



# YETDA INDUSTRY LTD.

## Technical Data Sheet

**MODEL NO : P190ROM4**

**0603 Package 1.6 \*0.8\*0.8mm Ambient light Sensor**

**Features :**

- Adapted to human eye responsively
- Ambient light sensor is a silicon NPN epitaxial planar phototransistor
- It is sensitive to visible light much like the human eye and has peak sensitivity at 590nm
- Compatible with automatic placement equipment
- Compatible with reflow solder process
- Package in 8mm tape on 7" diameter reels.

**Applications :**

- Automotive sensors
- Mobile phones
- Cameras, Dashboards

Dice material	Resin	Lens Color
		Water clear lens
Silicon	Epoxy	

**Electrical/Optical Characteristics(Ta=25°C)**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	$I_C = 0.1 \text{ mA}$	$V_{CEO}$	6			V
Collector dark current	$V_{CE} = 5 \text{ V}, E = 0 \text{ lx}$	$I_{CEO}$		3	50	nA
Collector emitter capacitance	$V_{CE} = 0 \text{ V}, f = 1 \text{ MHz}, E = 0 \text{ lx}$	$C_{CEO}$		16		pF
Photo current	$E_V = 20 \text{ lx}, \text{CIE illuminant A}, V_{CE} = 5 \text{ V}$	$I_{PCE}$		4.6		$\mu\text{A}$
	$E_V = 100 \text{ lx}, \text{CIE illuminant A}, V_{CE} = 5 \text{ V}$	$I_{PCE}$	7.5	23	39	$\mu\text{A}$
Temperature coefficient of $I_{PCE}$	CIE illuminant A	$TK_{IPCE}$		1.18		%/K
	LED, white	$TK_{IPCE}$		0.9		%/K
Angle of half sensitivity		$\varphi$		$\pm 60$		deg
Wavelength of peak sensitivity		$\lambda_p$		590		nm
Range of spectral bandwidth		$\lambda_{0.5}$		450 to 610		nm
Collector emitter saturation voltage	$E_V = 20 \text{ lx}, 0.45 \mu\text{A}$	$V_{CEsat}$		0.1		V

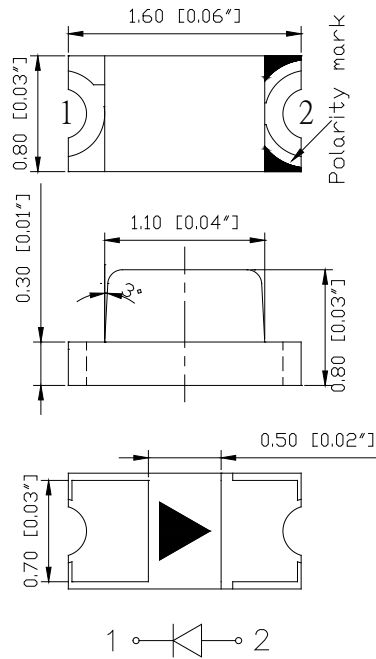


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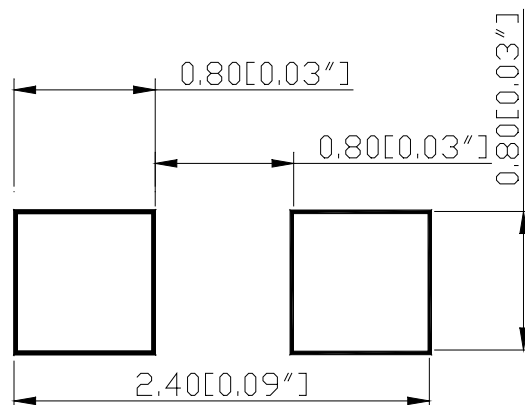
Absolute Maximum Ratings( $T_a=25^{\circ}\text{C}$ )

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		$V_{CE0}$	6	V
Emitter collector voltage		$V_{ECO}$	1.5	V
Collector current		$I_C$	20	mA
Power dissipation		$P_V$	100	mW
Junction temperature		$T_j$	100	$^{\circ}\text{C}$
Operating temperature range		$T_{amb}$	-40 to +100	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-40 to +100	$^{\circ}\text{C}$
Soldering temperature	Acc. reflow profile fig. 9	$T_{sd}$	260	$^{\circ}\text{C}$
Thermal resistance junction/ambient	Soldered on PCB with pad dimensions: 4 mm x 4 mm	$R_{thJA}$	450	K/W

## PACKAGING DIMENSIONS



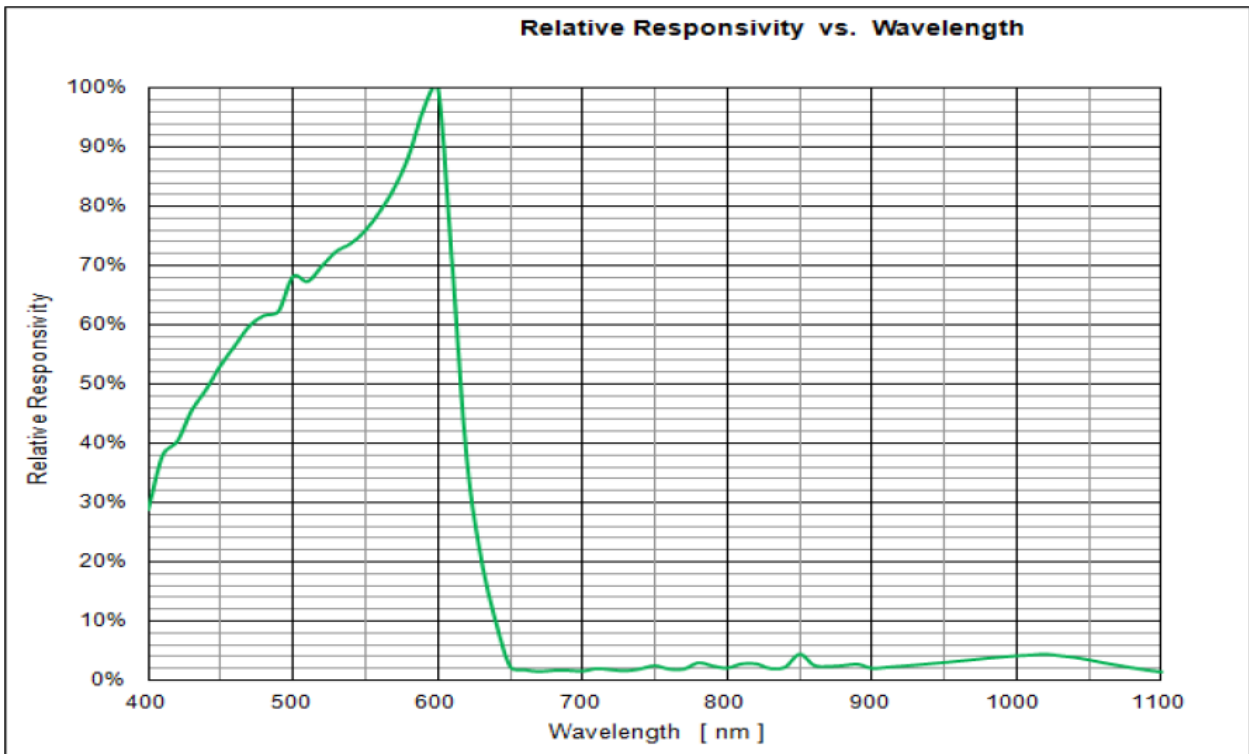
## RECOMMEND PAD LAYOUT





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**Relative spectral response vs. wavelength:**

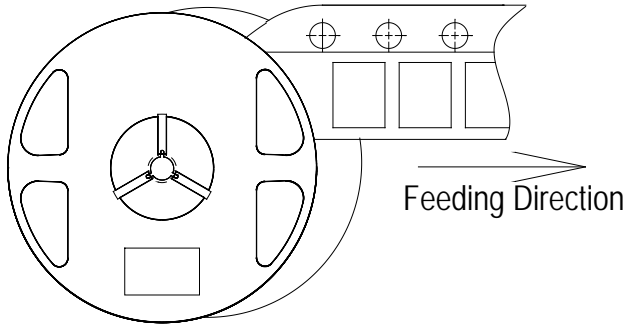


\* measured by bare chip, for reference only.

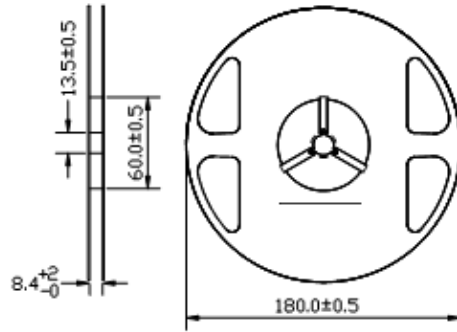


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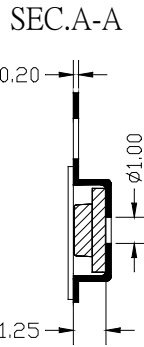
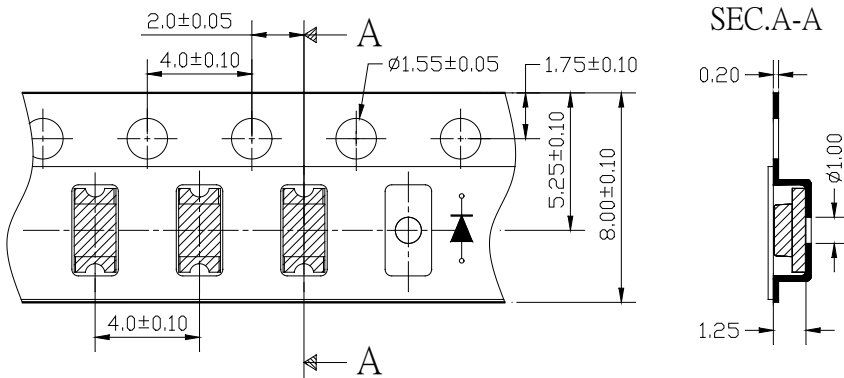
## ● Feeding Direction



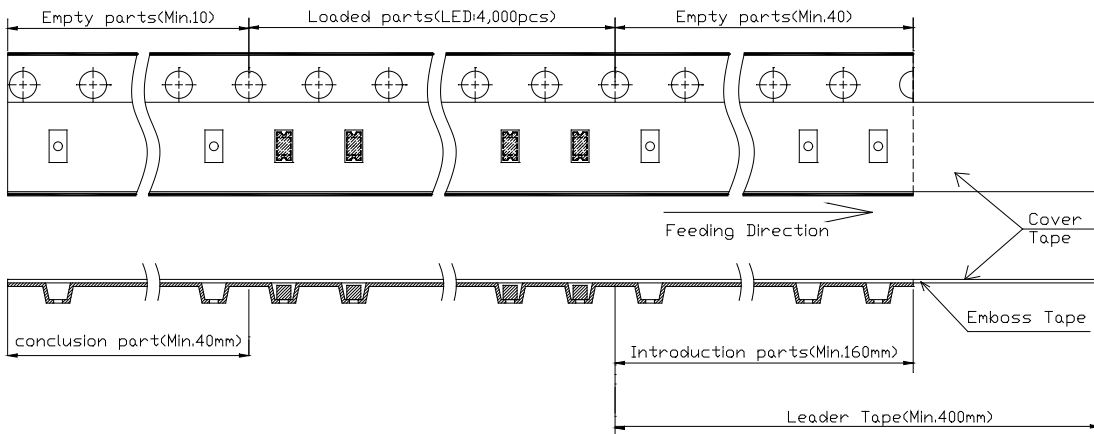
## ● Dimensions of Reel (Unit: mm)



## ● Dimensions of Tape (Unit: mm)



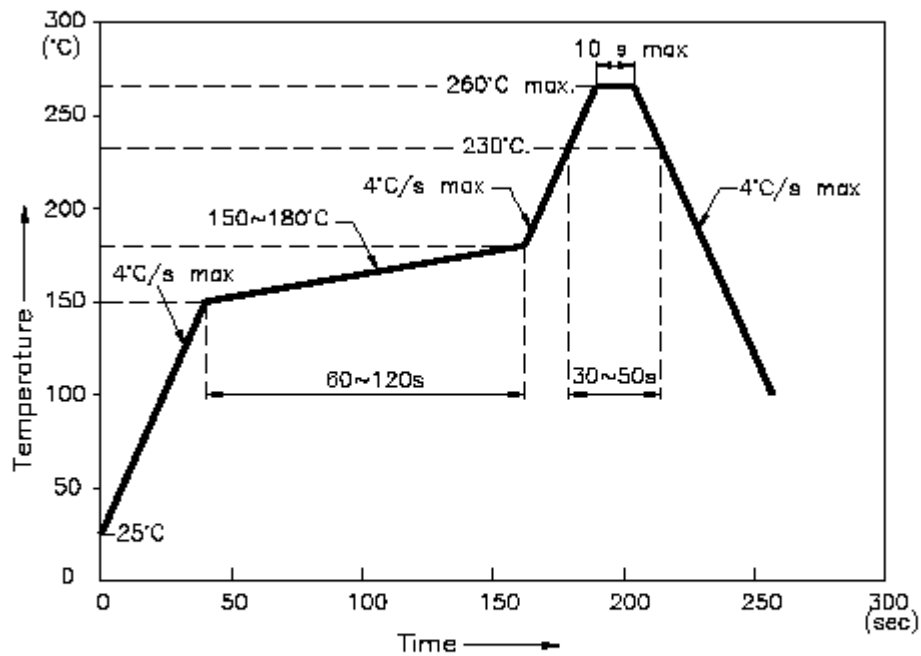
## ● Arrangement of Tape





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Reflow Soldering Profile For Lead-free SMT Process.



## NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.