D&T Photonics, Inc

Arrayed 2x2 Optical Switches

OVERVIEW FOR PRODUCTS AND RELATED TECHNOLOGY

All-optical switches, together with other central photonic components, such as optical splitters, multi/demultiplexers, tunable filters, and attenuators, are key factors in creating and improving a ubiquitous society of photonic networks. Thus, this kind of popular optical networks forms a new technological field-passive optical network (PON). Silica-based planar lightwave circuits (PLCs) are promising technologies and have provided all above photonic components for practical networks because of their compactness, mass-production, high reliability, and matching compatibility with fiber-based signal lines.

The Switch Units-2x2(1x2) has an alternating operating structure with the output ports. This structure implies that for any input signal, it has one selection of output port without an electric powerful signal (the off-state) and the other selection of output port with an electric powerful signal (the on-state). This kind of structure is especially suitable for the high-speed and high-frequent programmable ADD/DROP operations.

FEATURES

Reliable Silica-based PLC technology and advanced device structure, resulting in

1) High performance, including low insertion loss and power consumption, and compact device size;
2) Flexible applications for users because of multicasting/broadcasting of system;
3) Fast switching speed; and
4) Bi-directional switching.

KEY APPLICATIONS

1) In medium-scale re-configurable WDM integrated passive optical networks (WDM-PONs) for the broad applications, including optical intelligent communications, optical sensing systems and optical information processing systems, the optical cross-connect (OXC) is a commonly targeted network architecture, while the compact highly-arrayed 2x2 (1x2) optical switches can be used to implement random communication between the bus and the OXC systems.

2) Dynamically re-configurable OADM

In optical telecommunication systems, the optical ADD/DROP multiplexing (OADM) is a popular operation, while the 2x2 (1x2) optical switches must be deployed to implement the ADD/DROP operations.

Specifications

Items	Type I: Maximum values	Type II: Maximum values
Product Scale	2x2/arrayed	2x2/arrayed
Dimension (mm)	75x30x20 mm	75x30x20 mm
Wavelength	C-band	C-band
Insertion Loss (IL)	< 1.2 dB	< 1.5 dB
Crosstalk	-22 dB	-35 dB
Polarization Dependent Loss (PDL)	< 0.2 dB	< 0.3 dB
Switching Time	< 1 ms	< 1 ms
Return Loss	-45 dB	-55 dB
Electric Power	< 0.3W/Switch	< 0.6W/Switch
Wavelength Dependent Loss (WDL)	< 0.2 dB	< 0.3 dB

Chip photo-picture (A 5-arrayed prototype)