

● 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.

● 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.

● 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.

● Soldering

Use a grounded soldering iron to solder laser leads. Solder at a temperature of no more than 350°C for a maximum of 3seconds, at a point at least 2mm from the base of the leads.

● 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

● Handling laser diodes

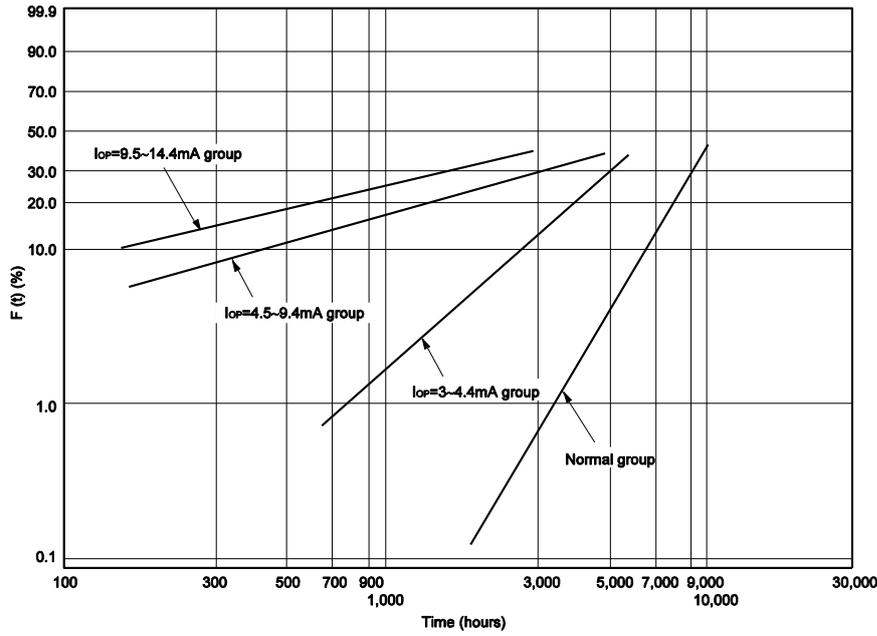
Never touch the glass parts of the laser, the laser diode chip or wire.

● Handling packages

Packages must not be dropped or subjected to excessive pressure.

● Handling packages

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..



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.

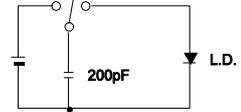


Fig.25 Effect of electrostatic discharge on laser life (test)

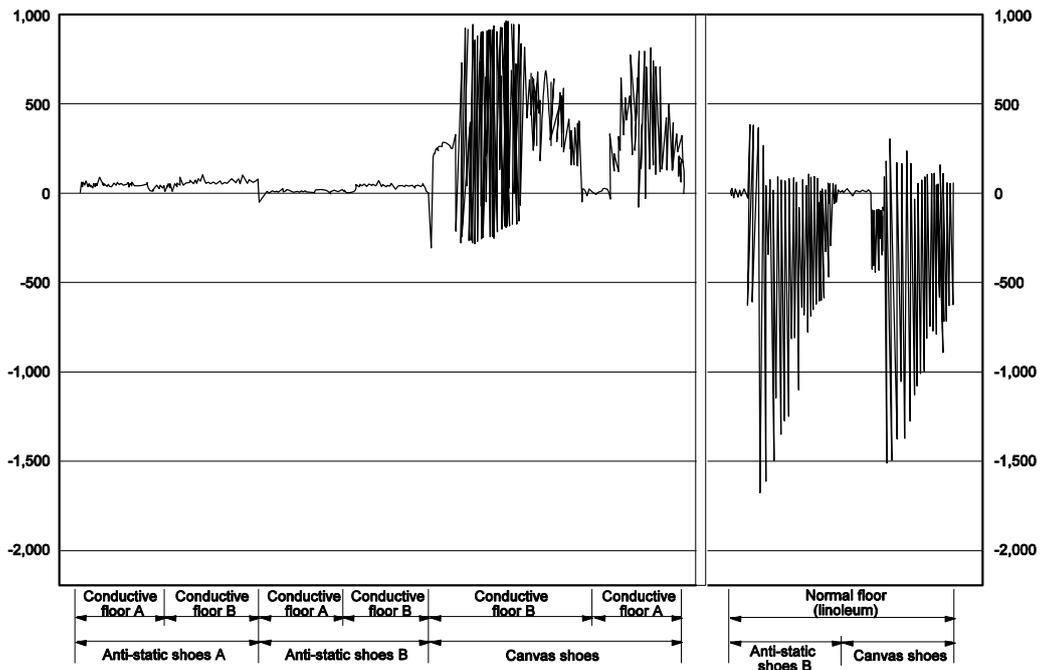


Fig.26 Electrostatic buildup on human body

Notes

- 1) The information contained herein is subject to change without notice.
- 2) Before you use our Products, please contact our sales representative and verify the latest specifications :
- 3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by ROHM.
- 4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.
- 5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.
- 6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.
- 7) The Products specified in this document are not designed to be radiation tolerant.
- 8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.
- 9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.
- 10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.
- 11) ROHM has used reasonable care to ensure the accuracy of the information contained in this document. However, ROHM does not warrant that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.
- 12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting from non-compliance with any applicable laws or regulations.
- 13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.
- 14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.



Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

<http://www.rohm.com/contact/>