Waitrony

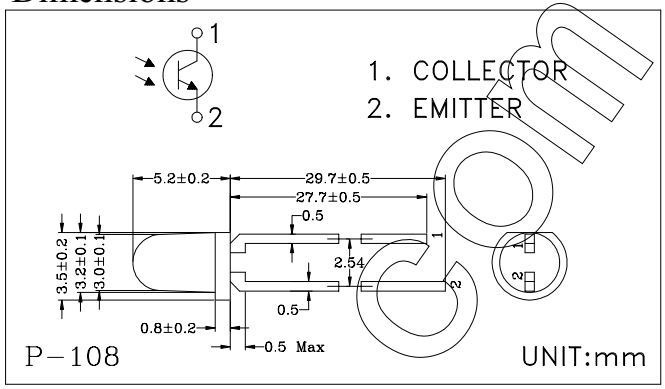
Photo Transistor

Module No.: WPTS-305D

1. General Description:

The WPTS-305D is a high sensitivity NPN silicon phototransistor mounted in a compact black epoxy encapsulation. With daylight filter, this phototransistor is only sensitive to infrared rays. This phototransistor permits narrow angular response.

Dimensions



2. Features

- Compact (∅3mm)
- Narrow beam angle (±20°)
- Low cost
- With daylight filter

3. Applications

- Remoter control sensors
- Card readers
- Optical switches

4. Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Collector Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Collector Power Dissipation	P_D	100	mW
Operating Temperature	Topr	-20 ~ +80	°C
Storage Temperature	Tstg	-20 ~ +90	°C
Soldering Temperature *1	Tsol	260	°C

*1 At the position of 2mm from the bottom of the package within 5 seconds.

5. Electro-optical Characteristics (Ta=25°C)

Parameter	Symbol	Testing Conditions	Min.	Typ.	Max.	Unit
Collector Light Current	Ic	V_{CE}=3V, Ev=1000Lux, (Ee=5mW/cm^2) *2	1.0	5.0		mA
Collector Dark Current	I_{CEO}	V_{CE}=10V, Ee=0 *2		1	100	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	Ic=0.2mA, Ev=2000Lux Ee=10mW/cm^2 *2			0.4	V
Peak Sensitivity Wavelength	λp			880		nm
Spectral Sensitivity	Δλ		720 ~ 1050			nm
Angular Response	Δθ			±20		deg.
Rising Response Time	tr	Vcc=10V, I_C=1mA, R_L=100Ω		2.5		μs
Falling Response Time	tf			3.8		μs

*2 Ev, Ee are illuminance irradiant by CIE standard light source A (tungsten lamp) at 2856K

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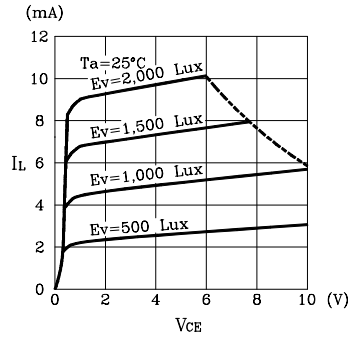
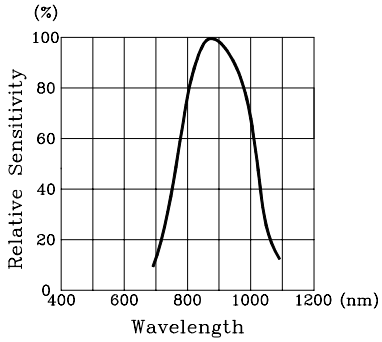
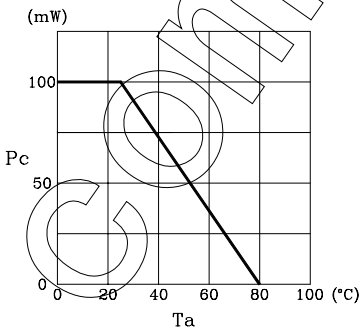
Light Current vs
Collector−Emitter Voltage



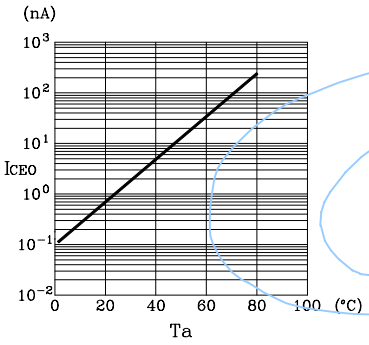
Spectral Sensitivity



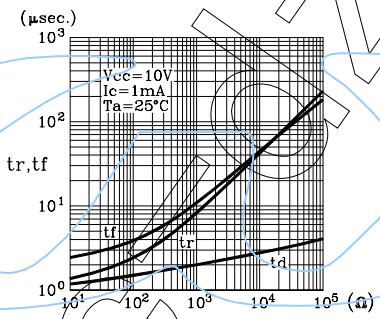
Power Dissipation vs
Ambient Temperature



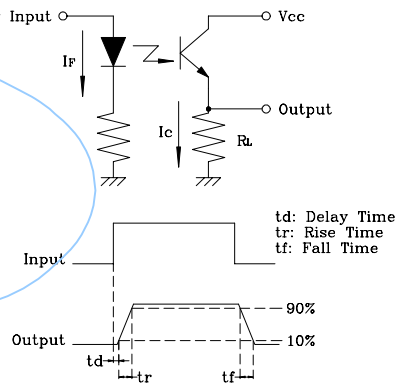
Dark Current vs
Ambient Temperature



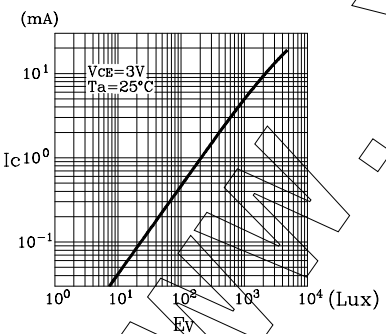
Response Time vs
Load Resistance



Response Time Test Conditions



Collector Current vs
Luminous Incidence



Sensitivity Diagram