



广州市东裕光电科技有限公司

产品规格书

SPECIFICATION

客户名称 CUSTOMER	
产品名称 PRODUCTION	贴片对射式（槽型）光电开关 Transmissive Sensor SMD
产品型号 MODEL	DYWH-ITR2006/08T
版本号 VERSION NO	A1.0

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客户确认 CUSTOMER CONFIRMATION	审核 CHECKED BY	编制 PREPARED BY
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DYWH-ITR2006/08T



产品描述 Descriptions

- 贴片对射式（槽型）光电开关。
(An transmissive sensor SMD)

产品特性 Features

- 可靠性高 (High reliability)
- 响应时间快 (Fast response time)
- 解析度高 (High analytic)
- 敏感度高 (High sensitivity)
- 截止波长 940nm (Cut-off visible wavelength $\lambda_P=940\text{nm}$)
- 无铅 (Pb free)
- 符合 RoHS 要求 (This product itself will remain within RoHS compliant version)

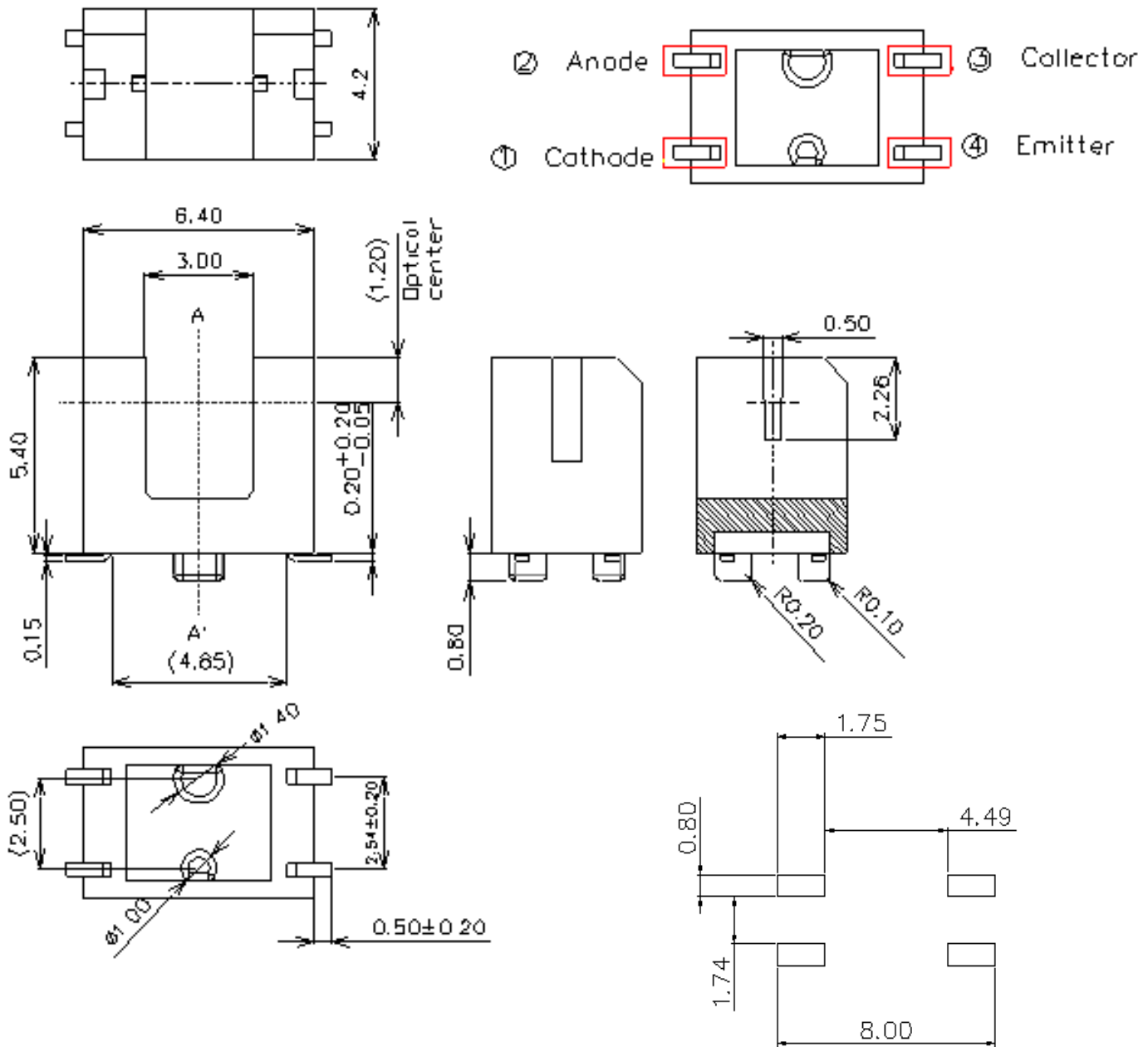
产品应用 Applications

- 鼠标 (Mouse Copier)
- 码盘 (Switchc Scanner)
- 非接触式开关 (Non-contact Switching)
- 智能家电 (Smart Appliances)

包装方式 Packing Quantity Specification

- 编带数量：800PCS/卷，1 卷/小箱，5 小箱/外箱 (800 PCS /Reel, 1Reel/Box, 5Box/Carton)

一、外形图 Outline dimensions:



Notes:

1. All dimensions are in millimeters.
2. Tolerances unless dimensions $\pm 0.2\text{mm}$.
3. Lead spacing is measured where the lead emerge from the package.
4. Dimensions in parentheses for reference only.

Recommended Soldering Pattern

※备注：承认书之编号和型号可用于查询，客户如有需要，请提供相应的编号和型号。

Remark: P/N & Model in samples approval sheet can be used to inquire, please provide corresponding P/N & model if customer need.

二、光电参数 Electro-Optical Characteristics:

(环境温度 Ambient temperature: 25°C, 环境湿度 Humidity: RH60%)

项目 Item		符号 Symbol	测试条件 Test condition	最小值 Min.	典型值 Type	最大值 Max..	单位 Unit.
输入 Input	正向电压 Forward voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.6	V
	反向电流 Reverse current	I_R	$V_R=5\text{V}$	-	-	10	μA
	峰值波长 Peak wavelength	λ_p	$I_F=20\text{mA}$	-	940	-	nm
输出 Output	暗电流 Dark Current	I_{CEO}	$V_{CE}=20\text{V}$ $E_e=0\text{mW/cm}^2$	-	-	100	nA
	C-E 饱和电压 C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=2\text{mA}$, $E_e=1\text{mW/cm}^2$	-	-	0.4	V
集电极电流(*) Collector Current(*)		$I_{C(ON)}$	$V_{CE}=5\text{V}, I_F=20\text{mA}$	0.2	-	5.0	mA
		$I_{C(OFF)}$		-	-	20	μA
响应时间 Response Time	上升时间 Rise Time	T_R	$V_{CE}=5\text{V}, I_C=1\text{mA}$ $R_L=1\text{K}\Omega$	-	15	-	μs
	下降时间 Fall Time	T_F		-	15	-	μs

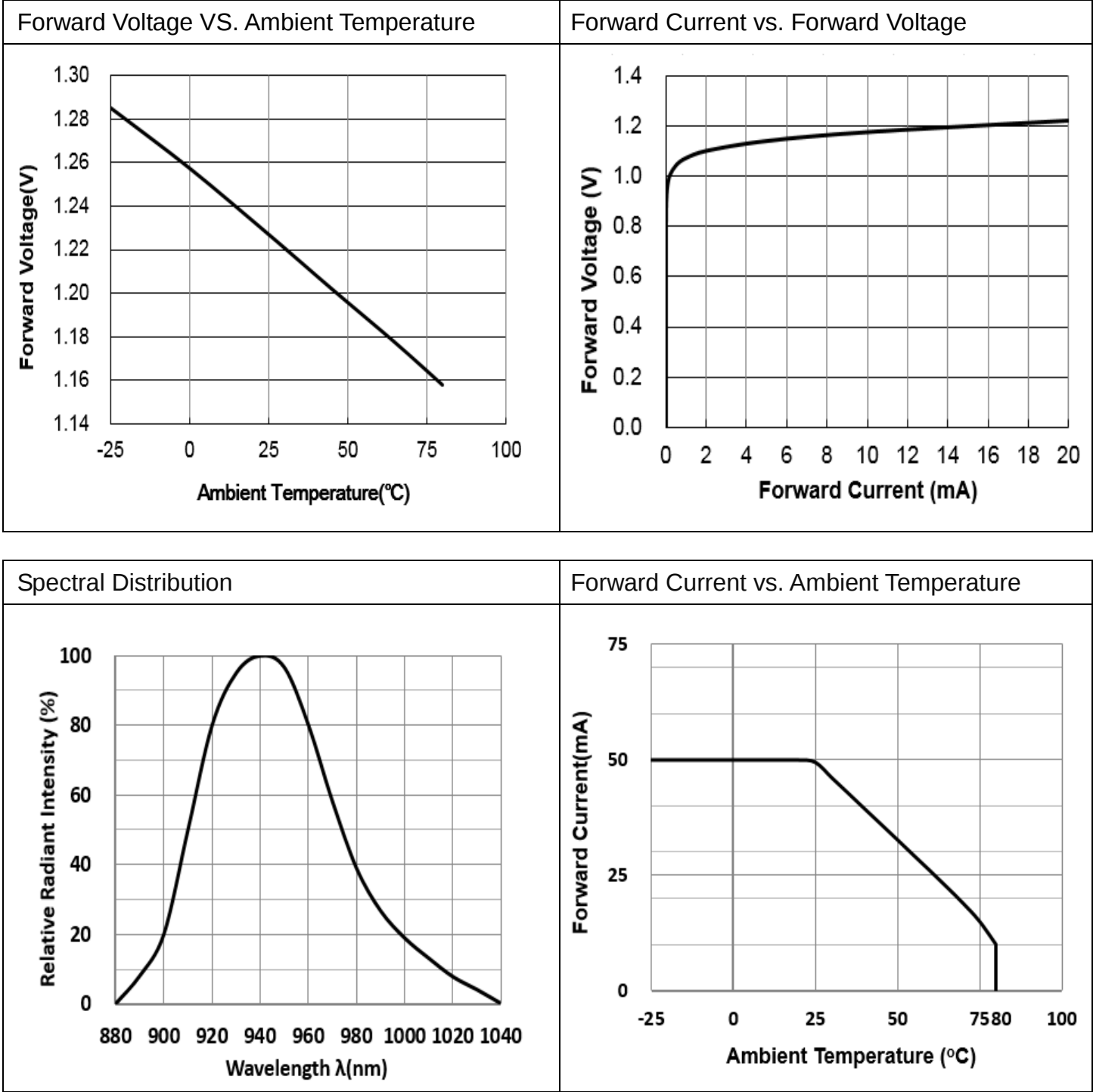
注(Notes): *正向电压公差范围(Forward voltage tolerance): $\pm 0.1\text{V}$

*辐射强度公差范围(Radiant intensity tolerance): $\pm 10\%$

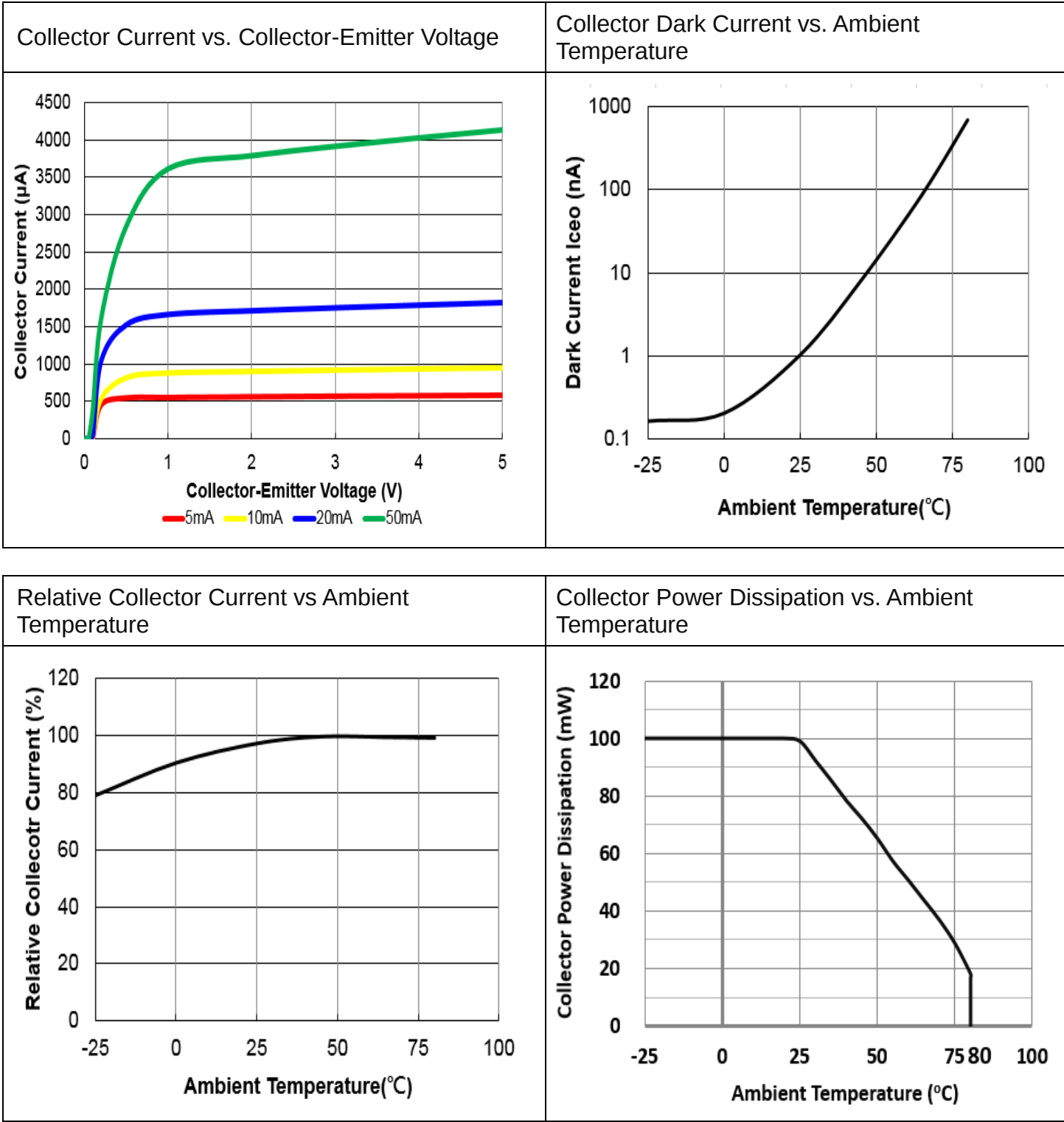
*波长公差范围(wavelength tolerance): $\pm 1.0\text{nm}$

三、典型光电特性曲线图 Typical photoelectricity characteristic curve chart:

IR 光电特性图 Typical Characteristics For IR

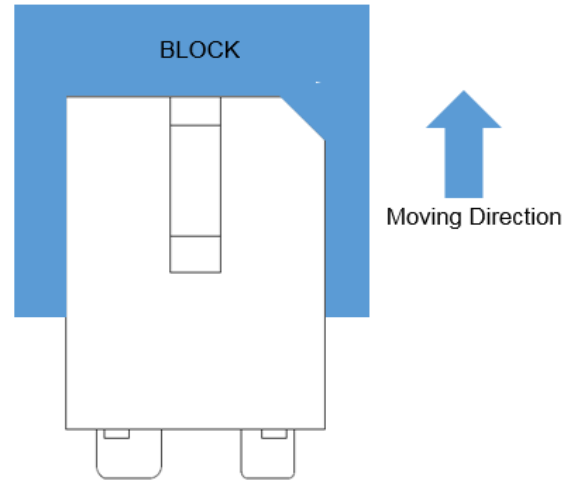
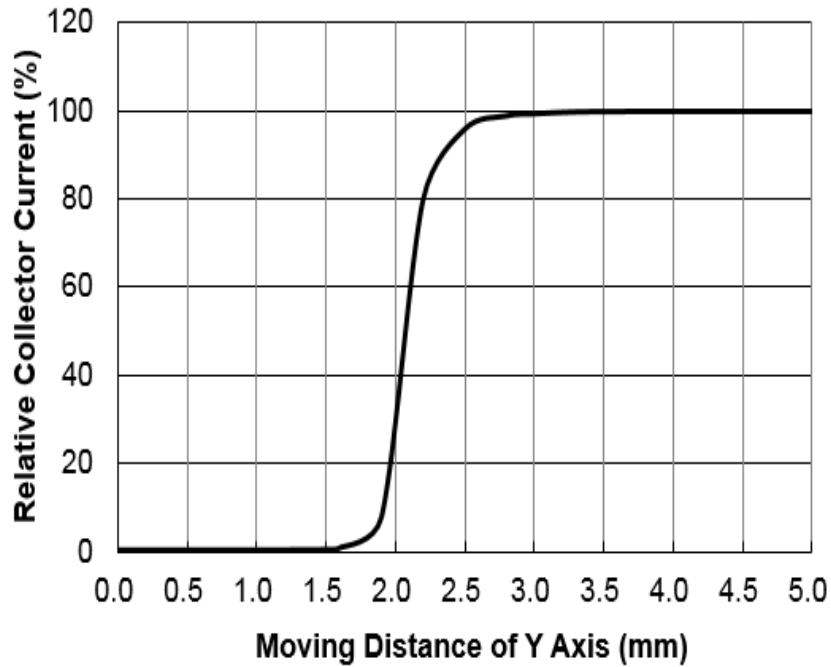


PT 光电特性图 Typical Characteristics For PT

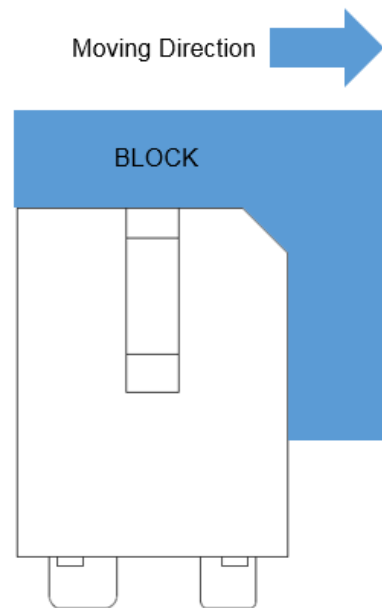
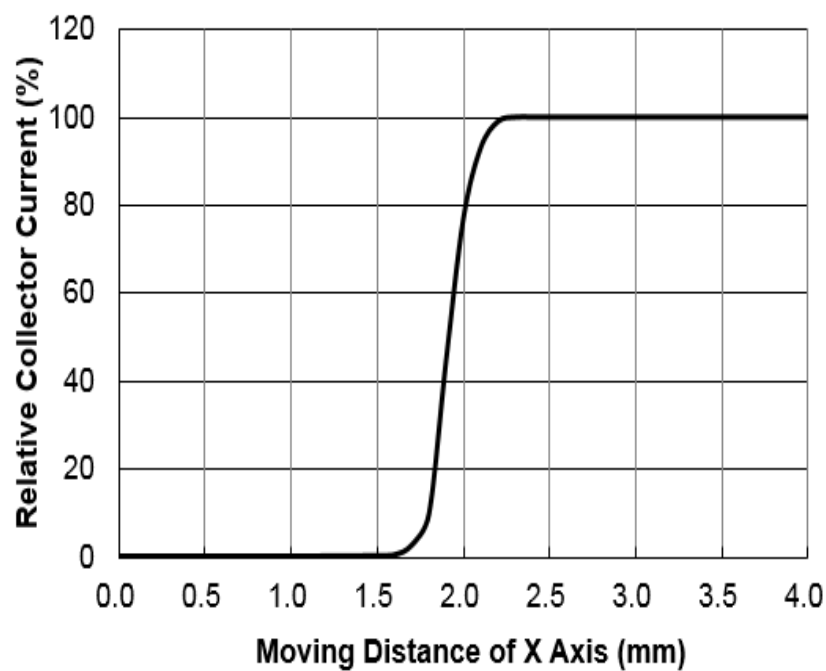


ITR 光电特性图 Typical Characteristics For ITR

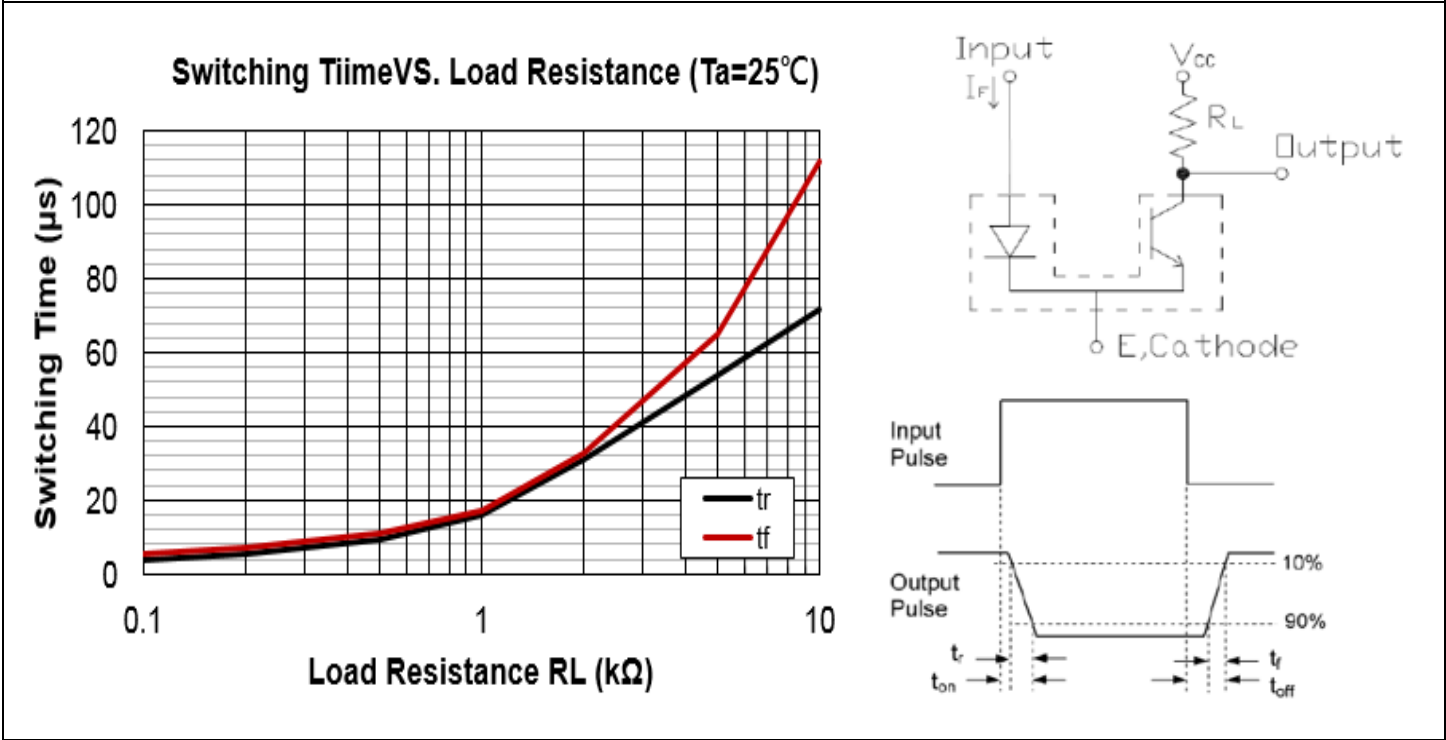
Output Current vs Moving Distance of Y Axis



Output Current vs Moving Distance of X Axis



Response Time vs Load Resistance



四、极限参数 Absolute Maximum Rating:

（环境温度 Ambient temperature: 25°C, 环境湿度 Humidity: RH60%）

项目 Item		符号 Symbol	数值 Value	单位 Unit	备注 Remark
输入 Input	常温下功耗 Power Dissipation	Pd	75	mW	at(or below) 25°C Free Air Temperature
	反向耐压 Reverse Voltage	V _R	5	V	---
	正向电流 Forward Current	I _F	50	mA	---
	正向峰值电流 Peck forward current	I _{FP}	1	A	Pulse width ≤ 100μs, Duty cycle=1% tw=100 μsec, T=10 msec
输出 Output	集电极功耗 Collector Power Dissipation	Pc	75	mW	---
	集电极电流 Collector Current	Ic	20	mA	---
	C-E 电压 Collector-Emitter Voltage	BV _{CEO}	30	V	
	E-C 电压 Emitter-Collector Voltage	BV _{ECO}	5	V	
使用温度 Operating Temperature		Topr	-25~+85	°C	
储存温度 Storage Temperature		Tstg	-45~+85	°C	
焊接温度 Soldering temperature		Tsol	260	°C	回流焊 Reflow soldering : 260 °C for 5 sec. 手动焊 Hand soldering : 300 °C for 3s sec.

六、可靠性实验项目 Reliability Test Project:

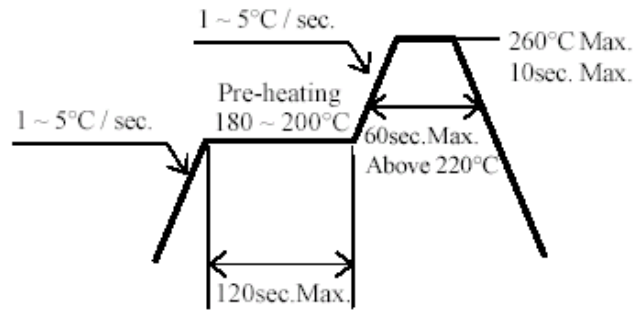
描述 Description	项目 Item	测试标准 Test criterion	测试条件 Test condition	测试时间 Test time	数量 Qty.	失效数量 Fail Qty.
寿命测试 Life test	常温寿命测试 Life test (room temperature)	JIS7021:B4	Ta=25°C±5°C, IF=20mA	1000Hrs	22	0
环境测试 Ambience test	高温存储 High temperature store	JIS7021:B10 MIL-STD-202:210A MIL-STD-750:2031	Ta=85°C±5°C	1000Hrs	22	0
	低温存储 Low temperature store	JIS7021:B12	Ta= -35°C±5°C	1000Hrs	22	0
	高温高湿测试 High temperature/ humidity test	JIS7021:B11 MIL-STD-202:103D	Ta=85°C±5°C RH=85%	1000Hrs	22	0
	冷热冲击测试 Cold / Heat strike test	JIS7021:B4 MIL-STD-202:107D MIL-STD-750:1026	30min -10°C±5°C←→100°C±5°C 5min 5min	50Cycles	22	0
	冷热循环测试 Cold and heat cycle test	JIS7021:A3 MIL-STD-202:107D MIL-STD-705:105E	5min 5min 5min -35°C~25°C~85°C~-35°C 30min 5min 30min 5min	50Cycles	22	0

七、注意事项 Note:

Recommended Method of Storage

The following are general recommendations for moisture sensitive level (MSL) 4 storage and use:

- Shelf life in sealed bag: 12 months at < 40 °C and < 90% relative humidity (RH)
- After bag is opened, devices that will be subjected to reflow solder or other high temperature process must
 - Mounted within 72 hours of factory conditions < 30°C/60%RH, or
 - Stored at <20% RH
- Devices require bake, before mounting, if Humidity Indicator Card is > 20% when read at 23 ± 5 °C
- If baking is required, devices may be baked:
 - 192 hours at 40°C, and <5% RH(dry air/nitrogen) or
 - 96 hours at 60°C, and <5% RH for all device containers
 - 24 hours at 125 °C
- Soldering Condition
 - Pb-free solder temperature profile



- b. Reflow soldering should not be done more than two times.
- c. When soldering, do not put stress on the LEDs during heating.
- d. After soldering, do not warp the circuit board.

Heat Management

1. Heat management of Photo Interrupter must be taken into consideration during the design stage of Photo Interrupter application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
2. The temperature surrounding the Photo Interrupter in the application should be controlled.

ESD (Electrostatic Discharge)

1. The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability.
2. When handling the products, the following measures against electrostatic discharge are strongly recommended:
 - a. Eliminating the charge
 - b. Grounded wrist strap, ESD footwear, clothes and floors
 - c. Grounded workstation equipment and tools
 - d. ESD table/shelf mat made of conductive materials
3. Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.
4. If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:
 - a. Dissipating static charge with conductive materials
 - b. Preventing charge generation with moisture
 - c. Neutralizing the charge with ionizers

DISCLAIMER

1. TONYU reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets TONYU published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. TONYU assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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