

NPN Photo Transistor

TPS615

Applications -

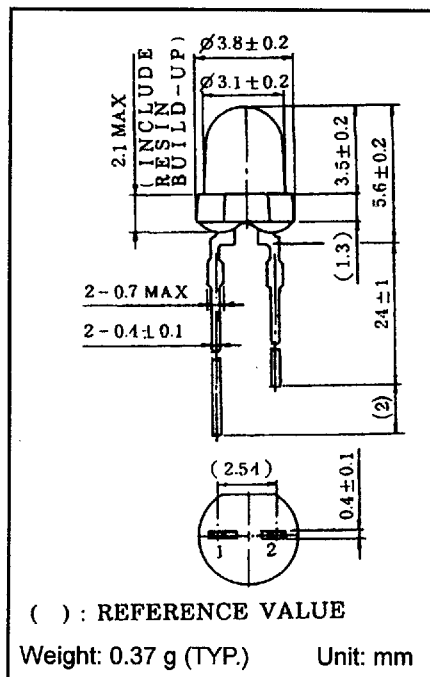
- Disk Drive
- VCR
- Position Detector and Home Electronic Equipment
- Optical Switch

Features -

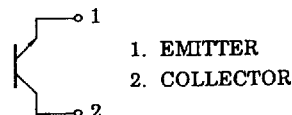
- $\varnothing 3.1\text{mm}$ Epoxy Resin Package
- Light Current: $I_L = 20\mu\text{A}$ (Min.) at $E = 0.1\text{mW} / \text{cm}^2$
- Half Value Angle: $\theta_{1/2} = \pm 30^\circ$ (Typ.)

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

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 ($T_a > 25^\circ\text{C}$)	$\Delta P_C / ^\circ\text{C}$	-1	mW / $^\circ\text{C}$
Operating Temperature Range	T_{OPR}	$-30 \sim 85$	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-30 \sim 100$	$^\circ\text{C}$



PIN CONNECTION



OPTO-ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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)	$V_{CE} = 3\text{V}, E = 0.1\text{mW} / \text{cm}^2$ (Note 1)	20	—	150	μA
Collector-Emitter Saturation Voltage	$V_{CE} (\text{sat})$	$I_C = 10\mu\text{A}, E = 0.1\text{mW} / \text{cm}^2$ (Note 1)	—	0.2	0.4	V
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	—	
Peak Sensitivity Wavelength	λ_P	—	—	800	—	nm
Half Value Angle	$\theta_{1/2}$	—	—	± 30	—	$^\circ$

(Note 1) Color temperature = 2870°K Standard Tungsten Lamp.

(Note 2) I_L Classification A: $20 \sim 50\mu\text{A}$, B: $34 \sim 85\mu\text{A}$, C: $60 \sim 150\mu\text{A}$, AB: $20 \sim 85\mu\text{A}$, BC: $34 \sim 150\mu\text{A}$.



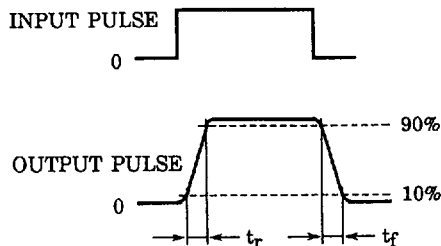
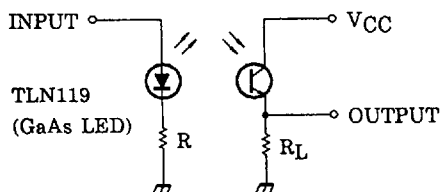
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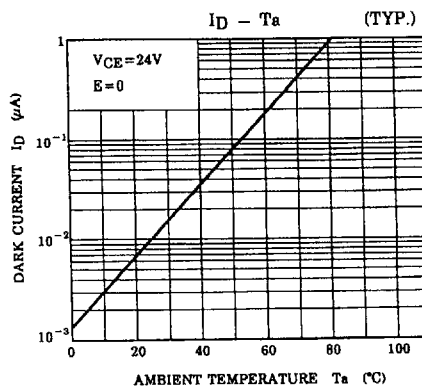
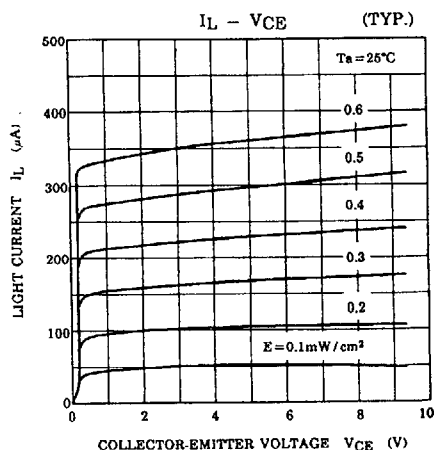
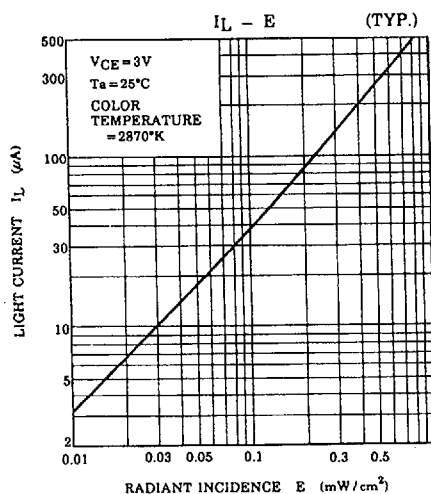
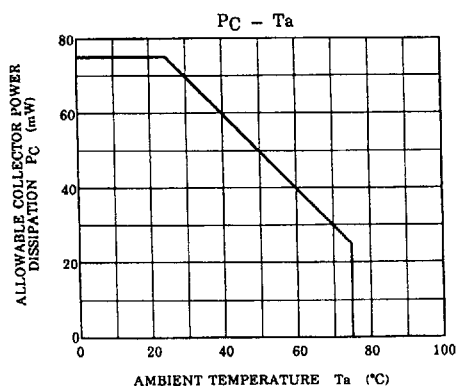
All specifications subject to change.

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TPS615 Switching Time Test Circuit -



TPS615 Graphs -



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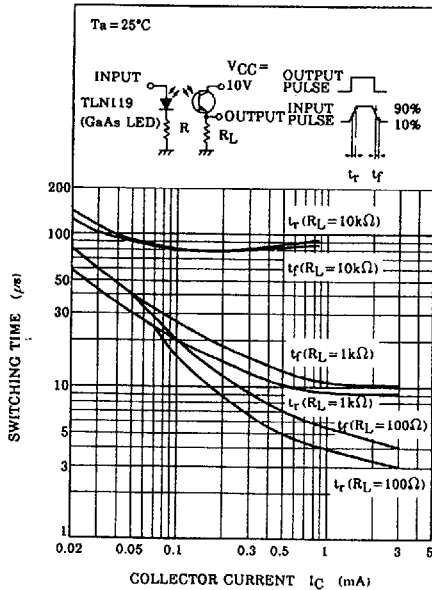
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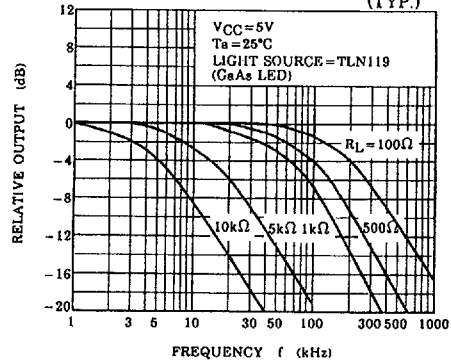
NPN Photo Transistor

TPS615 Graphs -

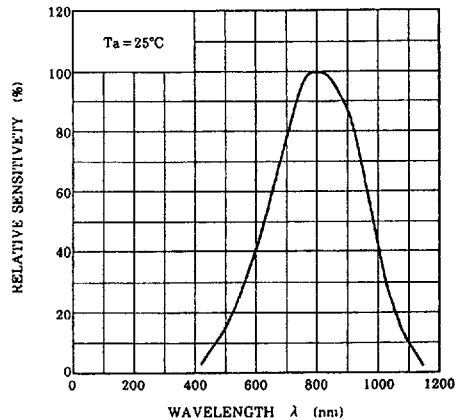
SWITCHING CHARACTERISTICS (TYP.)



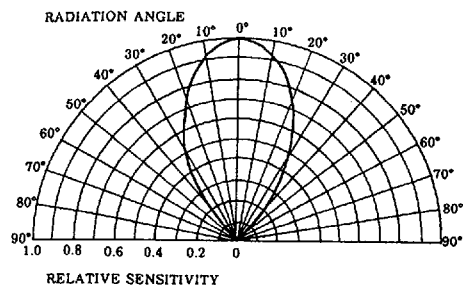
FREQUENCY CHARACTERISTICS (TYP.)



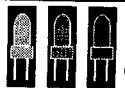
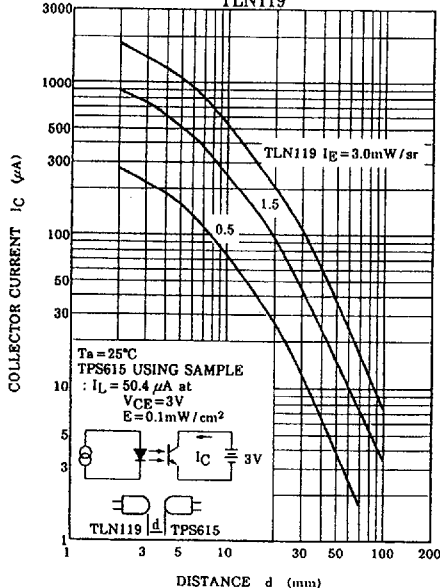
SPECTRAL RESPONSE (TYP.)



DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)
($T_a = 25^\circ\text{C}$)



COUPLING CHARACTERISTICS WITH TLN119



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