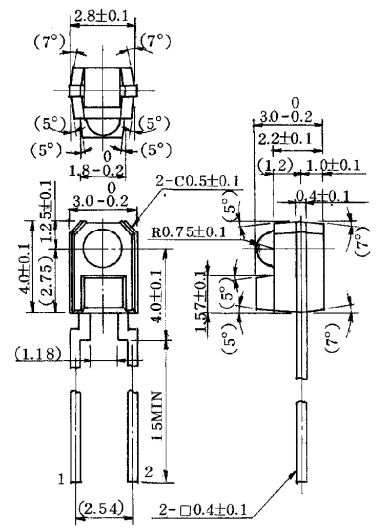
TOSHIBA PHOTO TRANSISTOR SILICON NPN EPITAXIAL PLANAR

TPS621, TPS622

OPTO-ELECTRONIC SWITCH
FLOPPY DISK DRIVE
OPTICAL MOUSE
OPTICAL TOUCH SWITCH

- Small side view epoxy resin package
- Fast response speed : t_r, t_f=6μs (TYP.)
- Half value angle : $\theta\frac{1}{2}$=±15° (TYP.)
- Visible light cut type (black package) : TPS622
- Optimum in combination with infrared LED TLN117 which has identical external dimensions.

UNIT IN : mm



( ) : REFERENCE VALUE

JEDEC	—
EIAJ	—
TOSHIBA	

Weight : 0.1g (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 : above 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)	TPS621	40	100	—	μA
				TPS622	27	70	—	
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	E=0.1mW / cm^2, I_C=(Note 4)		—	0.15	0.4	V
Peak Sensitivity Wavelength		λ_P	—	TPS621	—	820	—	nm
				TPS622	—	870	—	
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	—	

961001EAA2

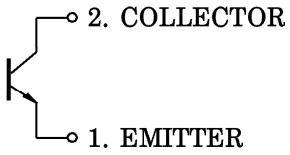
Note 2. Color temperature = 2870°K Standard Tungsten Lamp

3. I_L Classification

RANK	I_L (μA)	
	TPS621	TPS622
(A)	40~120	27~80
(B)	80~240	55~165
—	40MIN.	27MIN.

4. TPS621 : 15μA, TPS622 : 10μA

PIN CONNECTION

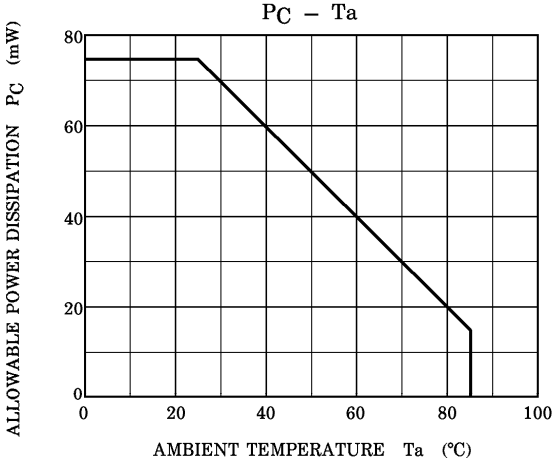


PRECAUTION

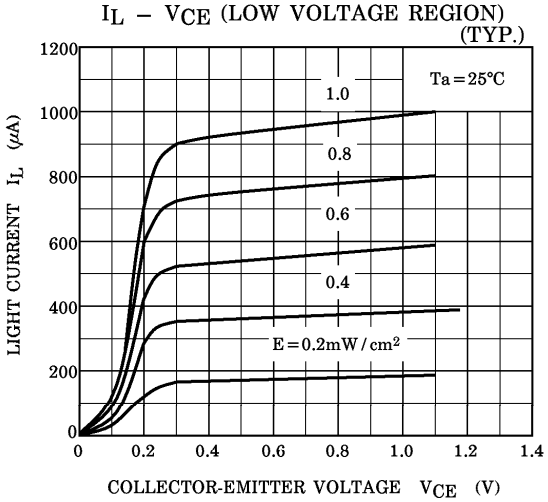
Please be careful of the followings.

1. When the lead is formed, the lead shall be formed at a distance of 2mm from the body without leaving forming stress to the body of the device.
   Soldering shall be performed after lead forming.

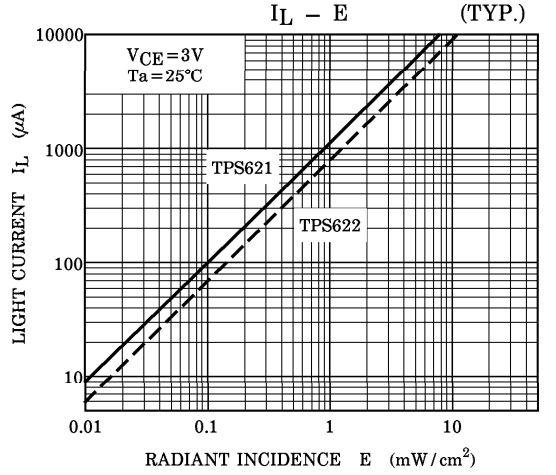
P_C – Ta



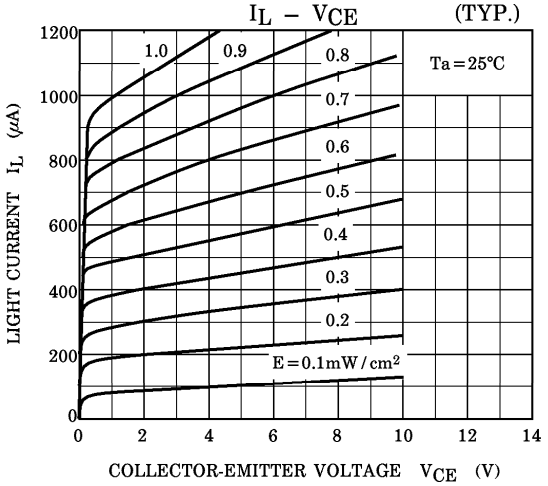
I_L – V_{CE} (LOW VOLTAGE REGION) (TYP.)



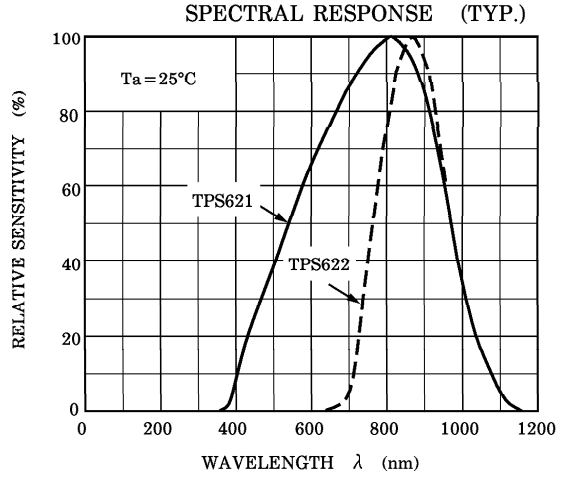
I_L – E (TYP.)



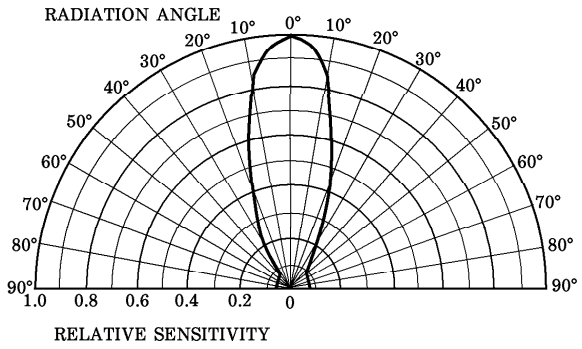
I_L – V_{CE} (TYP.)



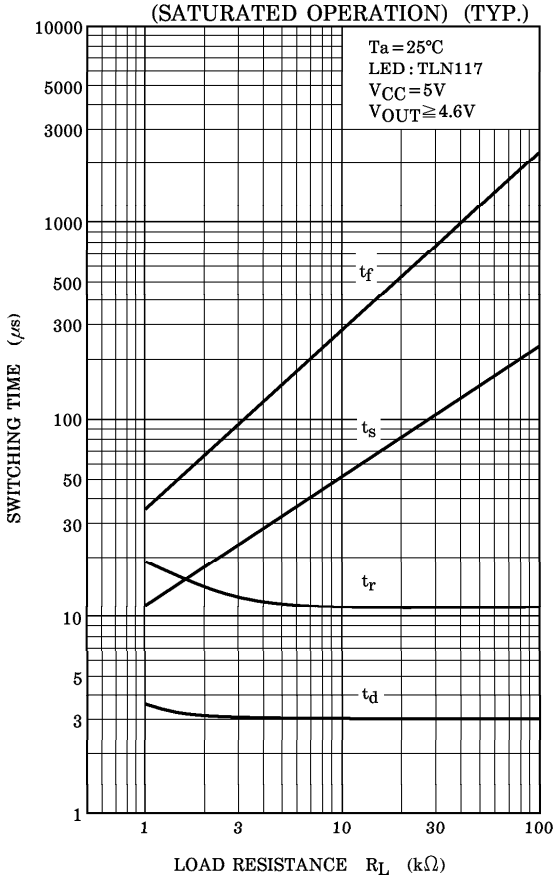
SPECTRAL RESPONSE (TYP.)



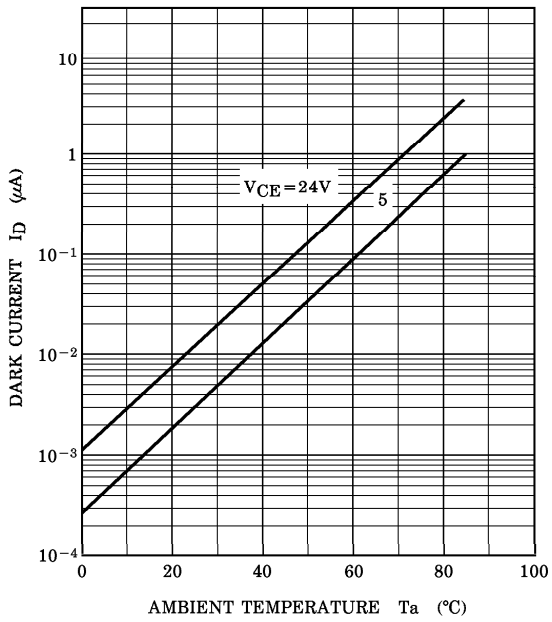
DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)
Ta = 25°C



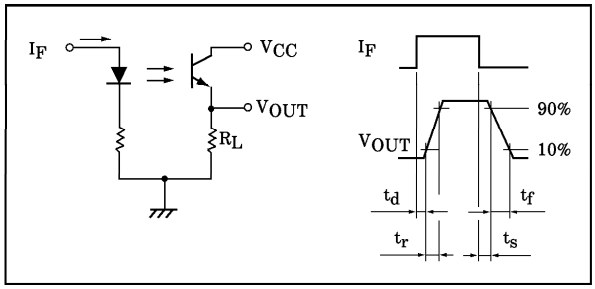
SWITCHING CHARACTERISTICS
(SATURATED OPERATION) (TYP.)



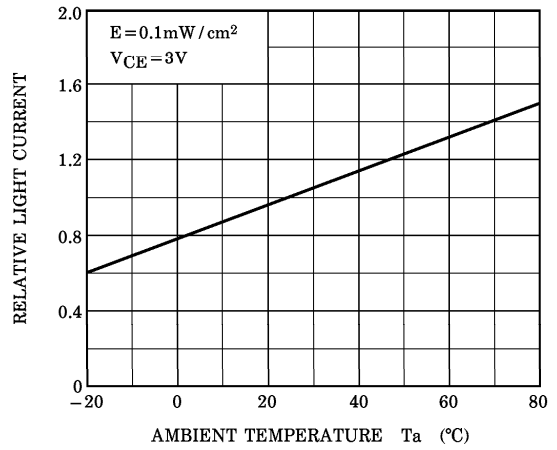
I_D (I_{CEO}) – Ta (TYP.)



SWITCHING TIME TEST CIRCUIT



RELATIVE I_L – Ta (TYP.)



COUPLING CHARACTERISTICS
WITH TLN117