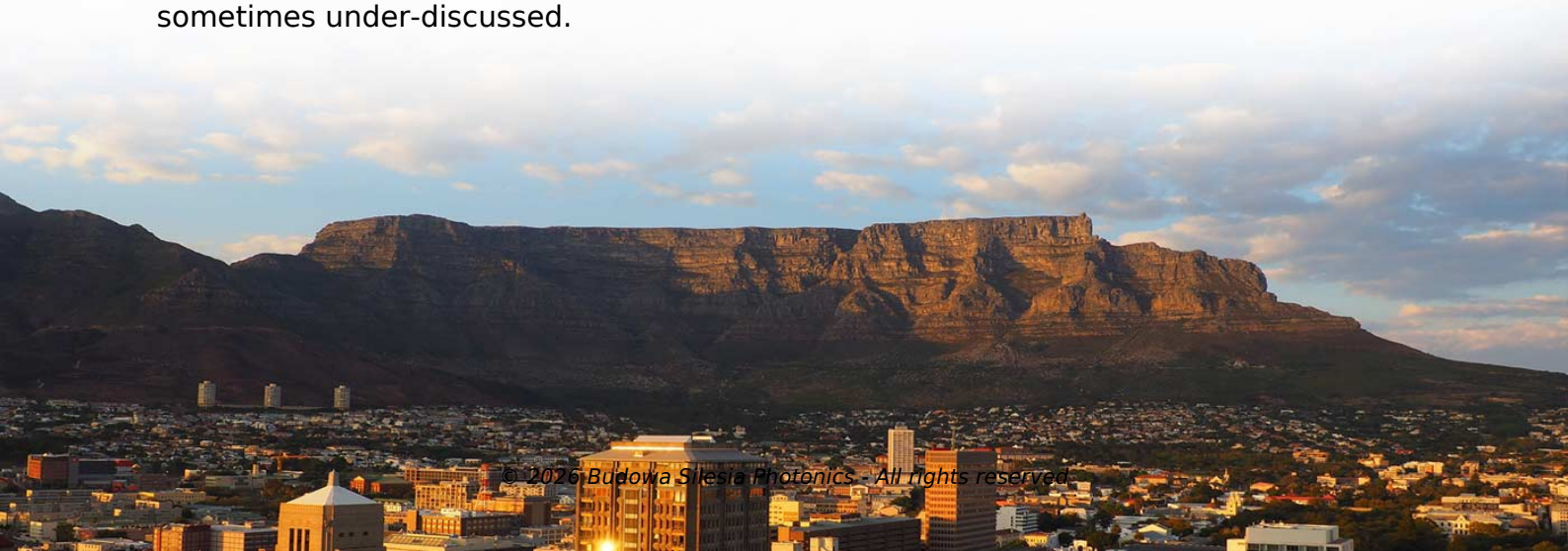
Budowa Silesia Photonics

Optical module VC heat dissipation

Overview

For high-power optical modules that require faster heat dissipation due to higher transmission speeds, additional heat dissipation design solutions such as VC thermal plates or heat pipes can be applied to the housing. An efective heat dissipation of uncooled 400-Gbps (16×25-Gbps) form-factor pluggable (CDFP) optical transceiver module employing chip-on-board multimode 25-Gbps vertical-surface-emitting-laser (VCSEL) and 25-Gbps photodiode (PD) arrays mounted on a brass metal core embedded within a printed circuit. An effective heat dissipation of uncooled 400-Gbps (16×25-Gbps) form-factor pluggable (CDFP) optical transceiver module employing chip-on-board multimode 25-Gbps vertical-surface-emitting-laser (VCSEL) and 25-Gbps photodiode (PD) arrays mounted on a brass metal core embedded within a printed. As pluggable modules scale to 400G and beyond, thermal management becomes a primary reliability constraint. This article explains contemporary thermal strategies for OSFP modules — from fin geometry tuning to detachable heatsink covers — and maps measured performance to practical deployment steps. These modules are essential for converting electrical signals into light signals and vice versa, forming the backbone of fiber optic communication systems in data centers. In a world of optical access networks, where data speeds soar and connectivity reigns supreme, the thermal management of optical transceivers is a crucial factor that is sometimes under-discussed.



Article Content

Efficient Heat Dissipation of Uncooled 400-Gbps (16×25-Gbps) ...

In conven-tional optical transceiver modules, the thermal managements have been comprehensively investigated for opti-mizing the cooling and thermal dissipation of opto-electronic...

Optical module heat dissipation device

Embodiments of the present disclosure provide an optical module heat dissipation device.

Efficient Heat Dissipation of Uncooled 400-Gbps (16×25-Gbps) Optical ...

A new scheme of thermoelectrically separated PCB to fill up a brass block with superior heat dissipation ability to maintain the temperature stability of an uncooled 400-Gbps (16×25-Gbps) CDFP optical ...

Optical Module Housings Guide

High-speed optical modules generate significant heat. Without effective dissipation, this heat can degrade performance and slash the lifespan of components. Studies show that for every ...

The importance of good heat dissipation design in optical ...

Managing heat dissipation is critical to the successful functionality of optical transceivers. Effective heat management influences transceiver design, tackling issues caused by internal ...

Integrated thermal dissipation micro structures for CDFP optical module

Concentrating on the thermal design of CDFP optical module, we propose two integrated thermal dissipation micro structures (ITDMS). The first is graphene thermal pad (GTP)-based one, ...

Hot Topics, Cool Solutions: Thermal Management in Optical ...

As the demand for higher speeds grows, the heat generated by optical devices poses increasing challenges. Without proper thermal management, this excessive heat can lead to performance ...

Optical module heat dissipation design: key technology to ensure ...

With the continuous development of optical communications and optoelectronic equipment, the power density and integration level of optical modules continue to increase, so heat ...

Effect of Thermal Management on the Performance of VCSELs

The inputting electrical power when provided to the VCSELs was converted into optical power and heat dissipation, with both the components competing against each other.

SEANTEC provides heat dissipation and electromagnetic shielding ...

For high-power optical modules that require faster heat dissipation due to higher transmission speeds, additional heat dissipation design solutions such as VC thermal plates or heat pipes can be applied ...

OSFP Optical Module Thermal Design: Structure, Heat Dissipation ...

Explore how OSFP optical modules are thermally designed for optimal cooling and reliability. Learn about airflow impedance, gradient fins, heatsinks, and cooling solutions for 400G+ ...

Contact Us

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