

Specification for **ViTron** Photo Diode

Ø5 OVAL [Photo Diode]

Part No. : VPD5V-BN60T

Revision No. : Ver. 1.0

Date : Feb. 28. 2014

VISSEM Electronics Co., Ltd.

1. SPECIFICATION

Absolute Maximum Rating

 (T_a = 25°C)

Parameter	Symbol	Absolute Maximum Rating	Units
Collector-Emitter Breakdown Voltage	BV _R	60	V
Power Dissipation	P _D	100	mW
Operation Temperature	T _{OP}	-20 ~ 85	°C
Storage Temperature	T _{ST}	-30 ~ 100	°C
Soldering Temperature	T _{SOL}	MAX. 5SEC@250°C	

2. Electrical and Optical Characteristics

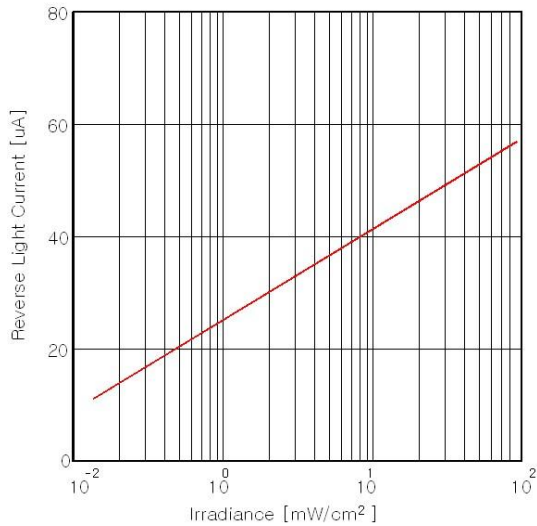
 (T_a = 25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Reverse Light Current	I _L	V _R =5V, Ee=1mW/cm ²	21			μA
Reverse Dark Current	I _D	V _R =10V, Ee=0mW/cm ²			30	nA
Reverse Breakdown Voltage	BV _R	I _R =100μA	30			V
Forward Voltage	V _F	I _F =1mA			1.0	V
Rise/ Fall Time	T _R /T _F	V _R =10V, R _L =50Ω λ=940nm	-	50/50	-	ns
Wavelength of Peak Sensitivity	λ _P		-	880	-	nm
Spectral Range of Sensitivity	λ _S		800	-	1050	nm
Viewing Angle	θ	V _R =5V, Ee=1mW/cm ²		60		deg

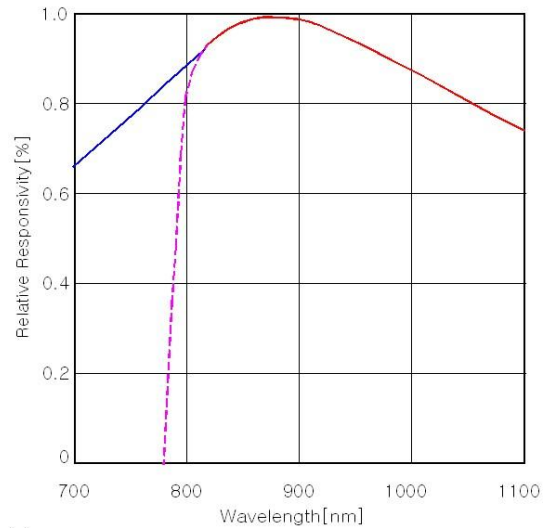
2. CHARACTERISTIC DIAGRAM

• Reverse Light Current vs. Irradiance

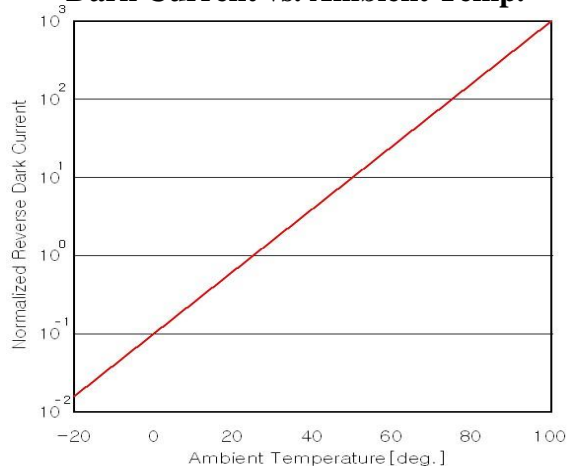
VR=5V, Reference Light source: $\lambda = 940$ [nm]



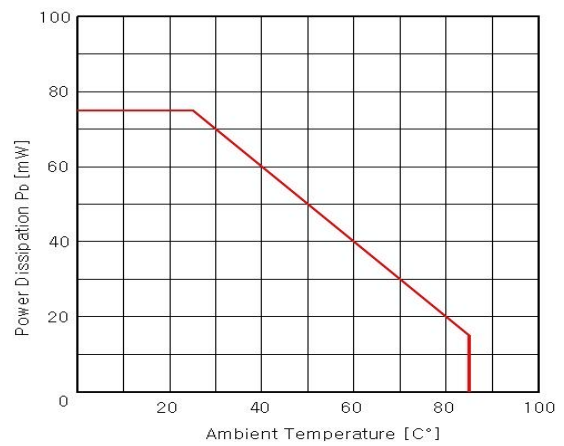
• Relative Spectral Sensitivity



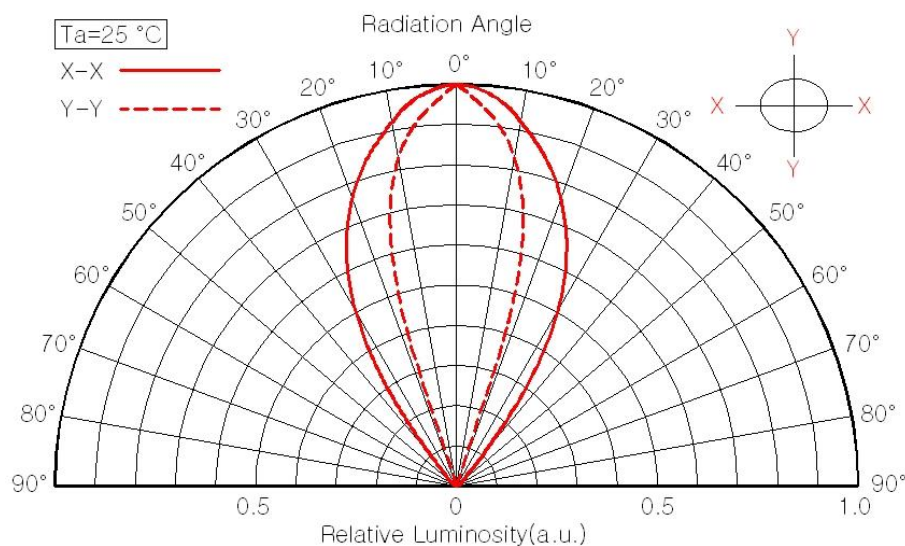
• Dark Current vs. Ambient Temp.



• Power Dissipation vs. Ambient Temp.



• Typical Radiation Diagram



3. PART NUMBER DESCRIPTION

Part Number: VP D 5V - B N 60 T

① ② ③ ④ ⑤ ⑥

- ① Device Type : Photo Diode
- ② Package Shape : Ø5 OVAL
- ③ Black color epoxy Lens
- ④ Non-stopper
- ⑤ View angle : 60[deg]
- ⑥ Taping Type

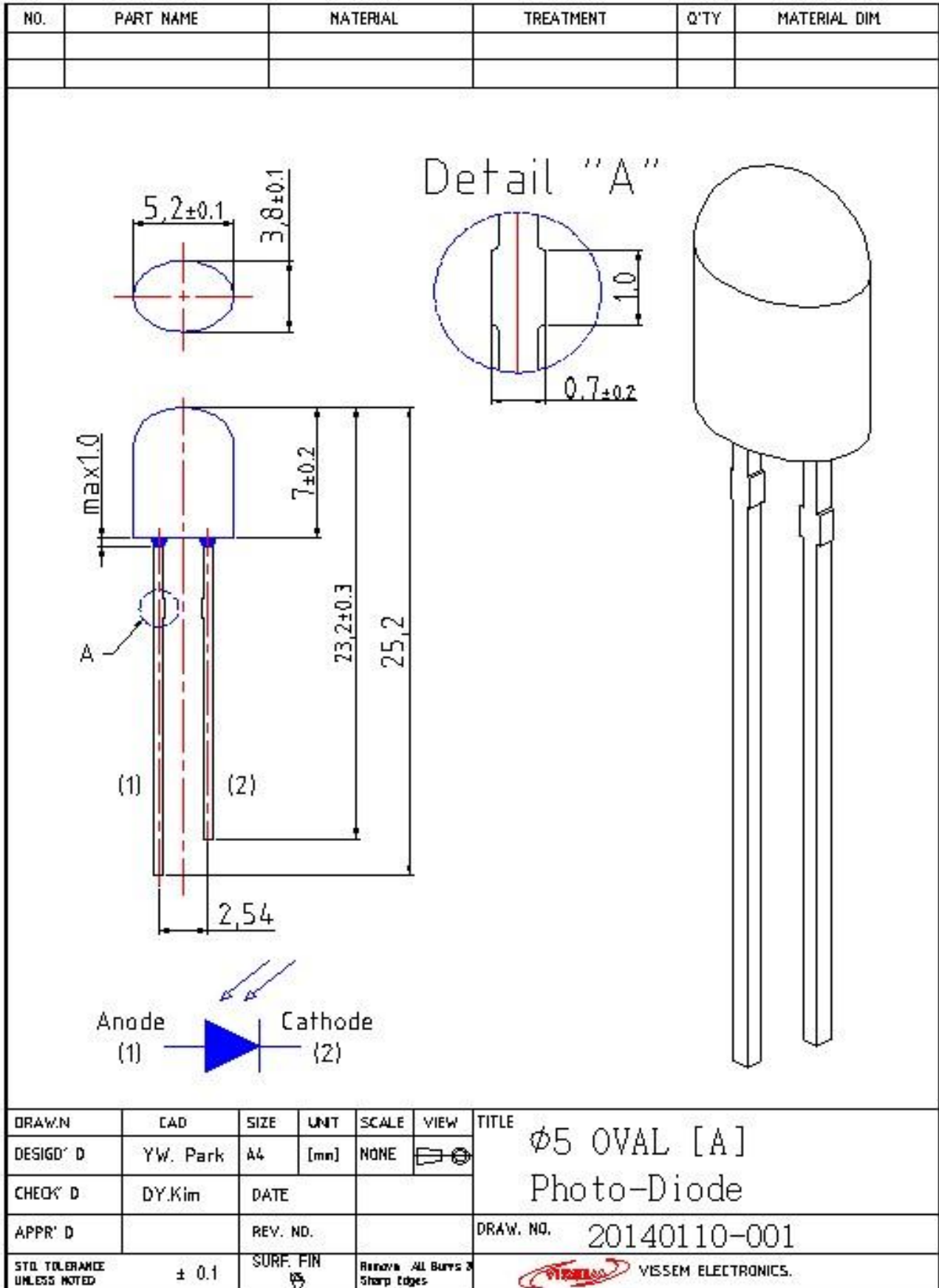
4. RANK DESCRIPTION

On State Collector Current

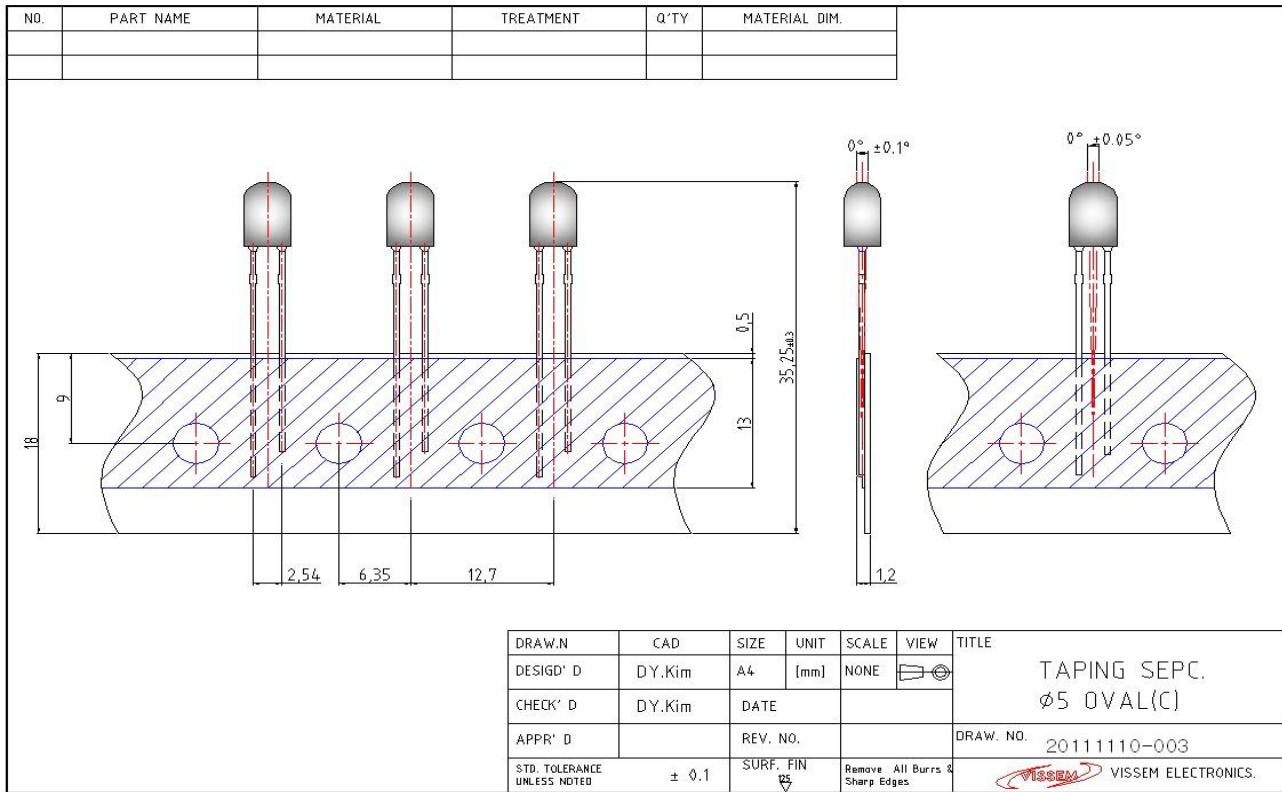
(Unit: μA , $T_a=25^\circ\text{C}$)

Rank	Min.	Max.	Unit
A	32	39	μA
B	26	32	
C	21	26	

5. OUTLINE DIMENSION

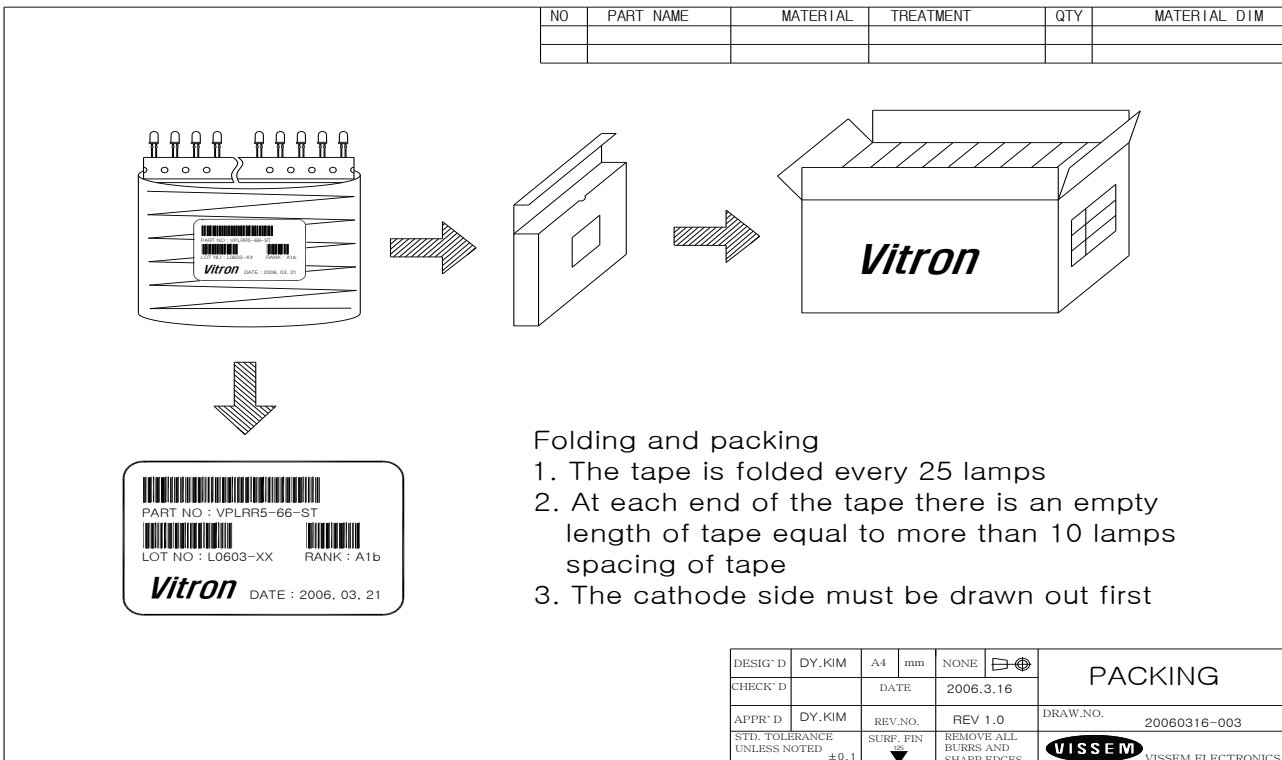


6. TAPING



7. PACKING

Packing unit	Size (W × L × D)	Quantity (ea)
Inner box		2,000
Outer box		20,000



8. SOLDERING

Recommended Reflow Soldering Profile

Reflow Soldering			Manual Soldering		
	Lead solder	Lead-free * ²		Lead Solder	Lead-free* ²
Pre-heating	Max.120°C	Max.120°C	Temperature	Max. 300°C	Max. 300°C.
Pre-heat time	Max. 60 sec.	Max. 60 sec	Time	Max. 3 sec.	Max. 3 sec.
Peak temperature	Max. 240°C	Max. 250°C	No multiple soldering allowed and soldering point should be not closer than 3mm from the epoxy mold		
Soldering time	Max. 10 sec.	Max. 5 sec.			

*1: After reflow soldering, rapid cooling should be avoided.

*2: N₂ reflow is recommended

*3: Solder should not be in contact with epoxy mold

Recommended Wave Soldering Profile

- During the soldering process, keep the minimum clearance between the resin and the soldering point.
- Reflow soldering of through-hole devices is acceptable, as long as the plastic body of the device is not exposed to temperatures in excess of 240 °C.(250°C for “Pb-Free” Packages)
- Plastic mold should not contact molten solder.
- No mechanical distortion or stress allowed after soldering.
- During soldering, do not apply any stress to the lead frame, particularly when heated.
- A grounded tip is recommended for a manual soldering iron.

An isolator should also be installed where risk of static generation is high.

9. Cautions

Safety

- Customers should comply with the laws and public regulations concerning safety.
- Operation temperature or driving current may affect emission color.
Please check sorting condition and characteristic diagram to estimate color shift.
- Moisture and dust may affect reliability issues.
Do not open the shielding bag under humid or dirty environment.
- When installing the product in PCB, the device should not contact with other components.
- Do not apply force to the LED under high-temperature condition.
- Do not apply friction to the LED using hard material.
- Avoid exposure to chemicals which may dissolve the LED package and the epoxy.
- Use IPA(Isopropyl Alcohol) as a solvent when washing is required.

Static Electricity

- These products are sensitive to static electricity.
Anti-electrostatic glove or wristband is recommended when handling the LEDs.
- A protection device should be installed in the LED driving circuit to eliminate or minimize the surge current effect.
- Proper grounding of products, use of conductive mat, semi-conductive working uniform and shoes, and semi-conductive containers are considered to be effective as countermeasures against static electricity and surge.

Storage Condition

- Before opening the anti-static shielding package:
LEDs should be kept at 30°C or less and RH 80% or less.
Maximum acceptable storage period is 6 months.
- After opening the anti-static shielding package:
LEDs should be kept at 30°C or less and RH 70% or less.
LEDs should be soldered within 7 days after opening the pack