

**AT403-PD-01**

**DATA SHEET**

REV. : 1.0

DATE : 20-Apr.-2005

**FEATURES:**

- Fast Response Time.
- High Photo Sensitivity.
- Fast Switching Time.
- Visible Light Cut-Off Type.
- Lead Free product, in compliance with RoHS.

**DESCRIPTIONS:**

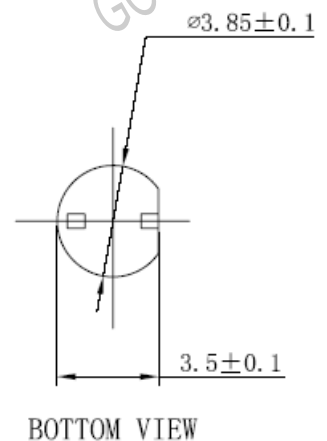
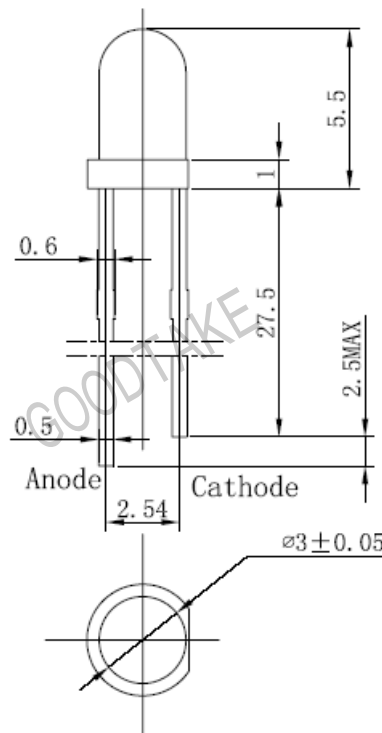
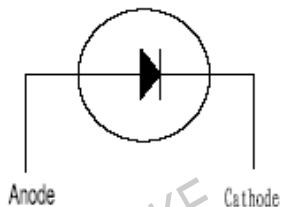
- AT403-PD-01 is a high speed and high sensitive silicon PIN photodiode with exceptionally stable characteristics and high illumination sensitivity.
- Mounted in 5mm diameter and black epoxy package.

**APPLICATIONS:**

- High Speed Photo Detector.
- Security System.
- Camera.

**DIMENSIONS:**

**INTERNAL CIRCUIT:**



**NOTE:** 1. All dimensions are in millimeter, tolerance is  $\pm 0.25$  unless otherwise noted.  
 2. Epoxy meniscus extends  $\leq 1$  mm down to the lead is allowed.

### ■ ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

Parameter	Symbol	Ratings	Unit
Power Dissipation	P <sub>D</sub>	100	mW
Reverse Breakdown Voltage	V <sub>(BR)</sub>	60	V
Operating Temperature	T <sub>opr</sub>	-40~+85	°C
Storage Temperature	T <sub>stg</sub>	-55~+100	°C
Soldering Temperature	T <sub>sol</sub>	270°C for 6 sec Max (2mm from Body)	

### ■ TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Min.	Type	Max.	Unit	Test Condition
Reverse Light Current	I <sub>L</sub>		42		μA	V <sub>R</sub> =5V E <sub>e</sub> =1mW/cm <sup>2</sup>
Reverse Dark Current	I <sub>d</sub>			10	nA	V <sub>R</sub> =10V E <sub>e</sub> =0mW/cm <sup>2</sup>
Reverse Breakdown Voltage	V <sub>(BR)</sub>	33			V	I <sub>R</sub> =100μA E <sub>e</sub> =0mW/cm <sup>2</sup>
Rise Time	T <sub>r</sub>		40		nS	V <sub>R</sub> =20V λ <sub>p</sub> =850nm R <sub>L</sub> =50Ω
Fall Time	T <sub>f</sub>		40		nS	
Forward Voltage	V <sub>F</sub>			1.2	V	I <sub>F</sub> =1mA
Total Capacitance	C <sub>T</sub>		21		pF	V <sub>R</sub> =5V E <sub>e</sub> =0mW/cm <sup>2</sup> f=1.0MHz

■ RELIABILITY TEST ITEMS AND CONDITIONS:

NO	Item	Test Conditions	Test Hours/Cycle	Sample Quantity	Test Result
1	Solder Heat	TEMP: 270°C ± 3°C	10 SEC	11 pcs	0 DEFECT
2	Temperature Cycle	H: +85°C 60min ↓ 10min L: -25°C 60min	16 cycles	22 pcs	0 DEFECT
3	Thermal Shock	H: +85°C 30min ↓ 30sec L: -25°C 30min	10 cycles	11 pcs	0 DEFECT
4	High Temperature Storage	TEMP: +85°C	1000 HRS	22 pcs	0 DEFECT
5	Low Temperature Storage	TEMP: -25°C	1000 HRS	22 pcs	0 DEFECT
6	High Temperature High Humidity Storage	85°C / 93% RH	1000HRS	22 pcs	0 DEFECT

■ TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES:

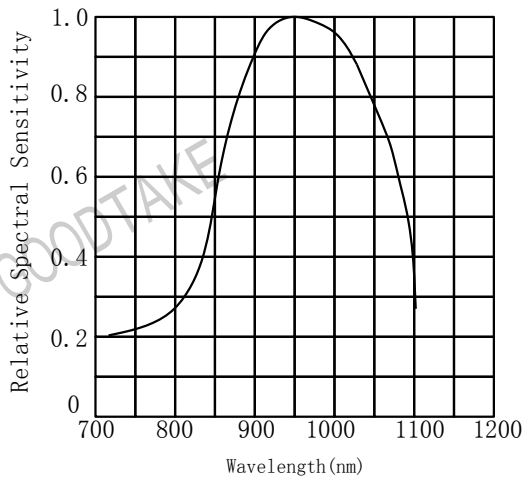


FIG. 1 Relative Spectral Sensitivity vs. Wavelength

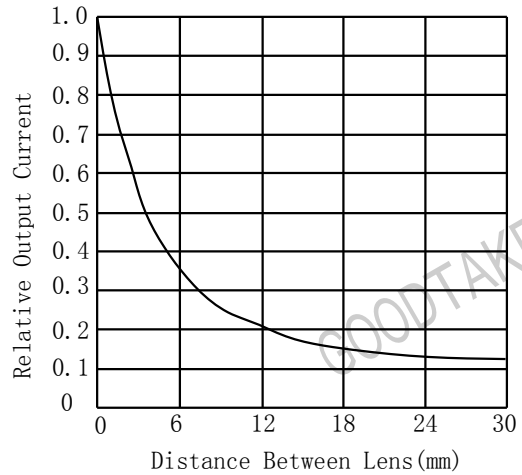


FIG. 2 Coupling Characteristics

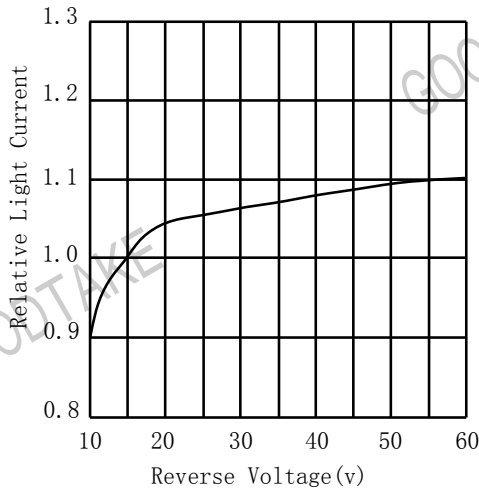


FIG. 3 Vr vs Relative IL

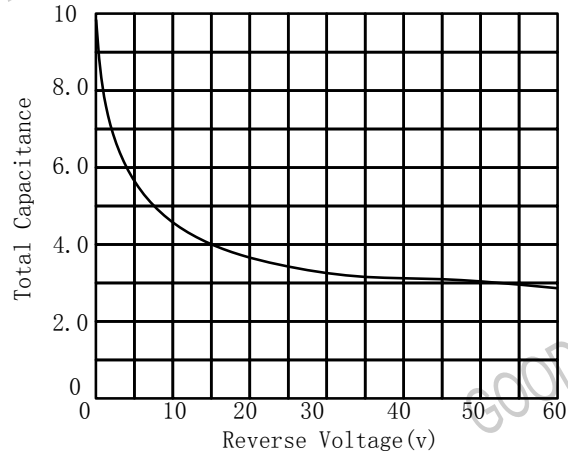


FIG. 4 Vr vs Cr

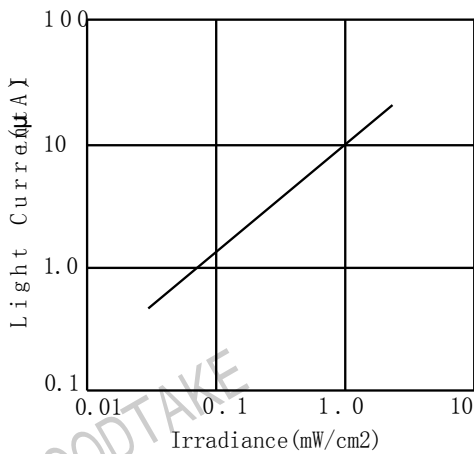


FIG. 5L IL vs VI

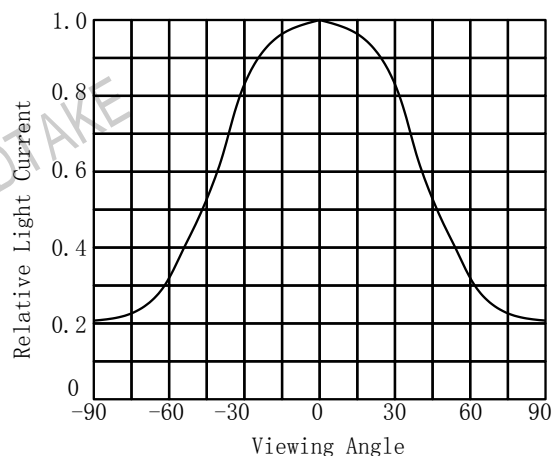


FIG. 6 Angle vs Relative IL