

## Photo Transistor

Module No.: WPT-430F

### 1. General Description:

The WPT-430F is a high sensitivity NPN silicon phototransistor mounted in a clear epoxy side looking package. It is compact, low profile and easy to mount.

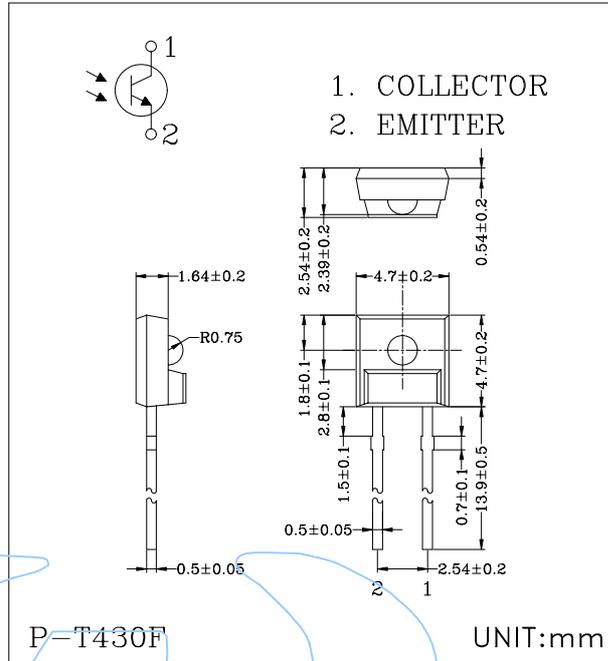
### 2. Features

- Compact
- Wide beam angle ( $\pm 30^\circ$ )
- Side looking package
- Capable of pulse operation
- Low profile
- Low cost

### 3. Applications

- ▣ Optical counters
- ▣ Optical detectors
- ▣ Flywheel counters

### Dimensions



### 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	$I_C$	40	mA
Collector Power Dissipation	$P_D$	100	mW
Operating Temperature	$T_{opr}$	-20 ~ +75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-30 ~ +85	$^\circ\text{C}$
Soldering Temperature *1	$T_{sol}$	240	$^\circ\text{C}$

\*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	$I_c$	$V_{CE}=5\text{V}$ , $E_v=1000\text{Lux}$ , ( $E_e=5\text{mW}/\text{cm}^2$ ) *2	1.0	5.0	15	mA
Collector Dark Current	$I_{CEO}$	$V_{CE}=10\text{V}$ , $E_e=0$ *2		1	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		0.2	0.4	V
Peak Sensitivity Wavelength	$\lambda_p$			880		nm
Spectral Sensitivity	$\Delta\lambda$			500 ~ 1050		nm
Angular Response	$\Delta\theta$			$\pm 30$		deg.
Rising Response Time	$t_r$	$V_{CC}=10\text{V}$ , $I_c=5\text{mA}$ ,		3.2		$\mu\text{s}$
Falling Response Time	$t_f$	$R_L=100\Omega$		4.8		$\mu\text{s}$

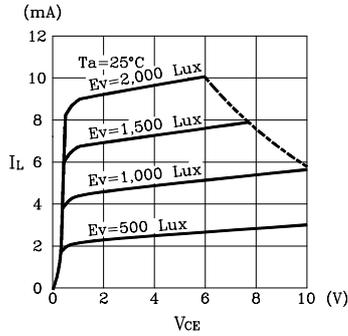
\*2  $E_v$ ,  $E_e$  are illuminance irradiant by CIE standard light source A (tungsten lamp) at 2856K



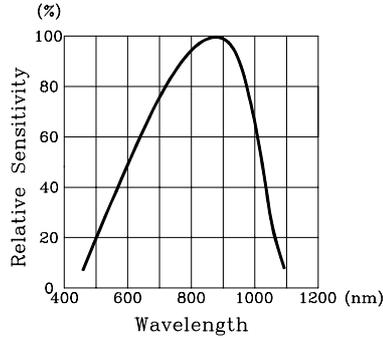
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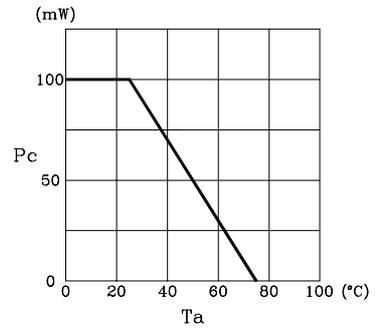
Light Current vs Collector-Emitter Voltage



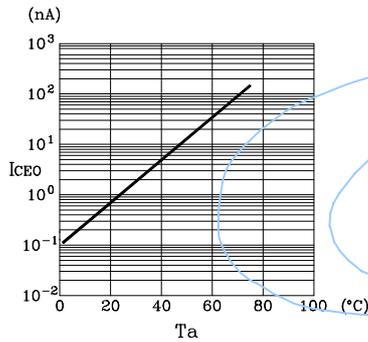
Spectral Sensitivity



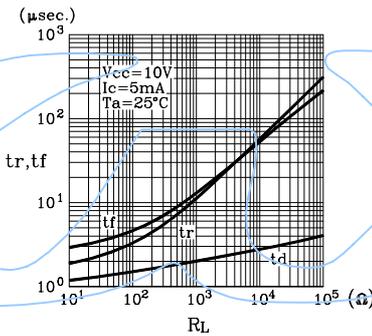
Power Dissipation vs Ambient Temperature



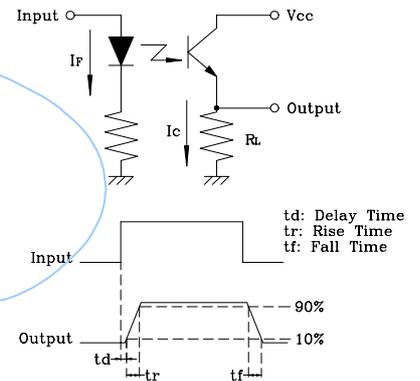
Dark Current vs Ambient Temperature



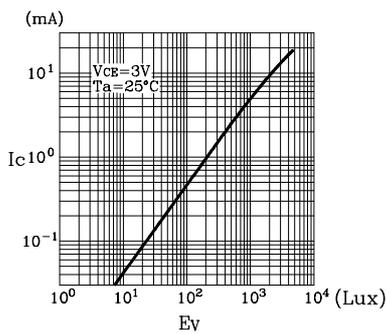
Response Time vs Load Resistance



Response Time Test Conditions



Collector Current vs Luminous Incidence



Sensitivity Diagram

