

Article Overview

Core selective switches (CSS) enable low-insertion-loss, low-crosstalk optical routing for multicore fiber networks, supporting scalable spatial channel connectivity.

Overview of Core Selective Switches

A core selective switch (CSS) is an optical spatial switch designed to route signals between individual cores of a multicore fiber (MCF) with minimal loss. Recent designs employ microlens-based MCF collimator arrays combined with MEMS mirror arrays, allowing precise alignment and polarization-independent high reflection across a wide wavelength range (1500-1630 nm) while maintaining compact form factors (~50 mm) (source:).

Key Performance Metrics

- o Insertion Loss: CSS prototypes demonstrate low insertion loss ranging from 1.2 to 2.7 dB, which is critical for maintaining high optical signal-to-noise ratio (OSNR) in long-haul or high-capacity networks (source:).
- o Polarization Dependent Loss (PDL): Less than 0.25 dB, ensuring consistent performance regardless of signal polarization (source:).
- o Crosstalk: Low crosstalk (

With the spread of GaN semiconductors, which can operate at high frequencies, switching power supplies have been upgraded to

Calculate transformer iron and copper losses accurately using IEC and IEEE standards with our easy-to-use Transformer Losses

Key learnings: Soft Magnetic Materials Definition: Soft magnetic materials are defined as materials that can be easily

Transformer losses occur as energy dissipates through core losses, copper losses, and stray load effects. These inefficiencies

A core switch is the backbone of a large-scale network, designed to handle massive volumes of traffic with ultra-low latency and

The core selective switch (CSS) is an optical spatial switch that has been recently proposed as a key building block to

Low-loss core switch inquiry

In this paper, we demonstrate a low-loss and broadband 1 × 8 thermo-optic selective switch utilizing bent directional

The advanced design significantly increases the performance, offering unprecedented low optical loss, little wavelength dependence

Traditional ways of calculating the loss in inductors and other kinds of magnetic components have well-chronicled

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Find out how to determine inductor (Core, DCR and ACR) power losses, including locating their source to reduce heat creation and

Abstract: A compact CMOS single-pole double-throw (SPDT) switch employing a parallel configuration of shunt transistors is

Specifically, inductor designs feature an additional Low-Frequency (LF) core pre- magnetization component and also a different

A Core Loss Calculation Method for DC/DC Power Converters Based on Sinusoidal Losses Abstract: Traditional predicted core loss

We experimentally show the insertion loss, polarization dependent loss, and crosstalk of the five core 1×8 CSS, and

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