

Operation notes

(1) Absolute maximum ratings

If an excessively large current flows in a laser diode, a large optical output will occur and the emitting facet may sustain damage.

This optical damage can occur even with momentary over-current. For this reason, absolute maximum ratings which must not be exceeded even momentarily have been established. Exercise particular caution with respect to the drive voltage supply and static electricity. We guarantee use within the absolute maximum ratings. These ratings are established for a case temperature of 25°C.

As the temperature of a laser diode increases, its maximum output will decrease and the operating range will shrink.

Even when operated within the absolute maximum ratings, operation high temperature will result in a shorter than operation at low temperature. For this reason, the design should include sufficient margin for heat radiation and light output.

(2) Heat radiation conditions

Like other semiconductors, prolonged operation of a laser diode will cause heat to build up at junctions and increased case temperature. For this reason, attach aluminum (or other) heat sinks (at least 30×30×3mm) to the stem of the laser.

(3) Protection against damage due to electrostatic discharge and other current surges

Electrostatic discharge and other current surges can cause deterioration and damage in laser diodes, resulting in reduced reliability (Fig.25). We advise taking the following protective measures :

- 1) Ground the device and circuits. Install surge filters, surge reduction transformers, or other electrostatic discharge protectors in the power supply inputs.
- 2) When working with laser diodes wear anti-static clothing, including footwear and caps. Fig.26 shows how footwear and flooring mutually affect static buildup, thus materials should be selected carefully. Grounded wrist straps should always be worn while working with laser diodes, and the strap should be grounded through a 1MΩ resistance.

3) Use anti-static containers for transport and storage.

4) Laser deterioration and damage can occur due to excessive current spikes when the power is turned on or off. Design circuits to avoid the generation of excessive current spikes.

5) Inductive surges near equipment that emits high-frequency EMI can damage or destroy lasers. Avoid using lasers near fluorescent lamps or other sources of EMI emissions.

(4) Soldering

Use a grounded soldering iron to solder laser leads. Solder at a temperature of no more than 250°C for a maximum of 3seconds, at a point at least 2mm from the base of the leads (1mm for the RLD-78MATAS).

(5) In the use of the glue

There is the possibility that the volatilization component of the glue exerts the influence on the characteristic of LD. Please use it after it confirms sufficiently.

(6) Handling laser diodes

Never touch the glass parts of the laser. A damaged or dirtied glass parts will impair the performance of the laser.

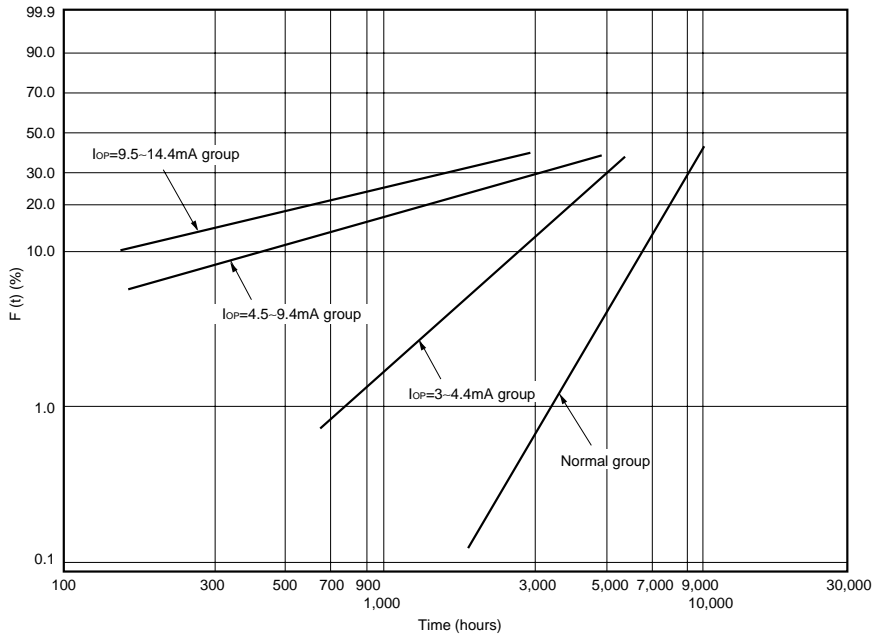
(7) Handling packages

Packages must not be dropped or subjected to excessive pressure.

(8) Safety

It is extremely dangerous to look, either directly or through a lens, at the laser beam emitted from a laser diodes. Use a TV camera or other similar device to adjust the optical axis.

Laser diodes



Description of testing
200V was applied to groups of the following test circuits to increase IOP (60°C and 5 mW).

Test circuits
Model ESS-603, manufactured by Noise Laboratory.

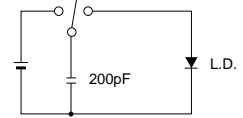


Fig.25 Effect of electrostatic discharge on laser life (test)

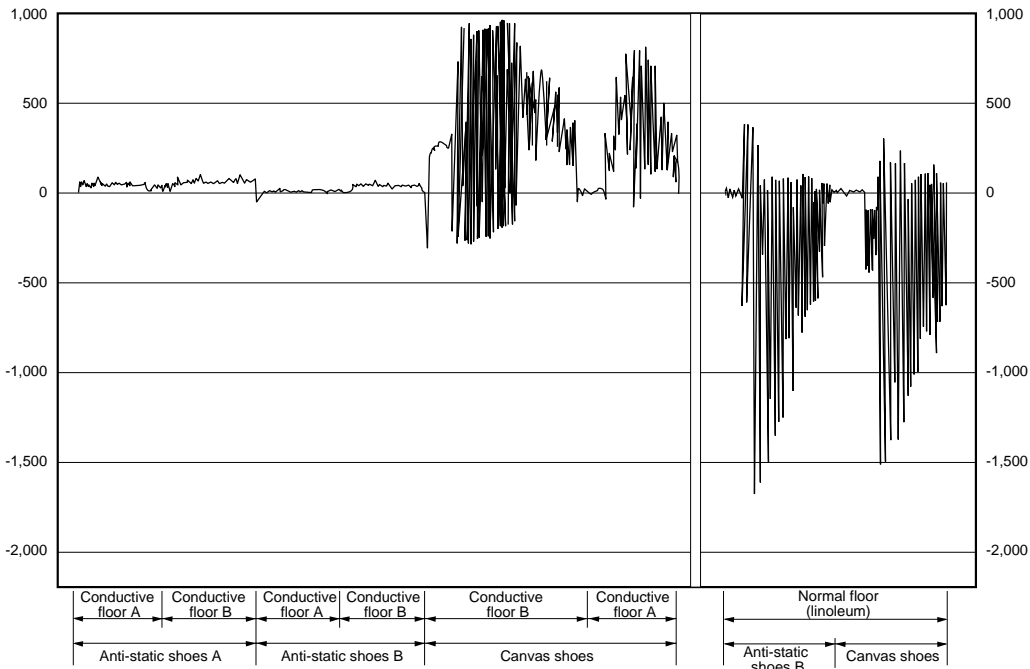


Fig.26 Electrostatic buildup on human body

Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.