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APPLICATION NOTES

Handling, Mounting and Operating 14-pin Butterfly Module

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ESD Damage Prevention

Take the following precautions to prevent the module against ESD which is the primary cause of unexpected laser diode failure:

- The user must be connected to the ground and use anti-static gloves.
- Use ESD wrist straps when in direct contact.
- Work surfaces should be grounded

Module Unpacking

We recommend the following when taking the module from its box:

- Handle the module by its package only.
- Never hold the laser neither by the leads (Will damage the pins in the process)
- Do not attempt to bend the fiber at the snout.
- Do not put pressure on the fiber pigtail as it will damage the fiber.

Module assembly on PCB or test bed

For reliable and stable operation of the module, we recommend the below procedures.

- Limit mechanical force on the package ferrule.
- Do not put any shock on the package ferrule (snout).
- Clean package surfaces to prevent any spurious particles or dust.
- Do not compress module excessively
- Do not coil the fiber pigtail up with permanent strength or twist.
- Avoid any micro-bends or local compression on the polarization maintaining fiber.
- When soldering the package leads to the PCB board, do not use a soldering temperature higher than 350 °C with maximum soldering time of 5 s.
- For glass 14 pin butterfly packages can do not bend lids more than **30 degrees** as shown in picture below.

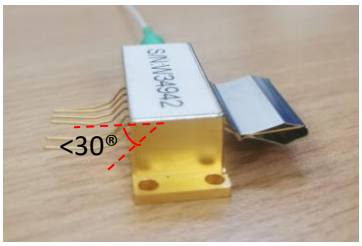

Figure 1. Glass Ceramic Package

Module operation on PCB board

Specifically, all the following restrictions must be respected to avoid any damage to the device:

- Avoid any electrical power supply transient and voltage overload.
- Refer to absolute maximum ratings given in the absolute maximum rating table in the specification document.
- Never connect the device to already polarized leads.
- No repeated switching ON and OFF of the device on a timescale that allows thermal stabilization of some or all parts of the module (> 1 µs).

Power Supply and TEC Controller

Our recommendations for preventing EOL of module are:

- Confirm module is connected based on the specified electrical pin-out.
- Please refer to the Absolute Maximum Ratings specified within the module specifications.
- Use over voltage protection for power supplies and fuses.
- Ensure that all operational and assembly equipment is properly grounded with no loose connections, which can lead to intermittent connections.
- Ensure that the TEC controller is enabled and that the module is properly cooled prior to turning on the laser diode controller
- Ensure that the TEC power supply is turned off prior to mounting or un-mounting the module.
- Operate the TEC in constant temperature mode with temperature feedback from the LD chip thermistor
- Limit the TEC controller power supply to the absolute maximum TEC current rating.
- Do not operate the TEC at its rated maximum current except as transient applied current during module start-up.
- Wait until the internal temperature has stabilized to the specified chip temperature depending from module type (refer to above Power Supply & TEC controller section) after turning the LD on before making any TEC control changes.
- Need to make sure that the LD chip temperature is maintain at the specified chip temperature depending from module type.