

DATASHEET

ITR1502SR40A/TR8



Features

- High sensitivity
- Cut-Off visible wavelength
- Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)
- Compliance with EU REACH
- This product itself will remain within RoHS compliant version.
- Optimal Sensing Distance: 4 mm
- Package size : 4.0*3.0*2.0 mm

Description

• ITR1502SR40A/TR8 is a compact-package, phototransistor output, reflective photo interrupter, with emitter and detector facing the same direction in a molding that provides non-contact sensing. The compact package series is a result of unique technology, combing transfer and injection molding, that also blocks visible light to minimize false detection. This device has a long focal distance for this family of devices and has a leadless (T&R) package, suitable for reflow soldering.

Applications

- Detection of object presence or motion.
- Example : printer, optical storage, Projector

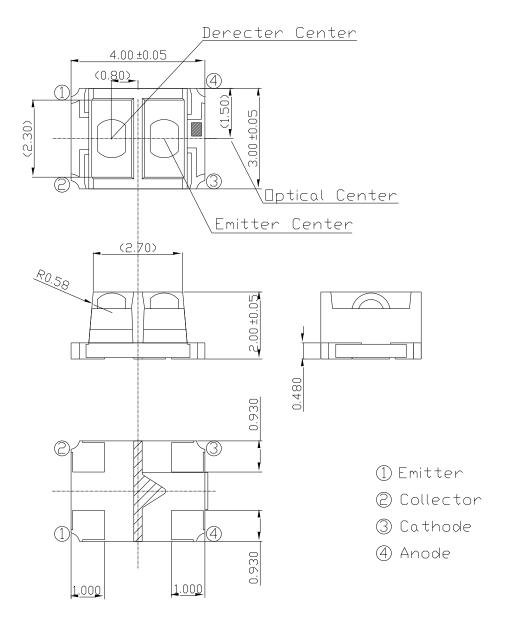
Device Selection Guide

Device No.	Chip Material	Lens Color
IR	GaAs	Black clear
PT	Silicon	Black clear



Package Dimensions

Top View



• Notes:

- 1. All dimensions are in millimeters
- 2. Tolerances unless dimensions ±0.1mm
- 3. Lead spacing is measured where the lead emerge from the package
- 4. Product mass: approx. 0.025g



Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Ratings	Unit
	Power Dissipation at(or below) 25 °C Free Air Temperature	Pd	75	mW
Innut	Reverse Voltage	VR	5	V
Input	Forward Current	IF	mA	
	Peak Forward Current (*1) Pulse width $\leq 100 \mu s$, Duty cycle=1%	Ifp	1	A
	Collector Power Dissipation	Pc	75	mW
Output	Collector Current	Ic	25	mA
Output	Collector-Emitter Voltage	B Vceo	30	V
	Emitter-Collector Voltage	B Veco	5	V
Operating Temperature		Topr	-25~+85	$^{\circ}\!\mathbb{C}$
Storage Temperature		Tstg	-40~+100	$^{\circ}\!\mathbb{C}$
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		Tsol	260	$^{\circ}\! \mathbb{C}$

• Notes:

(*1) tw=100 μ sec., T=10 msec.

(*2) t=10 Sec

Electro-Optical Characteristics (Ta=25°C)

Liectro-Optical Characteristics (1a=25 C)							
Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
	Forward Voltage	V_{F}	_	1.2	1.4	V	$I_F=20mA$
Input	Reverse Current	I_R	_	_	10	μΑ	$V_R=6V$
	Peak Wavelength	$\lambda_{ ext{P}}$	_	940	_	nm	$I_F=10mA$
Output	Dark Current	I_{CEO}	_	1	100	nA	$V_{CE}=20V$
Colle	Collect Current	I _C (ON)	60	_	450	μΑ	V_{CE} =2V I_F =4mA d=4mm
Transfer Characteristics		I _C (OFF)	_	_	600	nA	V _{CE} =2V I _F =4mA
Response time	Dagmanga time	tr	_	20	100	μs	V_{CE} =2V, I_{C} =100 μ A,
	tf	tf	_	20	100	μs	RL=1kΩ, d=4mm

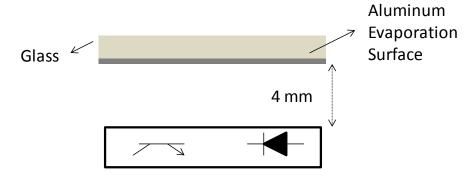
^{*}Operating dark current may be affected by surrounding situation

Bin Range of Collect Current

Bin number	Min	Max
A	60	120
В	100	220
C	180	350
D	310	450

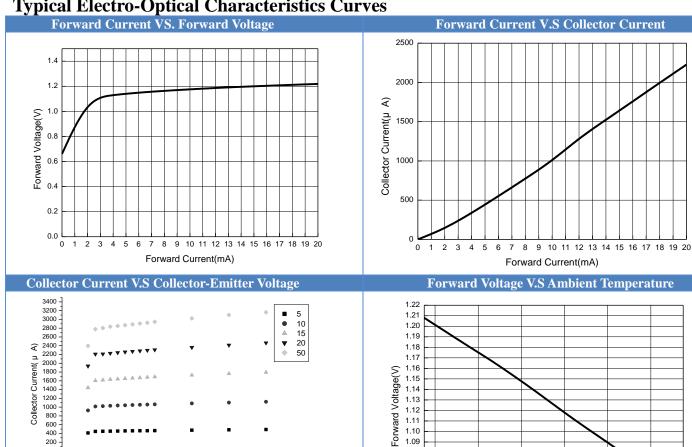


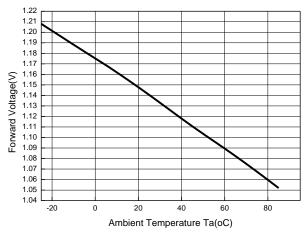
Test Condition and Arrangement for Collector Current

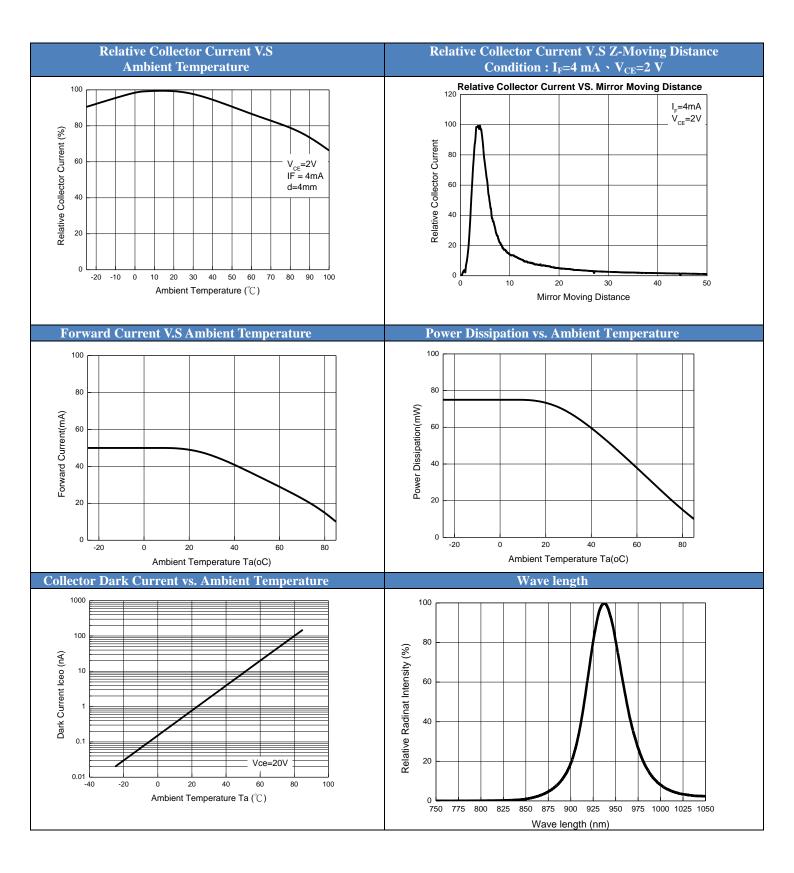


Typical Electro-Optical Characteristics Curves

Collecotr-Emitter Voltage(V)

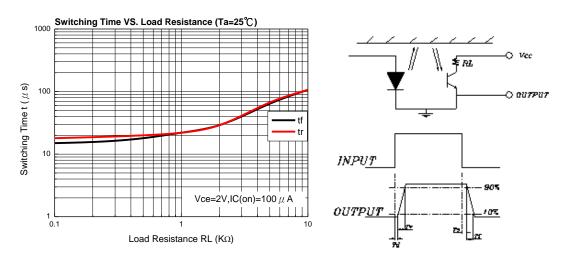




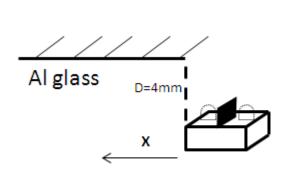




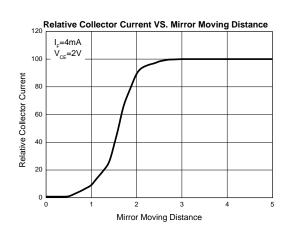
Measuring Circuit For Response Time

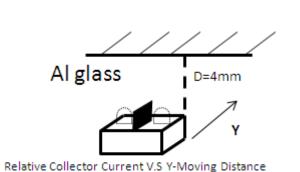


Test Condition and Arrangement for Collector Current

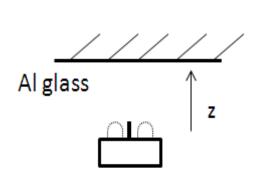


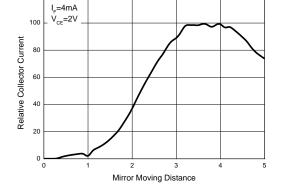
Relative Collector Current V.S X-Moving Distance







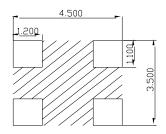




Relative Collector Current VS. Mirror Moving Distance

Relative Collector Current V.S z-Moving Distance

Recommended pattern



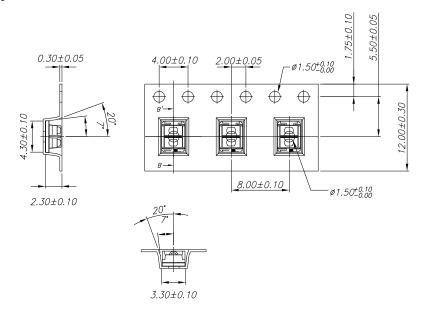
area : Please do not apply the pattern wiring to avoid the possibility of short circuit.

Regarding amount of solder, if there is solder leakage in terminal wiring pattern between PCB and housing main body, the reliability will be deteriorated.

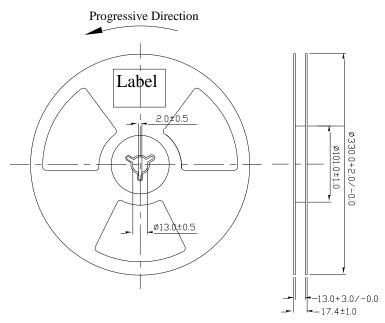
Please check the proper amount of solder in advance not to have solder leakage into terminal wiring pattern between PCB and housing main body.

Package specification

• Tape and Reel package



Reel Dimensions

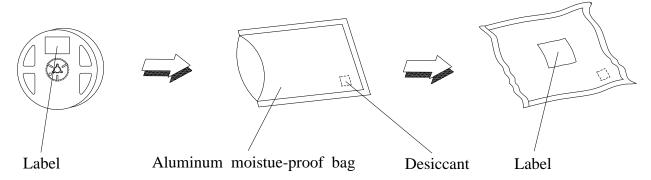


Note: The tolerances unless mentioned is ± 1.0 mm ,Unit = mm

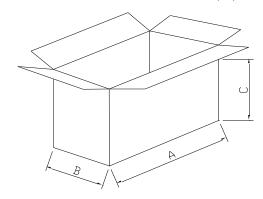
Packing Quantity Specification

- 800pcs / 1 Reel
- 38 Reels / 1 Carton

Packing Procedure



Outer Carton Dimension: 409mm(A)*245mm(B)*360mm(C)





Recommended Method of Storage

The following are general recommendations for moisture sensitive level (MSL) 3 storage and use :

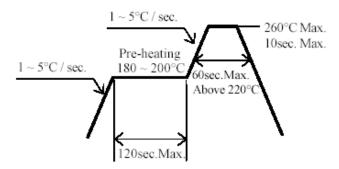
1. Storage

- 1.1 Do not open moisture proof bag before the products are ready to use.
- 1.2 Before opening the package, the device should be kept at 30°C or less and 90%RH or less.
- 1.3 The device should be used within a year.
- 1.4 After opening the package, the device should be kept at 30° C or less and 70%RH or less.
- 1.5 The device should be used within 168 hours (7 days) after opening the package.
- 1.6 If the moisture absorbent material (silica gel) has faded away or the device have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

2. Soldering Condition

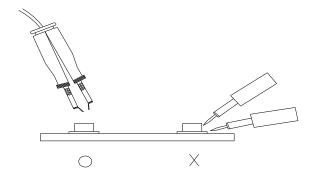
a) Pb-free solder temperature profile



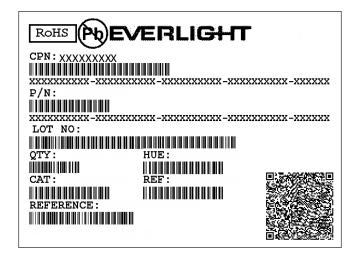
- b) Reflow soldering should not be done more than two times.
- c) When soldering, do not put stress on the LEDs during heating.
- d) After soldering, do not warp the circuit board.

Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



Label Form Specification



CPN: Customer's Production Number

P/N : Production Number QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

Notes

- 1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from 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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