

ATIR0911S

Photointerrupter - Transmissive Type

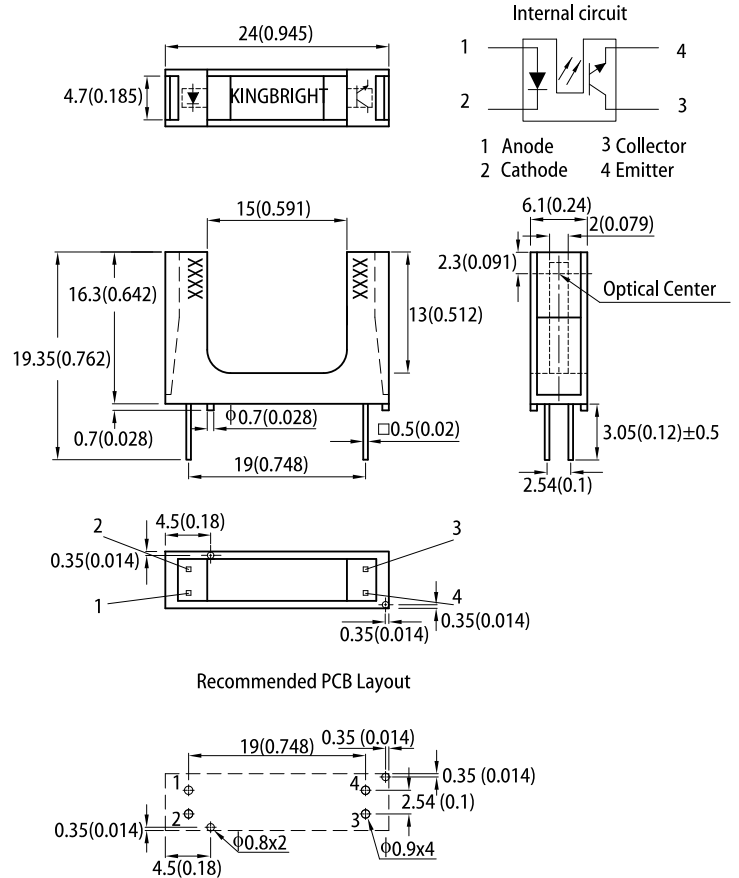
FEATURES

- Ultra-Small
- Minimal influence from stray light
- Low collector-emitter saturation voltage
- RoHS compliant

APPLICATIONS

- Optical control equipment
- Cameras
- Floppy disk drives

PACKAGE DIMENSIONS



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter	Symbol	Value			Units	Test Conditions		
		Min.	Typ.	Max.				
Input	Forward voltage	V_F	1.0	1.2	1.5	V	$I_F=20\text{mA}$	
	Reverse current	I_R	-	-	10	μA	$V_R=6\text{V}$	
Output	Collector dark current	I_{CEO}	-	-	100	nA	$V_{CE}=20\text{V}$	
Transfer characteristics	Current transfer ratio	CTR	-	9.5	-	%	$I_F=20\text{mA}, V_{CE}=5\text{V}$	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_F=40\text{mA}, I_C=1\text{mA}$	
	Response time	Rise time	t_r	-	5	25	μs	$V_{CE}=2\text{V}, I_C=2\text{mA}$ $R_L=100\ \Omega$
		Fall time	t_f	-	4	20	μs	

Note:

1. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	75	mW
	Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$, Duty Cycle=1%)	I_{FP}	1	A
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	20	mA
	Collector power dissipation	P_C	75	mW
Operating temperature		T_{opr}	-25~+85	$^\circ\text{C}$
Storage temperature		T_{stg}	-40~+100	$^\circ\text{C}$
Soldering temperature (1/16 inch from body for 5 seconds)		T_{sol}	260	$^\circ\text{C}$

Note:

1. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

Fig. 1 Forward Current vs. Forward Voltage

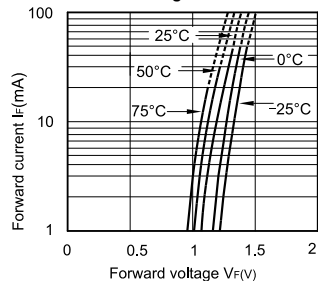


Fig. 2 Collector Current vs. Forward Current

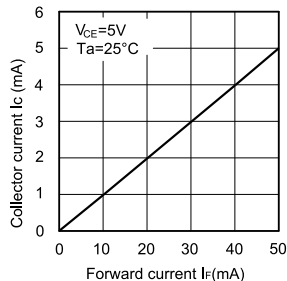


Fig. 3 Collector Current vs. Collector-Emitter Voltage

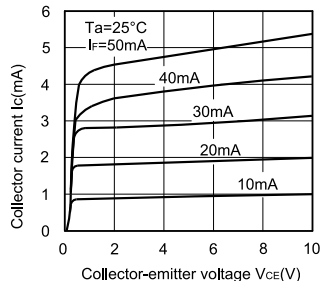


Fig. 4 Collector Current vs. Ambient Temperature

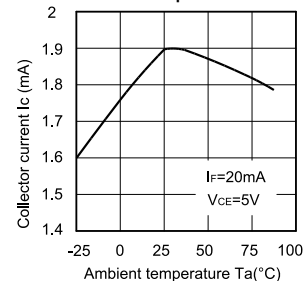


Fig. 5 Collector-Emitter Saturation Voltage vs. Ambient Temperature

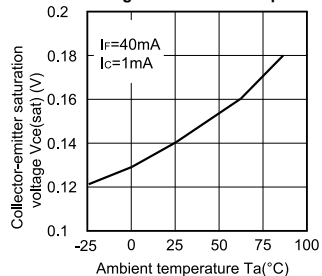


Fig. 6 Relative Collector Current vs. Shield Distance (1)

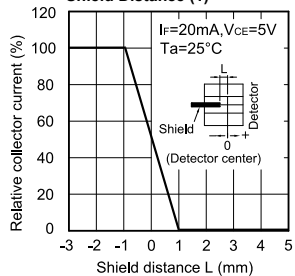


Fig. 7 Relative Collector Current vs. Shield Distance (2)

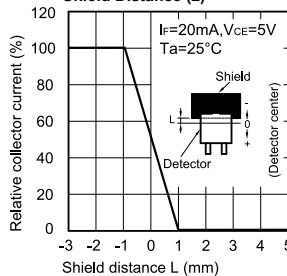
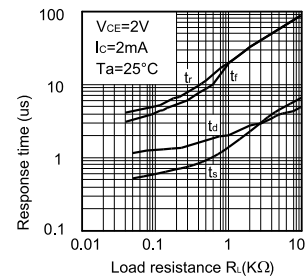
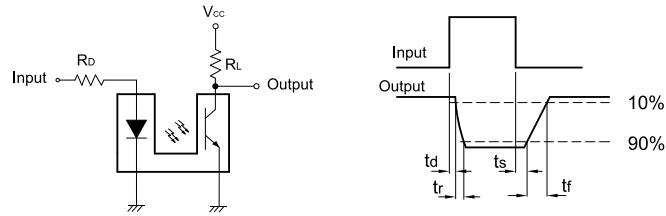


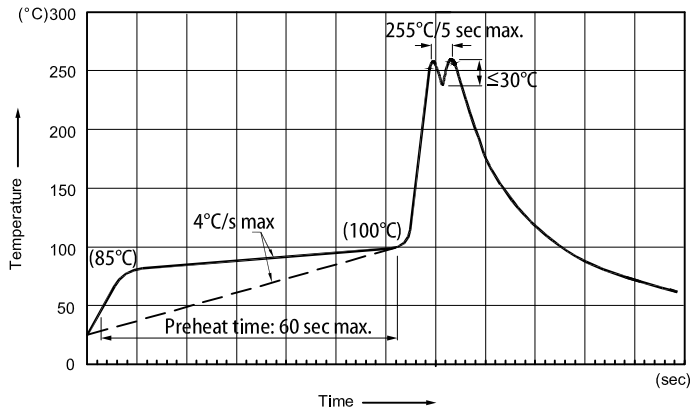
Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time



RECOMMENDED WAVE SOLDERING PROFILE



Notes:

1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.

PACKING & LABEL SPECIFICATIONS

