

< Specifications (Precautions and Prohibitions) >

Reference

● **Precaution for circuit design**

- 1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, telecommunication equipment, home appliances, amusement equipment, etc.).
If the products are to be used in devices requiring extremely high reliability (medical equipment, transport equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or operational error may endanger human life and sufficient fail-safe measures, please consult with the ROHM sales staff in advance. If product malfunctions may result in serious damage, including that to human life, sufficient fail-safe measures must be taken, including the following:
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits in the case of single-circuit failure

- 2) The products are designed for use in a standard environment and not in any special environments. Application of the products in a special environment can deteriorate product performance. Accordingly, verification and confirmation of product performance, prior to use, is recommended if used under the following conditions:
 - [a] Use in various types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
 - [c] Use in places where the products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use in places where the products are exposed to static electricity or electromagnetic waves
 - [e] Use in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Use involving sealing or coating the products with resin or other coating materials
 - [g] Use of the products in places subject to dew condensation

- 3) The products are not radiation resistant.

- 4) Verification and confirmation of performance characteristics of products, after on-board mounting, is advised.




- 5) In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse) is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

- 6) De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.

- 7) Confirm that operation temperature is within the specified range described in product specification.

- 8) Failure induced under deviant condition from what defined in the product specification can not be guaranteed.

- 9) When product safety related problems arises, please immediately inform to ROHM, and consider technical counter measure.

DESIGN 	CHECK 	APPROVAL 	DATE: 2015/01/06	SPECIFICATION No. : SALT0002E
			REV. 002	ROHM Co.,Ltd.

注 意 事 項**● Precaution for Mounting / Circuit board design**

This product are designed for connector mounting, not for solder mounting.

● Precautions Regarding Application Examples and External Circuits

- 1) If change is made to the constant of an external circuit, allow a sufficient margin due to variations of the characteristics of the products and external components, including transient characteristics, as well as static characteristics.
- 2) The application examples, their constants, and other types of information contained herein are applicable only when the products are used in accordance with standard methods. Therefore, if mass production is intended, sufficient consideration to external conditions must be made.

● Precaution for Electrostatic

This product is Electrostatic sensitive product, which may be damaged due to Electrostatic discharge. Please take proper caution during manufacturing and storing so that voltage exceeding Product maximum rating won't be applied to products. Please take special care under dry condition (e.g. Grounding of human body / equipment / isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

● Precaution for Storge / Transportation

- 1) Product performance connections may deteriorate if the products are stored in the following places:
 - [a] Where the products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] Where the temperature or humidity exceeds those recommended by the Company
Temperature: 5°C- 30°C, Humidity 70%RH less
 - [c] Storage in direct sunshine or condensation
 - [d] Storage in high Electrostatic
- 2) Even under ROHM recommended storage condition, solderability of products over 1 year old may be degraded.
It is strongly recommended to confirm solderability before using products of which storage time is exceeding recommended storage time period .
 - Recommended storage condition: Temperature 5°C - 30°C, Humidity 70% RH less
- 3) Store / transport cartons in the correct direction, which is indicated on a carton as a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

注 意 事 項**● Precaution for product label**

QR code printed on ROHM product label is only for internal use, and please do not use at customer site. It might contain a internal part number that is inconsistent with an product part number.

● Precaution for disposition

When disposing products please dispose them properly with a industry waste company.

● Prohibitions Regarding Industrial Property

- 1) These Specifications contain information related to the ROHM industrial property. Any use of them other than pertaining to the usage of appropriate products is not permitted. Duplication of these Specifications and its disclosure to a third party without the Company's permission is prohibited.
- 2) Application circuit example, information and data on products, about application circuit of this product, contained in these specifications are simply for reference; the Company does not guarantee any industrial property rights, intellectual property rights, or any other rights of a third party regarding this application circuit example, information or data. Accordingly, the Company does not bear any responsibility for:
 - [a] infringement of the intellectual property rights of a third party
 - [b] any problems incurred by the use of the products listed herein.
- 3) The Company prohibits the purchaser of its products to exercise or use the intellectual property rights, industrial property rights, or any other rights that either belong to or are controlled by the Company, other than the right to use, sell, or dispose of the products.
- 2) If any matter related to these Specifications needs to be clarified, discussions shall be held promptly between the two parties concerned to determine the issue.

- 1. Part number RPI-2501
- 2. Construction GaAlAs Infrared light emitting diode, silicon planar type phototransistor
- 3. Application All kinds of controller
- 4. Outline dimensions Fig-1

5. Absolute max. ratings(Ta=25°C)

Input (infrared light emitting diode)

Forward current	I_F	· · · · ·	35 mA
Reverse voltage	V_R	· · · · ·	5 V
Power dissipation	P_D	· · · · ·	70 mW

Output (Phototransistor)

Collector-emitter voltage	V_{CEO}	· · · · ·	30 V
Emitter-collector voltage	V_{ECO}	· · · · ·	4.5 V
Collector current	I_C	· · · · ·	30 mA
Collector power dissipation	P_C	· · · · ·	80 mW

Operating temperature	T_{opr}	· · · · ·	-25 ~ +85 °C
Storage temperature	T_{stg}	· · · · ·	-40 ~ +85 °C

6. Electrical optical characteristics(Ta=25°C)

1) Input characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage	V_F	1.2	1.4	1.6	V	$I_F = 10 \text{ mA}$
Reverse current	I_R	—	—	10	μA	$V_R = 5 \text{ V}$
Peak light emitting wavelength	λ_p	—	850	—	nm	$I_F = 10 \text{ mA}$

2) Output characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Dark current	I_{CEO}	—	—	0.4	μA	$V_{CE} = 10\text{V}$
Peak sensitivity wavelength	λ_p	—	800	—	nm	—

3) Transfer characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Current output current	I_C	1	—	10	mA	$V_{CE} = 5 \text{ V}$ $I_F = 10\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	$I_F = 10 \text{ mA}$ $I_C = 0.1\text{mA}$
Response time	Rise time	t_r	—	150	μs	$V_{CC} = 5 \text{ V}$ $I_F = 1 \text{ mA}$ $R_L = 1\text{k}\Omega$
	Fall time	t_f	—	150	μs	

7. Weight About 0.9 g/piece

8. Recommended circuit

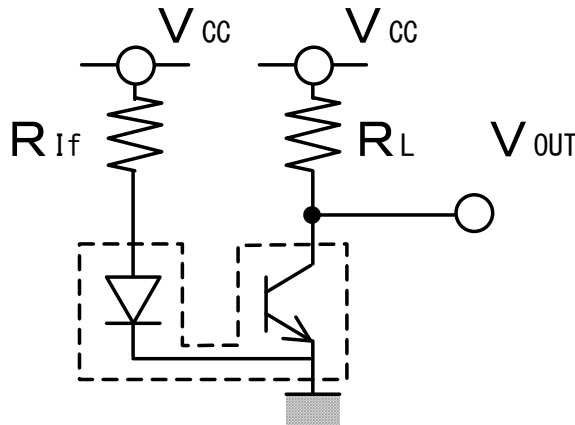


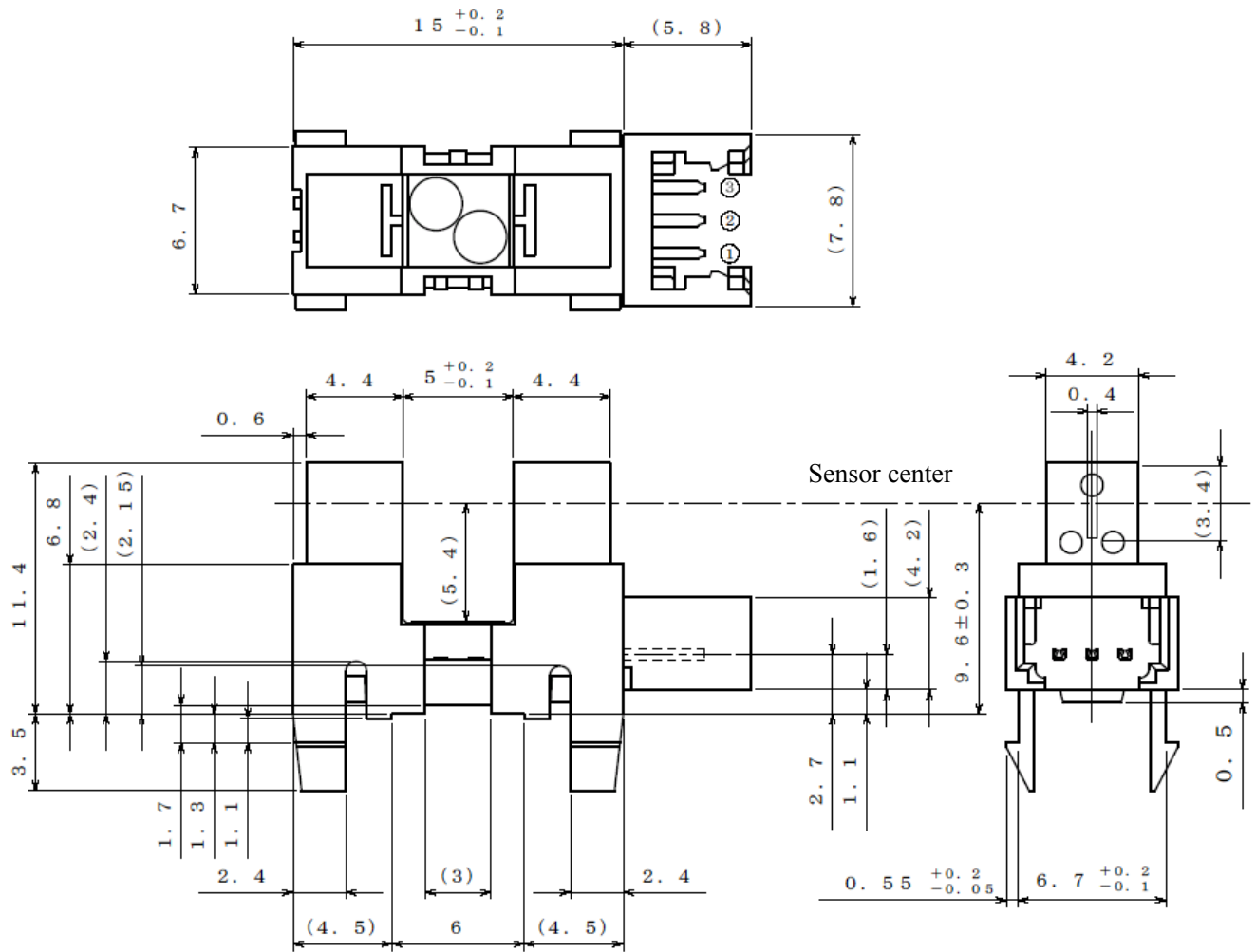
Fig-1 Outline dimension

Unit: mm

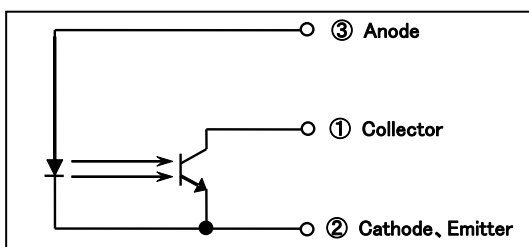
Tolerances are listed below unless otherwise specified

Dimensions	Tolerance
6mm or less	±0.1
Greater than 6mm	±0.2

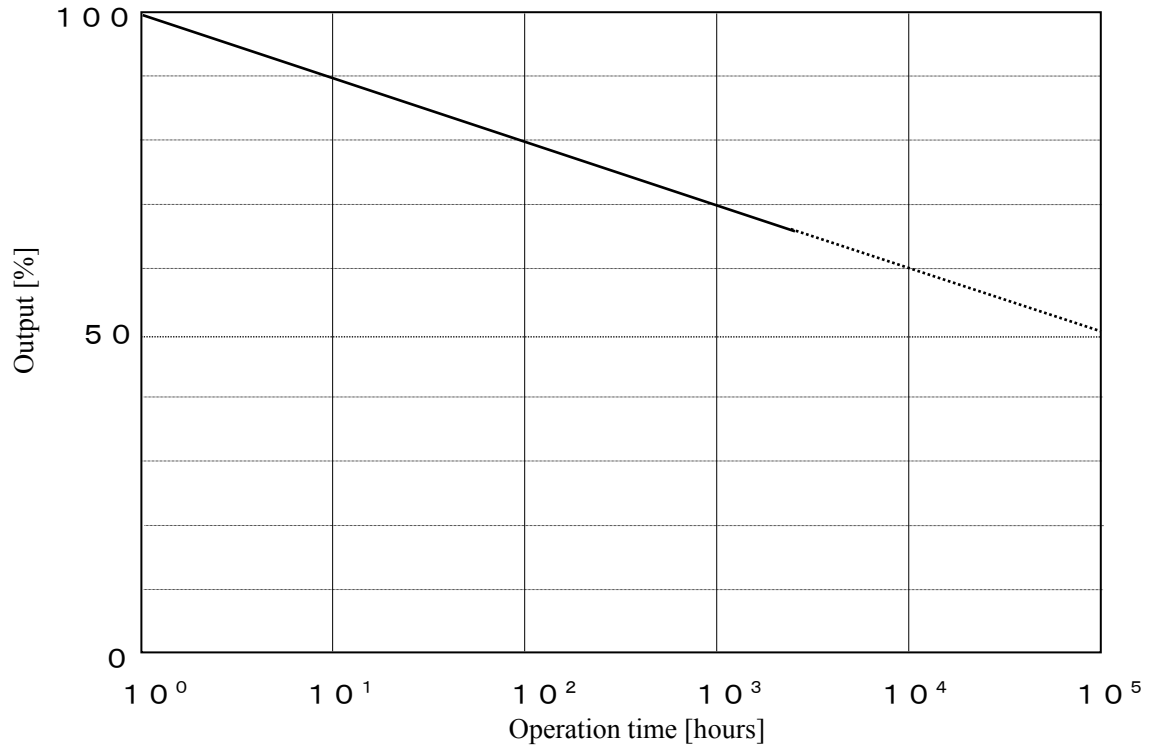
() reference value



Pin connection diagram

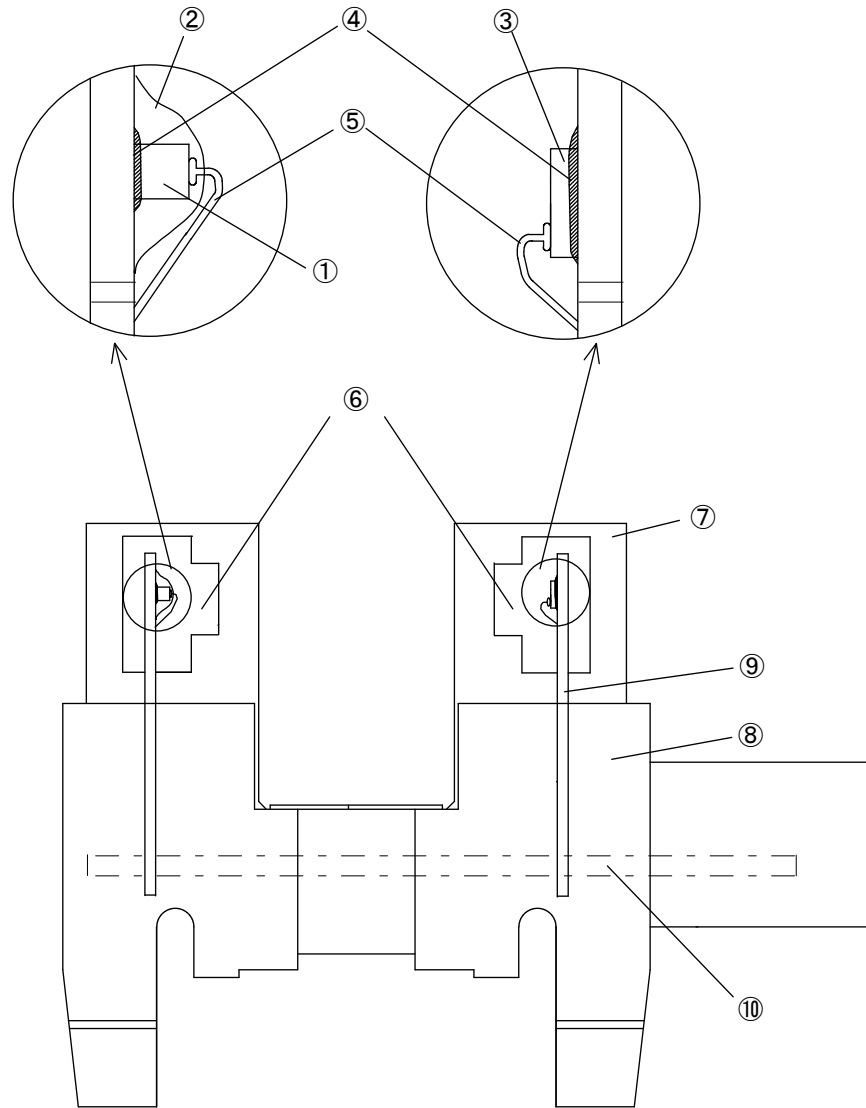


Part number	RPI-2501
Data	Operation life
Condition	$I_F = 20 \text{ mA}$
	$V_{CE} = 5 \text{ V}$
	$T_a = 25 \text{ }^\circ\text{C}$



Note: This curve is maximum degradation. In circuit designing, make allowance for the degradation of the light emitting diode output.

Structure fig.



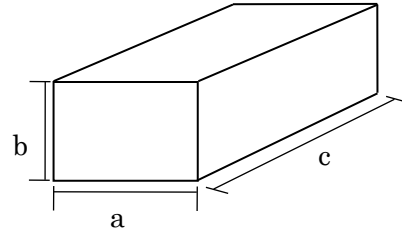
No.	Name	Material
1	Infrared light emitting diode	GaAlAs
2	Silicone	Silicone
3	Phototransistor	Si
4	Conductive epoxy resin	Ag+Epoxy resin
5	Bonding wire	Au
6	Mold resin	Epoxy resin
7	Mold resin	PPS(V-O)
8	Case resin	PC(V-O)
9	Lead	Material : Fe Plating : Sn-Ag-Cu
10	Lead	Material : Cu Plating : Sn

Packaging requirements

1. Packaging

- (1) A poly-bag pack of 50pcs.
- (2) A paper box pack of 5poly-bags.

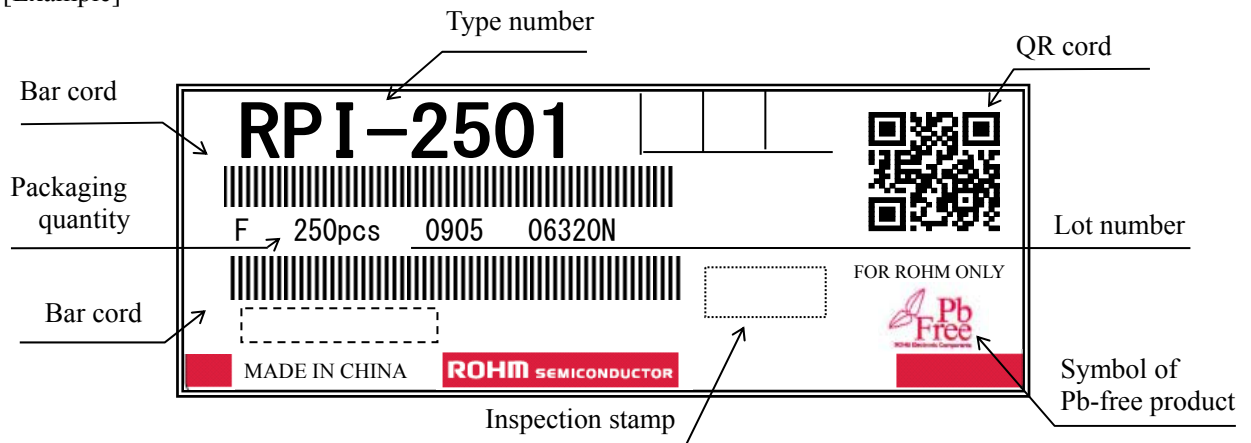
Paper box size;(a)×(b)×(c)=100×70×170(mm)



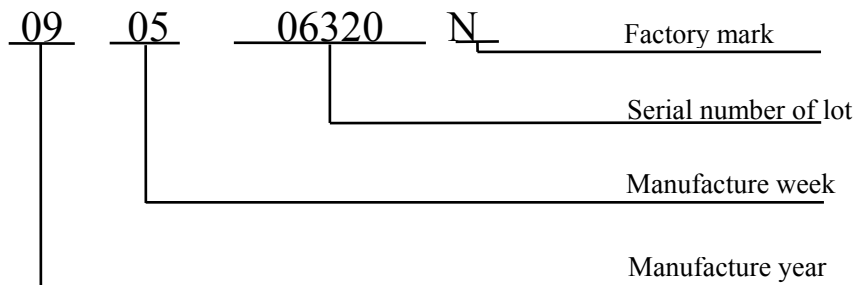
2. Label indication

The following information shall be described on a boxlabel; ROHM type number, packaging quantity,lot number,inspevntion stamp.

[Example]



[Example of lot number marking]



3. Factory

ROHM SEMICONDUCTOR (CHINA) CO.,LTD.

Attention points in handling

Please take utmost care for following conditions.

1. Recommended Connector

For further details of connector characteristics, please contact the relevant connector manufacture.

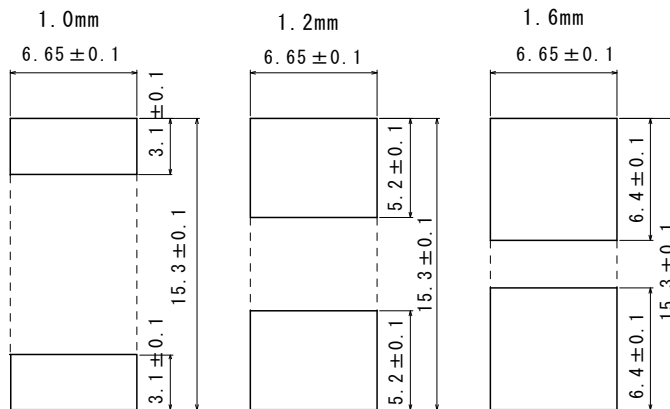
Mini CT connector (1.5-mm pitch, receptacle assembly/housing crimp type) made by Tyco Electronics AMP, Ltd.

	Type	Model Number	Terminal Material	AWG Size	External Diameter of Insulation Coating
Housing-terminal En Block Type	Receptacle assembly	353293-3	Phosphor bronze	AWG 26to28	0.85mm to 0.95mm
	Housing crimp type	353908-3			

2. Mounting plate thicknesses 1.0mm, 1.2mm, 1.6mm

3. Recommended size of connection holes (Unit:mm)

Thickness of sheet metal

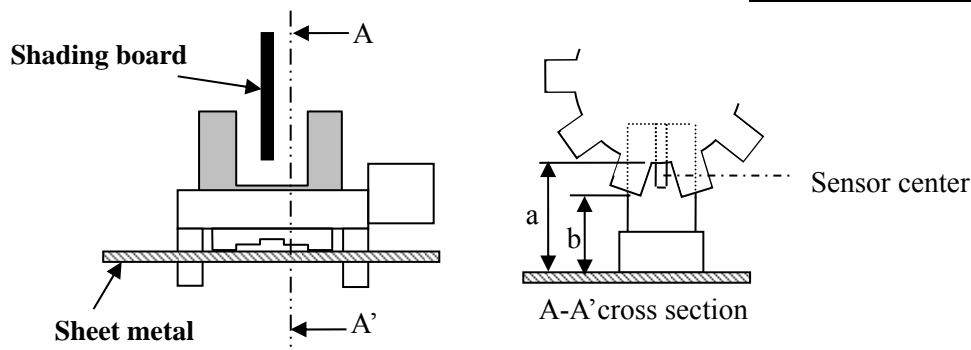


4. Position of shading board and device

Please defend the position of the shading board and the device when you use it.

Unit : mm

Thickness of sheet metal	a size	b size
1.0	11.7min	8.9max
1.2	11.5min	8.7max
1.6	11.1min	8.3max



5. Avoid mechanical stress on connectors

Please take care and avoid the excessive mechanical stress on connectors, if not the connection of terminals may lose.