

## Photo Transistor

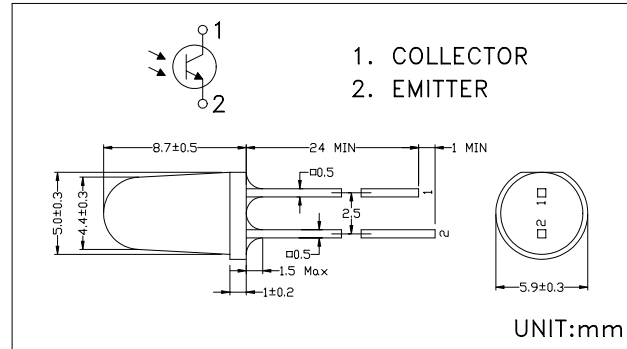
0-05-01-24 Preliminary

Module No.: WPTS-505

### 1. General Description:

The WPTS-505 is a high sensitivity NPN silicon phototransistor mounted in a compact clear resin package. This phototransistor permits narrow angular response.

### Dimensions



### 2. Features

- Ø5mm package
- High Sensitivity
- High Reliability
- Narrow beam angle ( $\pm 5^\circ$ )
- Low cost

### 3. Applications

- ▣ Remoter control sensors
- ▣ Card readers
- ▣ Optical switches

### 4. Absolute Maximum Ratings

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

Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector Voltage	$V_{ECO}$	5	V
Collector Current	$I_C$	20	mA
Collector Power Dissipation	$P_D$	50	mW
Operating Temperature	$T_{opr}$	-20 ~ +65	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-20 ~ +85	$^\circ\text{C}$
Soldering Temperature *1	$T_{sol}$	260	$^\circ\text{C}$

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

### 5. Electro-optical Characteristics

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

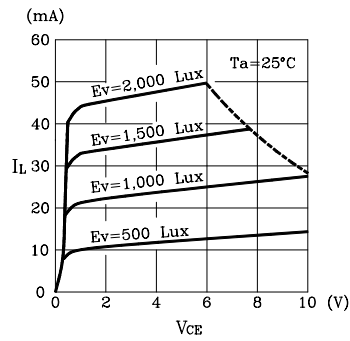
Parameter	Symbol	Testing Conditions	Min.	Typ.	Max.	Unit
Collector Light Current	$I_C$	$V_{CE}=3\text{V}$ , $E_v=1000\text{Lux}$ , ( $E_e=5\text{mW}/\text{cm}^2$ ) *2	5	23		mA
Collector Dark Current	$I_{CEO}$	$V_{CE}=10\text{V}$ , $E_e=0$ *2			100	nA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5\text{mA}$ , $E_v=2000\text{Lux}$ , ( $E_e=10\text{mW}/\text{cm}^2$ ) *2			0.4	V
Peak Sensitivity Wavelength	$\lambda_p$			800		nm
Spectral Sensitivity	$\Delta\lambda$			450~1050		nm
Angular Response	$\Delta\theta$			$\pm 5$		deg.
Rising Response Time	$t_r$	$V_{CC}=5\text{V}$ , $I_C=1\text{mA}$ , $R_L=1\text{k}\Omega$		15		$\mu\text{s}$
Falling Response Time	$t_f$			15		$\mu\text{s}$

\*2  $E_v$ ,  $E_e$  are illuminance irradiant by CIE standard light source A (tungsten lamp) at 2856K

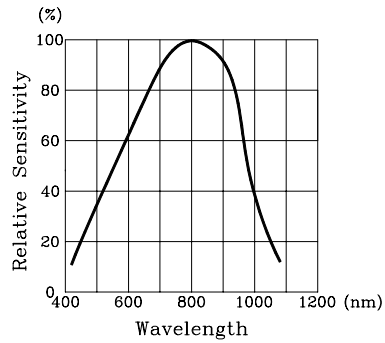
## Photo Transistor

Module No.: WPTS-505

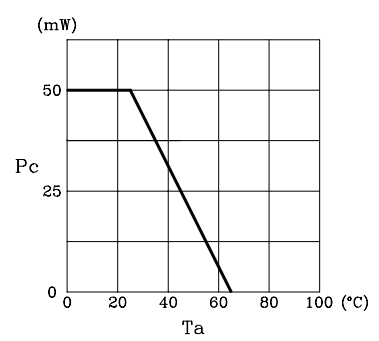
Light Current vs Collector-Emitter Voltage



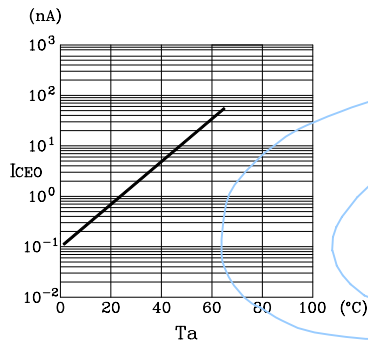
Spectral Sensitivity



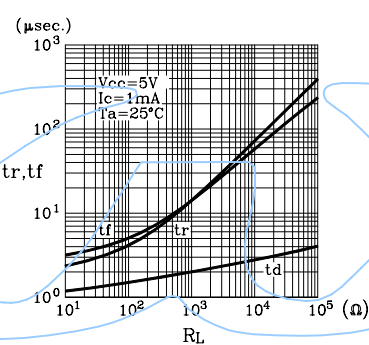
Power Dissipation vs Ambient Temperature



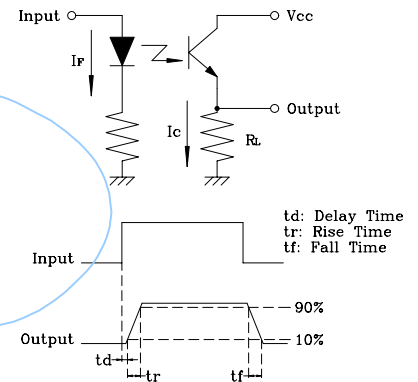
Dark Current vs Ambient Temperature



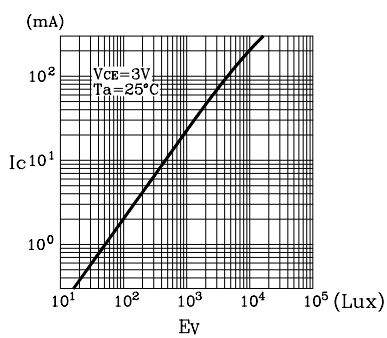
Response Time vs Load Resistance



Response Time Test Conditions



Collector Current vs Luminous Incidence



Sensitivity Diagram

