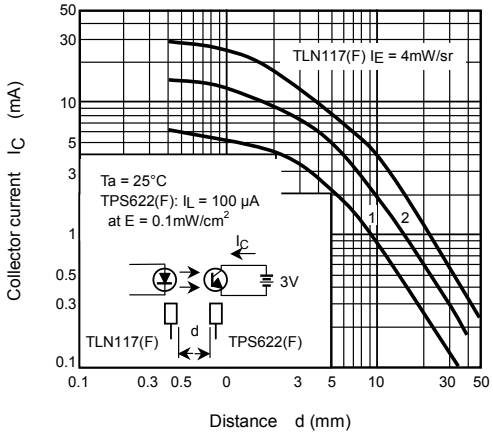
Switching Time Test Circuit



Relative I_L – Ta (typ.)



Coupling Characteristics
with TLN117(F)



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