OPTO INTERRUPTER

LA502

Features

Fast response time

High sensitivity

Cut-Off visible wavelength

Thin

Compact

Detection Distance Optimum 3-12mm

This product itself will remain within RoHS compliant version.

Compliance with EU REACH

Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)

Application

Camera

VCR

Floppy disk driver

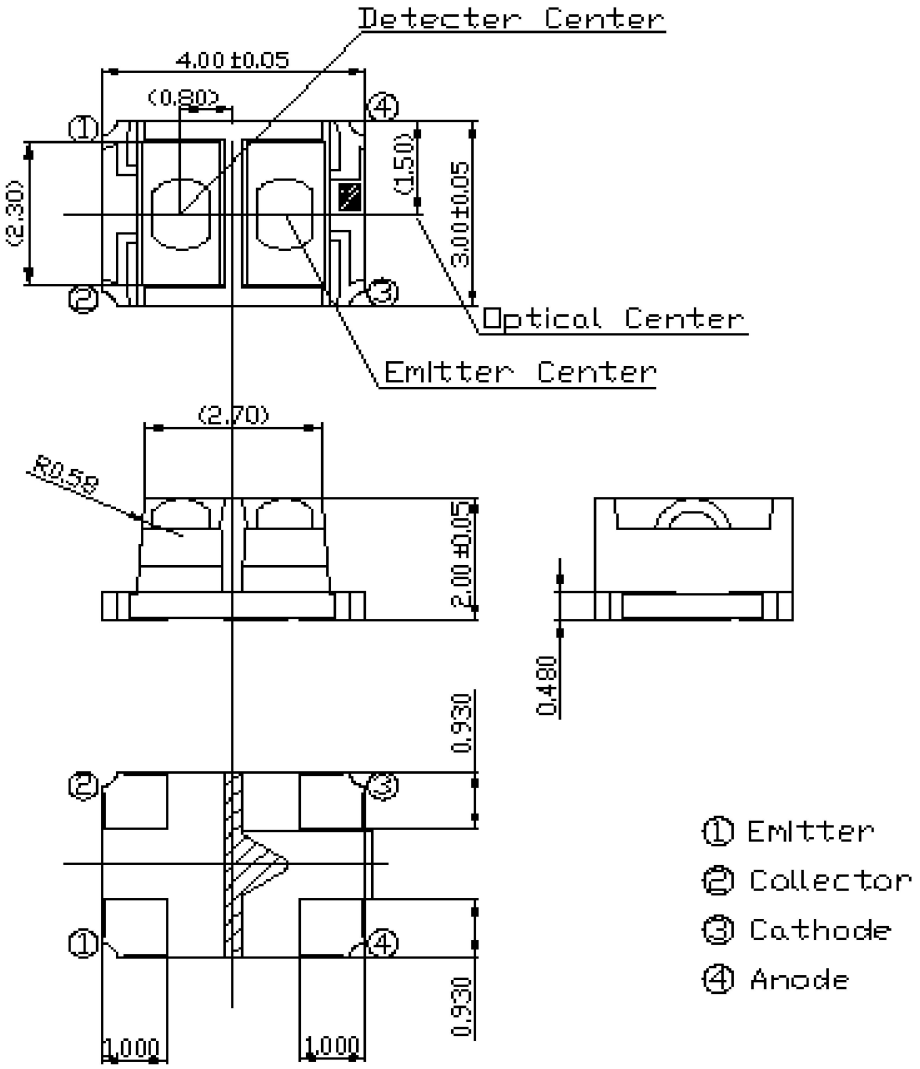
Cassette type recorder

Various microcomputer control equipment

Description

LA502 is a light reflection switch which includes a GaAs IR-LED transmitter and a NPN photo-transistor with a high sensitive receiver for short distance, operating in the infrared range. Both components are mounted side- by- side in a plastic package.

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm(.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

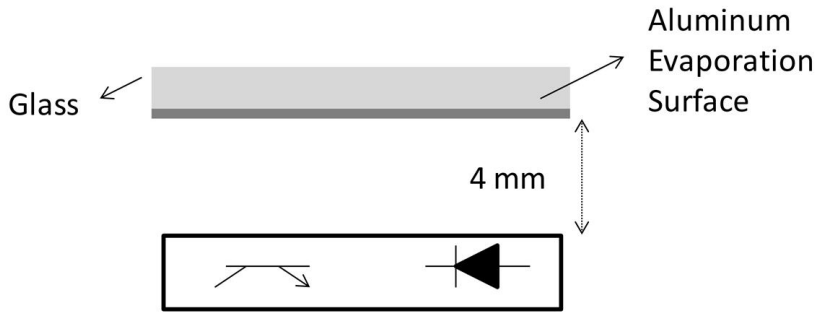
ABSOLUTE MAXIMUM RATINGS AT TA =25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	–	1.2	1.4	V	I_F=20mA
	Reverse Current	I_R	–	–	10	μA	V_R=6V
	Peak Wavelength	λ_P	–	940	–	nm	I_F=10mA
Output	Dark Current	I_{CEO}	–	1	100	nA	V_{CE}=20V
Transfer Characteristics	Collect Current	I_C(ON)	60	–	450	μA	V_{CE}=2V I_F=4mA d=4mm
		I_C(OFF)	–	–	600	nA	V_{CE}=2V I_F=4mA
	Response time	tr	–	20	100	μs	V_{CE}=2V, I_C=100μA, RL=1kΩ, d=4mm
		tf	–	20	100	μs	

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25℃

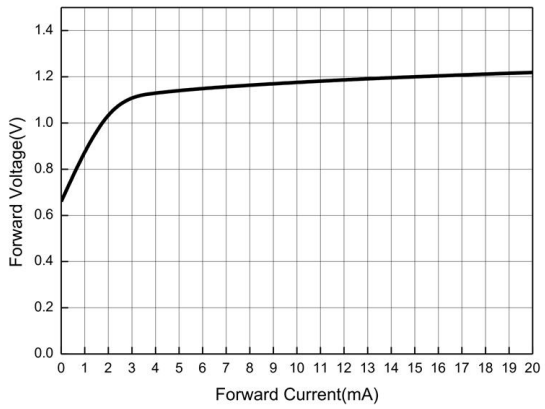
Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25 ℃ Free Air Temperature	Pd	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current (*1) Pulse width ≦100μs, Duty cycle=1%	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	25	mA
	Collector-Emitter Voltage	B V_{CEO}	30	V
	Emitter-Collector Voltage	B V_{ECO}	5	V
Operating Temperature		Topr	-25~+85	℃
Storage Temperature		Tstg	-40~+100	℃
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		Tsol	260	℃

Test Condition and Arrangement for Collector Current

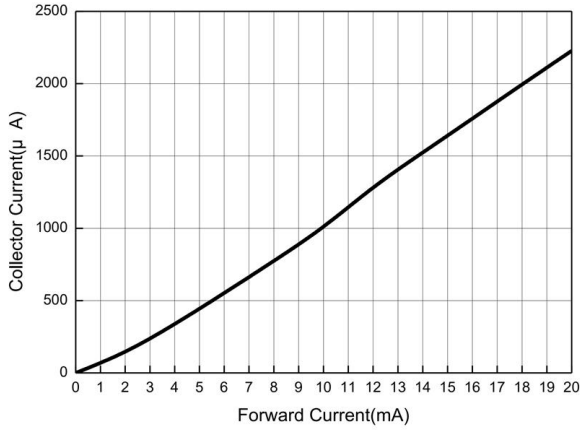


Typical Electro-Optical Characteristics Curves

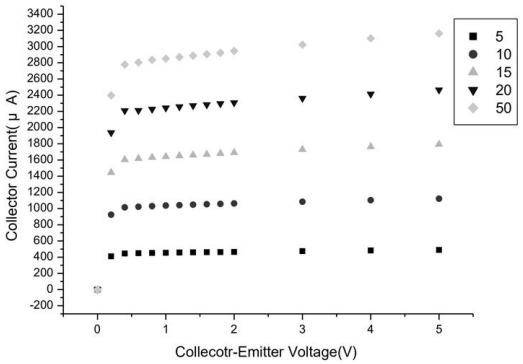
Forward Current VS. Forward Voltage



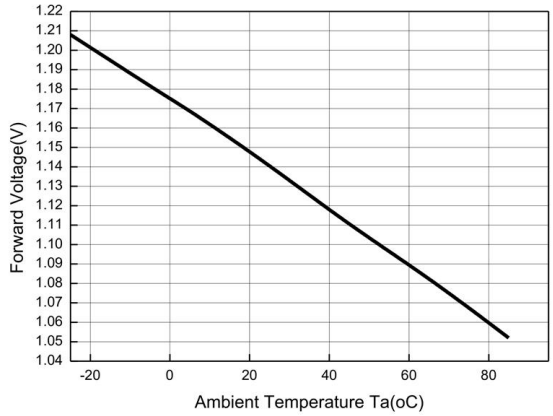
Forward Current V.S Collector Current



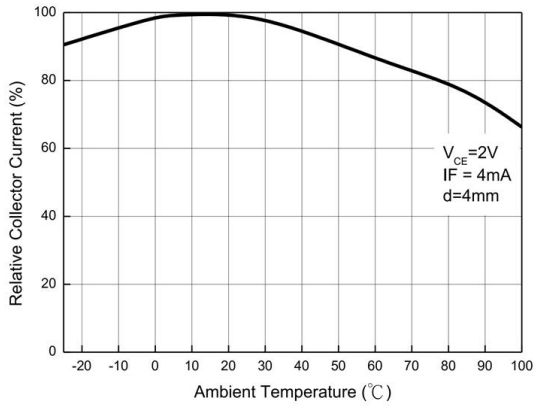
Collector Current V.S Collector-Emitter Voltage



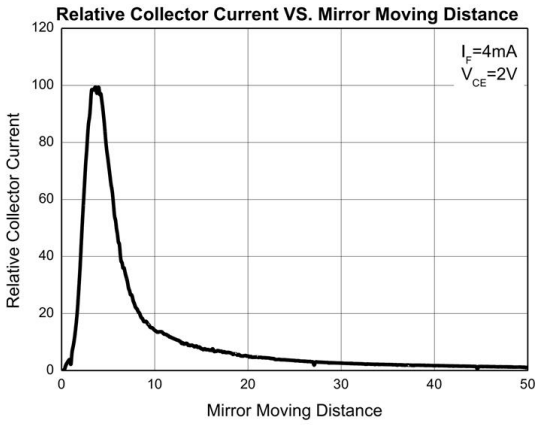
Forward Voltage V.S Ambient Temperature



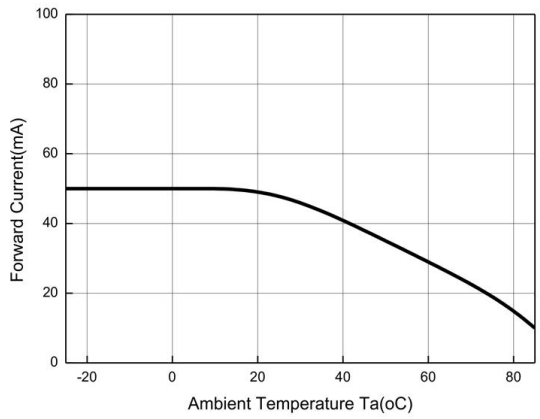
Relative Collector Current V.S Ambient Temperature



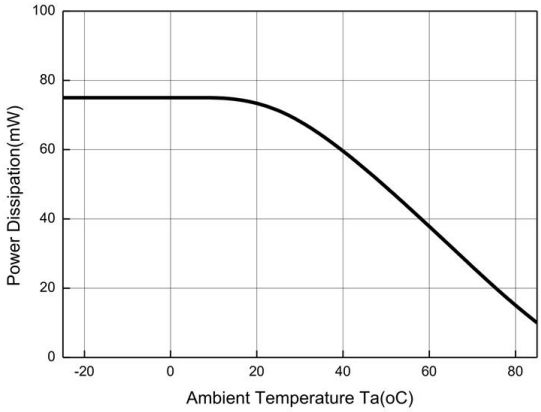
Relative Collector Current V.S Z-Moving Distance
Condition : I_F=4 mA、V_{CE}=2 V



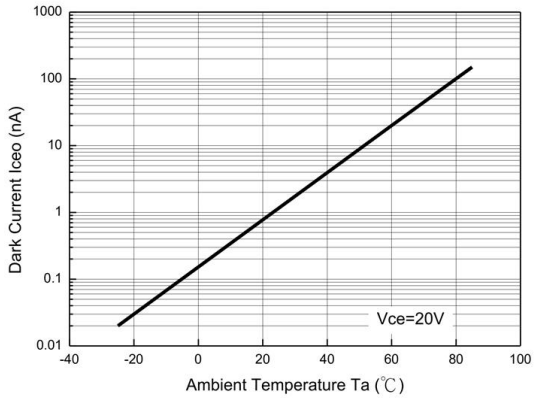
Forward Current V.S Ambient Temperature



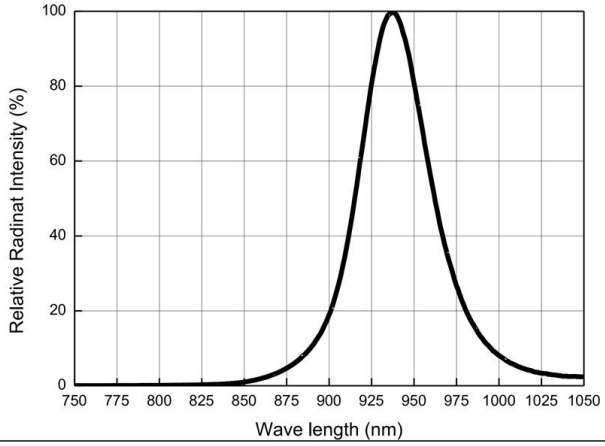
Power Dissipation vs. Ambient Temperature

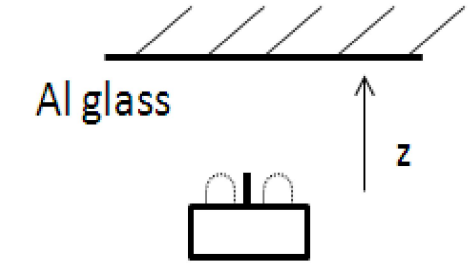


Collector Dark Current vs. Ambient Temperature

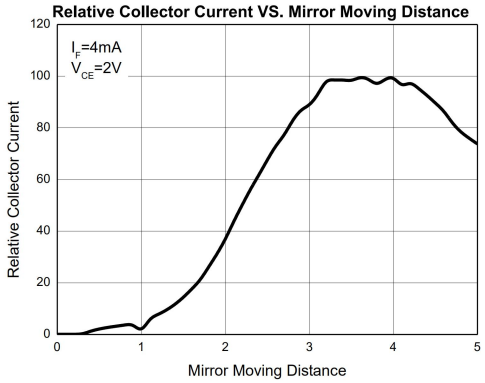


Wave length

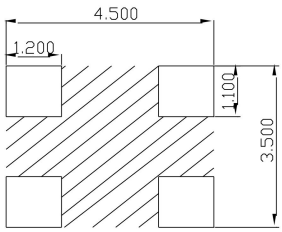




Relative Collector Current V.S z-Moving Distance



Recommended pattern



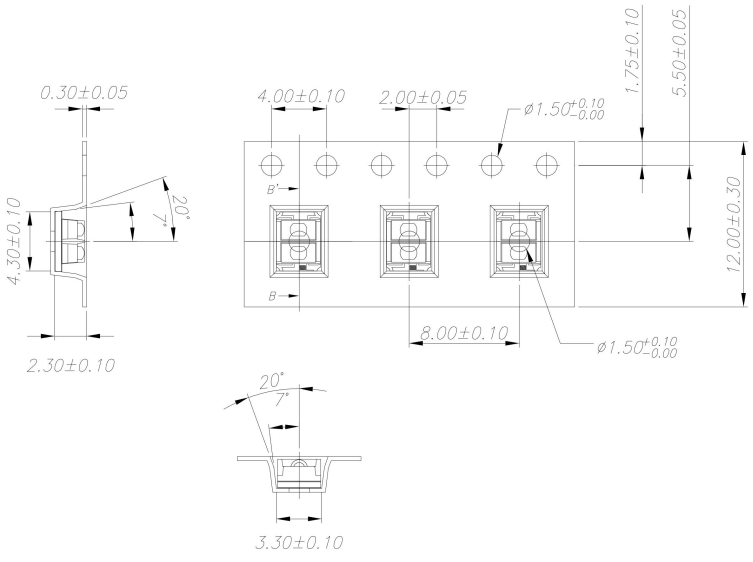
area : Please do not apply the pattern wiring to avoid the possibility of short circuit.

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

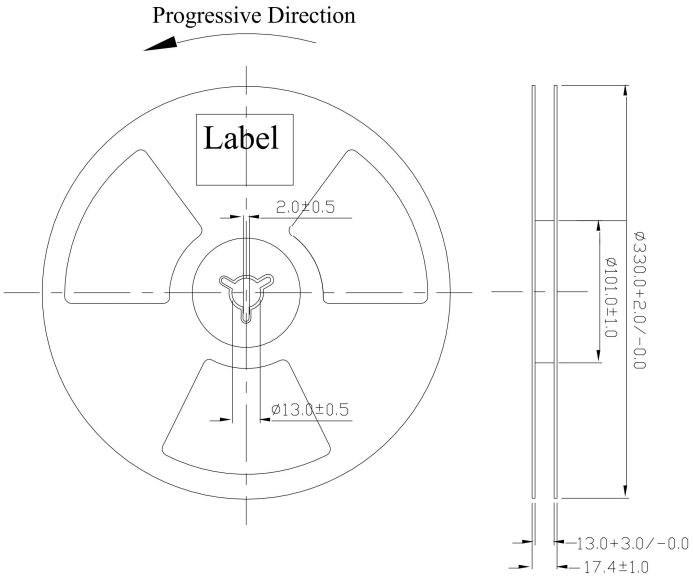
Please check the proper amount of solder in advance not to have solder leakage into terminal wiring pattern between PCB and housing main body.

Package specification

● Tape and Reel package



Reel Dimensions

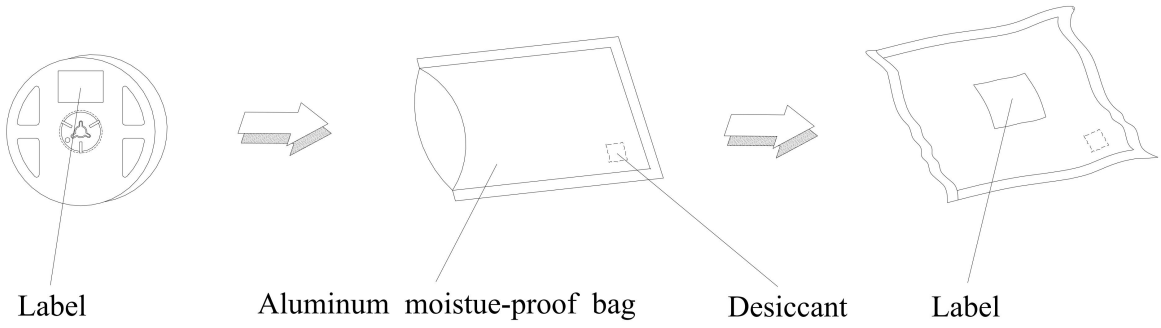


Note: The tolerances unless mentioned is ±1.0mm ,Unit = mm

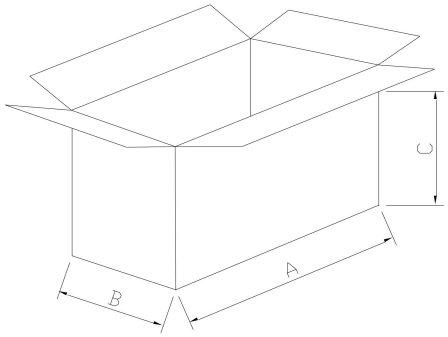
Packing Quantity Specification

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

Packing Procedure



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



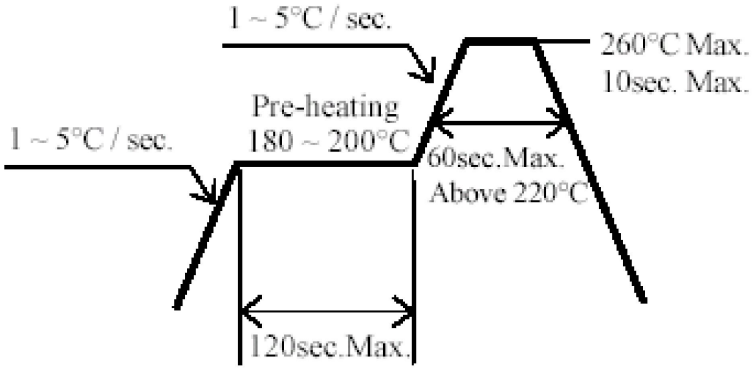
Label Form Specification

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

Notes

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.

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