ZTP Thermal & Power

Standard Heatsinks in Optical Modules

Overview

To address rising module power—often exceeding 30W—the OSFP MSA defines two thermal designs: Integrated Heat Sink (IHS) and Riding Heat Sink (RHS). This article will explain the differences between the two designs to help users choose the appropriate product. Airflow / wind-pressure safe zone for OSFP heat sinks — shows upper & lower impedance curves. Thermal Structure Overview The thermal structure of an high-speed OSFP module is not defined by heat. Case Study: A team undertaking its first 400G OSFP deployment ordered the necessary switches, optical modules, and cables. Octal Small Formfactor Pluggable (OSFP) is a module and interconnect system with a pluggable form factor with eight high speed electrical lanes.

Standard Heatsinks in Optical Modules

Thermal optimizations for OSFP optical transceiver modules

Further, as the OSFP Module specifications define specific mechanical form factors and electric parameters for compliance with the standard, the above problems cannot be addressed by

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Thermal specifications for pluggable optics modules

Thermal aspects of pluggable optics modules operation are currently covered by manufacturer MSA agreements and by an OIF implementation agreement. This paper discusses the background that led

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A Comprehensive Guide of the Thermal Design in OSFP Modules

For ultra-high-power modules or densely packed systems, drop-down heatsinks and two-phase or liquid-cooling solutions are used to maintain thermal stability when air cooling alone is

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US6948861B2

1. Field of the Invention This invention generally relates to an optical module for transmitting and receiving optical signals in a fiber-optic communications system, and more particularly to a heat sink

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Technical Discussion: Designing Heat Sinks for Cooling

ATS heat sinks designed specifically for cooling QSFP optical transceivers. (Advanced

Thermal Solutions, Inc.) JP: Was the difference in fin

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The Three Structural Types of OSFP Modules

Airflow is directed along the module length, and its smooth trailing edge design prevents mechanical interference with riding heatsinks. This configuration is

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Active Cooling of Optical Transceivers

Optical Transceivers An optical transceiver is a small form factor (SFP) pluggable transceiver, see image below. The transceiver contains a laser diode that converts data into light signals and vice versa,

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OSFP IHS vs OSFP RHS: Thermal Design and Key

This article introduces two thermal designs for OSFP IHS and OSFP RHS optical modules, explaining their main differences in structure, heat

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Form Factors , Juniper Networks

OSFP transceiver module with riding heat sink (OSFP-RHS)--The OSFP-RHS is a 9.5 mm tall pluggable module that is used in place of the standard integrated heat sink. OSFP and OSFP-RHS

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DESIGN GUIDE HEAT SINKS FOR HIGH-POWER APPLICATIONS

Forced Convection Forced convection is aided by fans, pumps, or other external sources of airflow. Forced convection is often necessary when working with higher heat applications, or with enclosures

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Optical Transceivers Introduction

The flat-top version and the heatsink-top version have the same internal structure,but the heatsink-top version is taller due to the inclusion of a

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The Thermal Structure Design of OSFP Optical Modules

This article analyzes the thermal design of OSFP modules, compares three cooling solutions, explains key technologies for managing high power consumption and

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Heat Sinks Selection Guide: Types, Features,

Heat sinks are thermally conductive components or devices that absorb and dissipate heat generated by electronic components. Heat sinks cool high

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Heat Sink for Optical Modules Market Research Report 2033

According to our latest research, the global heat sink for optical modules market size reached USD 1.34 billion in 2024, reflecting robust growth driven by the surging demand for high-speed data

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OSFP Optical Module Thermal Design: Structure, Heat Dissipation

This article explains contemporary thermal strategies for OSFP modules -- from fin geometry tuning to detachable heatsink covers -- and maps measured performance to practical

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Hot Topics, Cool Solutions: Thermal Management in Optical

Hot Topics, Cool Solutions: Thermal Management in Optical Transceivers In a world of optical access networks, where data speeds soar and connectivity reigns supreme, the thermal management of

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OSFP1600_and_OSFP-XD

To accommodate both high-power optical and dense copper solutions, the specification will define separate but compatible heatsink specifications for both optical and copper modules, allowing

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How is the Thermal Structure of OSFP Optical Modules

In this comprehensive guide, we'll dive deep into the thermal structure of OSFP optical modules, exploring their design principles, key components, heat

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Understanding Liquid-Cooled Optical Modules and Heat

Discover how liquid-cooled optical modules manage heat efficiently in high-speed data systems. Explore customized heatsink solutions.

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Advanced Thermal Management Strategies , Molex

Thermal management plays a pivotal role in enhancing the reliability and efficiency of high-power pluggable optical modules. Explore current and future trends.

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THERMAL OPTIMIZATIONS FOR OSFP OPTICAL TRANSCEIVER

There is a need for solutions to enable OSFP modules to operate at higher bitrates while maintaining compliance with the OSFP module specification.

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OSFP-IHS vs. OSFP-RHS: Choosing the Right Thermal Solution for

What Is OSFP-IHS (Integrated Heat Sink)? OSFP-IHS is the standard and most widely deployed OSFP thermal solution. In this design, the heat sink is fully integrated into the optical

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Heat Sink Design Guide & Considerations

Learn about heat sinks and heat sink design, including the calculations involved in defining the proper heat sink for your application. Learn

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Cooling Solutions for High Power Transceivers

Optical Transceivers such as OSFP modules are now very difficult to cool with traditional heatsinks. Optical Transceiver Thermal Challenges &

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(PDF) The Optimal Design of Heat Sinks: A Review

Because the performance of heatsinks is influenced by air velocity , the type of material , material properties (high thermal conductivity, specific

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OSFP-IHS vs. OSFP-RHS: Choosing the Right Thermal Solution

for

Compare OSFP-IHS and OSFP-RHS thermal designs for 800G and 1.6T optical modules. Learn how to choose the right OSFP solution for air-cooled, liquid-cooled, and AI data center

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Industry Developments: Cooling QSFP Optical

The major enabler of this performance increase is the QSFP optical transceiver. QSFP is the Quad (4-channel) Small Form-Factor Pluggable optical

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400G OSFP Deployment Guide: Heatsink Types, Power

400G OSFP optical modules come in two physical heatsink configurations: flat-top and finned. While the finned heatsink is the standard configuration for most switches, NVIDIA ConnectX-7

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